

FM 21-20

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M.A. OF PHYS. ED.

FIELD MANUAL

PHYSICAL READINESS TRAINING

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HEADQUARTERS, DEPARTMENT OF THE ARMY

MARCH 1973

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FM 21-20 PHYSICAL READINESS TRAINING - 1973

FIELD MANUAL }
No. 21-20 }

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 30 March 1973

PHYSICAL READINESS TRAINING

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PART ONE
PHYSICAL FITNESS LEADERSHIP
CHAPTER 1
CONCEPT OF DEVELOPING PHYSICAL READINESS

Section I. INTRODUCTION

1. Purpose

This manual is directed to leaders involved in planning and conducting physical readiness training. The contents establish a concept to be used in developing and maintaining the appropriate level of physical readiness required of all male Army personnel.

2. Scope

The manual content is organized into six parts to cover all aspects of physical readiness training as follows:

a. Part One contains guidance concerning physical readiness leadership from the platoon level upward to include staff planners, supervisors, and commanders.

b. Part Two outlines physical readiness training program guidance to support a variety of training situations.

c. Part Three is composed of the physical conditioning activities which, together with combative and competitive activities, are used to develop physical readiness.

d. Part Four contains the competitive activities that are also used to assist in the development of physical condition and achievement of full physical readiness.

e. Part Five consists of physical fitness tests and related materials to include standards.

f. Part Six covers the structure and functioning of the human body.

3. Comments

Users of this publication are encouraged to submit recommended changes and comments to improve the publication. Comments should be keyed

to the specific page, paragraph, and line of the text in which the change is recommended. Reasons will be provided for each comment to insure understanding and complete evaluation. Comments should be prepared using DA Form 2028 (Recommended Changes to Publications) and forwarded direct to the Commandant, United States Army Infantry School, Fort Benning, Georgia 31905.

4. Army Physical Fitness Program

The physical fitness program of the Army is a comprehensive program extending into all facets of Army life (Ar 600-9). This program consists of four parts as follows:

a. *Physical Readiness Training.* This segment of the program is part of the training effort to physically condition personnel during individual training, and in units employing group directed exercise programs. This manual contains specific guidance for organizing and conducting physical readiness training.

b. *Special Service Sports.* This part of the program offers individuals, or teams an opportunity to participate or compete in intramural or higher level sports activity designed to enhance morale and develop physical fitness (AR 28-52 and AR 28-1).

c. *Weight Control.* The control of body weight and physical fitness are closely related, therefore the cooperation of commanders and medical officers in the supervision and control of personnel in maintaining proper body weight is an important part of the Army physical fitness program (AR 632-1).

d. *Staff and Specialist Physical Fitness.* This part of the program applies to those personnel

who by their duty assignment are prevented from participating in a group-directed exercise program. In the modern Army large numbers of per-

sonnel are in this category and commanders must insure that they attain and maintain acceptable standards of physical fitness (DA Pam 21-1).

Section II. COMMAND ACTION

5. General

The physical readiness of individuals assigned to a unit is a command responsibility. This manual emphasizes a command-oriented approach to assist the commander in fulfilling his responsibility. The existing obstacles to efficient physical readiness training—time and facilities competing with other high priority tasks—are recognized. These obstacles confront every commander; therefore, achievement of the overall objectives of physical readiness training depends upon continuous command emphasis throughout all levels of command. One objective of this manual is to place such emphasis in proper focus. There are two general areas of responsibility in physical readiness training:

a. The first is a function of the commander at all levels and takes the form of command emphasis including planning, support, and supervision.

b. The second is on the lower level, where the company commander and platoon leaders implement and execute the program. The program cannot be successful unless *both* areas of responsibility are administered properly.

6. Fundamental Factors

There are four factors which are fundamental to this concept.

a. Physical readiness is as important to the successful accomplishment of the Army's mission as is proficiency in military skills, tactical and technical training, and materiel readiness. Considering America's policy of a flexible response to a variety of threats in variable environments, the physical readiness of individuals and units assumes ever greater importance.

b. Varying levels of physical readiness are required. Although standardization is desirable, the physical fitness standards to be achieved by every individual or unit need not be the same; for example, the physical standards required for a rifleman are different from the physical standards required for personnel in a supply or maintenance unit.

c. In the course of performing normal duties or missions, the time available and time used for physical readiness training must be balanced in proper context with the development of overall operational and materiel readiness of the unit.

d. It is a function of command to balance physical readiness requirements (individual and unit physical fitness) against the resources, time, and facilities which are available for the development of such fitness.

7. Application

Based upon an evaluation of his unit's mission, each commander will classify the military personnel in his command into one of the following categories (separate physical training programs will be established for each category):

a. *Combat and Combat Support.* All personnel assigned to divisional combat and combat support TOE units, who are less than 40 years of age and are not excluded by virtue of limiting physical profiles.

b. *Combat Service Support.* All personnel assigned to elements whose primary missions are to provide service support to combat forces, who are less than 40 years of age and are not excluded by virtue of limiting physical profiles.

c. *Personnel 40 Years of Age and Over.* All personnel 40 years of age and over who are not excluded by limiting physical profiles.

d. *Limited Physical Profile Personnel.* Personnel regardless of age who are designated by medical authorities as possessing limited physical profiles.

8. Standards

Attainment of the minimum standards listed below is a measure to determine if established objectives for each of these programs have been achieved.

a. Army Physical Fitness Evaluation (APFE) consists of seven tests. These tests are applicable to all segments of the male population in the Army and are designed to measure physical fitness. For testing purposes, personnel are grouped into specific categories and administered the appropriate test as listed below:

(1) *Advanced physical fitness test.* Administered to personnel in combat and combat support units, advanced individual training (AIT), and combat support training (CST) (chap 25).

(2) *Staff and specialist physical fitness test.* Administered to personnel in combat service sup-

port units and TDA units; also to students, faculty, and staff at service schools (chap 25).

(3) *Basic physical fitness test*. Administered to trainees undergoing Basic Combat Training (BCT) (chap 26).

(4) *Inclement weather/limited facility physical fitness test*. Administered only in lieu of the Advanced Physical Fitness Test, the Staff and Specialist Physical Fitness Test, and the Basic Physical Fitness Test (chap 27).

(5) *Minimum physical fitness test* (voluntary). Administered to personnel from age 40 to retirement who volunteer to take the test (chap 27).

(6) *Airborne trainee physical fitness qualification test*. Administered to applicants for the airborne course (chap 27).

(7) *Ranger/special forces physical fitness qualification test*. Administered to applicants for the Ranger and Special Forces Courses (chap 27).

b. The minimum total point score for personnel taking any test of the APFE is 300 points.

c. To be considered combat ready personnel assigned to combat and combat support units, trainees in AIT, and CST are required to achieve a minimum score of 60 points in each event contained in the Advanced Physical Fitness Test.

d. There is no minimum point requirement per event for any of the remaining tests. However, personnel taking these tests must participate in and complete each event and achieve a minimum total score of 300 points.

Note. Complete scoring tables and instructions for administering the various tests of the APFE are contained in chapters 24 through 27.

e. *Standards for limited physical profile personnel* are to be determined by local medical authorities.

9. Control

a. The commander, in recognizing the need for

various type programs, within his command, can use a variety of physical training techniques to achieve the desired results. Efficiency in physical training can be boosted by engaging in physical activity during short periods as opposed to allowing long and frequent breaks between longer sessions. A program which recognizes and uses frequent but short periods of physical training can produce effective results in improving physical fitness. These short periods can be conducted by men, individually or under supervision, in small groups in or near their working area. The types of physical activities and physical training techniques which can be used are contained in parts three and four of this manual.

b. To evaluate the effectiveness of the physical training programs, all military personnel under 40 years of age should be tested at least twice annually (AR 600-9). Should a commander wish to conduct an evaluation more frequently, it is recommended that approximately 3 months elapse between administration of each test.

c. For those personnel under 40 years of age who fail to attain the minimum standards on the appropriate physical fitness tests, corrective measures should be administered (chap 9) and a retest given. Appropriate personnel action or medical reclassification should be considered in those cases where individuals demonstrate a physical ineptness.

10. Support Requirements

The development of physical readiness is marked by sound program planning and management, the assignment and training of leaders who are motivated to achieve the objective, and the application of funds to provide needed facilities. The attitude and interest of company, battery, or troop leadership is of great significance in attaining a state of individual and unit physical readiness.

CHAPTER 2

DEVELOPMENT OF PHYSICAL READINESS

11. Total Military Fitness

Total fitness for combat includes technical fitness, mental and emotional fitness, and physical fitness. If any of these attributes are lacking, combat effectiveness suffers proportionately. Without technical fitness, a soldier lacks the knowledge and skill to fight; without mental and emotional fitness, he lacks the incentive and confidence to fight; and without physical fitness he lacks the physical ability and stamina to fight.

12. Physical Fitness

Physical fitness in a soldier includes a healthy body, the capacity for skillful and sustained performance, the ability to recover from exertion rapidly, the desire to complete a designated task, and the confidence to face any eventuality.

13. Physical Fitness Considerations

To satisfy the unit objective, physical readiness training must be carefully planned and executed at the company, troop, and battery level. Leaders must understand the many considerations which are involved in the development of an effective program. These considerations are divided into three categories: physiological, psychological, (chap 4), and program planning (chap 5).

14. Physiological Considerations

Men vary in their physical makeup. Physiologically, the body reacts differently to varying degrees of stress. To attain the maximum program benefit without sacrificing the welfare of the men, there must be—

a. Development of the components of physical fitness (para 16).

b. Provisions for—

(1) Passage through the three stages of physical conditioning (para 17).

(2) The application of the principles of physical conditioning (para 18).

(3) Warming up and cooling off (para 20).

c. Consideration of—

(1) Climatic conditions (para 19).

(2) Age of participating personnel (para 21).

15. Types of Exercise

Basically there are two forms of exercises: isotonic and isometric. Each form of exercise is contained in activities to be found in this manual.

a. Isotonic. Isotonic exercises are those whereby the expenditure of energy is regulated and released during the repetitions performed. The regulated expenditure of energy is controlled by both the type of exercise and the individual's effort. This type of exercise is common to the majority of exercise and sport. Endurance, coordination, flexibility, and strength can be developed or increased through isotonic exercise.

b. Isometric. Isometric exercises are those whereby maximum effort is applied during a single contraction and held until the muscle energy is depleted. The individual exerts full force against an immovable object for a relatively short period of time (6 to 10 seconds) and then the contraction is repeated several times with a short period of rest between each contraction. This type of exercise develops only strength, therefore it has limited application.

16. Components of Physical Fitness

A sound body, free of disease and defect, does not in itself constitute physical fitness. Before an untrained soldier can be considered physically fit for combat, he must develop the following important traits.

a. Strength. Every soldier needs sufficient strength to perform the heaviest task he may encounter in routine and emergency activities. The basic areas of heavy duty strength required in a soldier are in the arm and shoulder girdle, abdomen, back, and legs. Muscles increase in size, strength, and firmness with regular and strenuous exercise. Without work, they grow flabby and weak.

b. Endurance. Each soldier needs sustaining

power to maintain his maximum ability without undue fatigue. There are two types of endurance:

(1) *Muscular endurance.* The soldier needs muscular endurance to fight the enemy under the most tiring combat conditions. Muscular endurance is characterized by the ability to perform continuous work over long periods of time. The ability to endure depends on the ability of the blood and circulatory system to deliver large amounts of oxygen and nutrition to the muscles while rapidly carrying away the waste products.

(2) *Circulo-respiratory endurance.* The development of *wind* (circulo-respiratory endurance) is necessary to maintain muscular endurance. Circulo-respiratory endurance depends on the efficiency of the blood vessels, lungs, and heart. The maximum effort a man can exert over a period of time is limited by his capacity to absorb oxygen and expel carbon dioxide. The average man's circulo-respiratory capacity can be greatly increased by exercise.

c. Agility. A soldier must be able to change direction quickly and as faultlessly as possible. The ability to react instantly and to maintain equilibrium during rapid changes of body position may save his life. This important characteristic of agility may be developed by conditioning exercises that require varied and rapid changes of body position on the ground and in the air (e.g., when jumping or falling).

d. Coordination. Coordination is the ability to move all parts of the body in a smooth, efficient, and concerted effort (commonly called timing). A well-coordinated individual does not make useless movements. He moves with precision and accuracy and thus saves energy. Coordination is best developed by practicing diversified muscular activities and skills affecting all body parts.

17. Three Stages of Physical Conditioning

Men who are *not* conditioned pass through the following stages in reaching the desired state of physical condition:

a. Toughening Stage. Approximately 2 weeks in duration and usually characterized by muscular stiffness and soreness followed by recovery.

b. Slow Improvement Stage. Approximately 6 to 10 weeks in duration and characterized by slow and steady improvement in the components of physical fitness until the desired level, or a high level, of fitness is attained.

c. Sustaining Stage. This stage goes on indefinitely in order to maintain the level of condition-

ing achieved by passage through the previous stages.

18. Principles of Physical Conditioning

To allow for adjustments in body functioning as the program progresses and to insure attainment of objectives, the principles of physical conditioning must be applied. These principles are:

a. Progression. In beginning stages the load must be moderate. Gradual progression from this low state of fitness to a higher state is possible through application of a progressive program.

b. Overload. To reach the desired level of fitness, the physical load must be increased as strength and endurance increase.

c. Balance. An effective program utilizes various types of activities and provides for development of strength, endurance, and coordination, as well as basic physical skills.

d. Variety. Some programs fail because the routine becomes boring. The most successful programs include conditioning activities, competitive events, and military physical skill development.

e. Regularity. There is no easy or occasional way to develop physical fitness. Regularity of exercise is a must, with daily exercise preferred.

19. Effects of Climatic Conditions

Temperature, both atmospheric and body, affects the physical performance of personnel. The proper maintenance of body temperature through warmup exercise, proper dress in cold weather, and removal or adjustment of clothing in hot weather, is necessary for effective performance and health. Climatic factors to be considered are:

a. Exercise in Hot Temperatures. Men can endure strenuous physical activity in hot temperature if they are given an opportunity to become acclimated, and if they take enough salt and water. It is essential to continue physical training programs in hot climates because men can better withstand hot temperatures when they are conditioned. Scheduling of training should conform to the provisions of TB Med 175.

b. Exercise at High Altitude. Certain problems are encountered in conditioning soldiers stationed in high altitudes because the heart undergoes greater exertion during exercise. It is particularly important that only light exercise be given in the early days of residence at such altitudes. A man's body gradually adjusts to high altitudes within a few weeks. After this adjustment, the men can

take progressively greater amounts of exercise (chap 30).

c. Exercise in Arctic Regions. Military duty in the arctic is so arduous that a high level of physical conditioning is essential. Due to the difficulties of carrying on physical conditioning exercises in extreme cold, the men should be conditioned to the highest level possible before they arrive in such regions. A sustaining program will then maintain the high level previously achieved. When exercising in cold weather, men should be required to remove excess clothing to prevent their becoming damp with perspiration.

20. Warmup and Cooling Off

It is a fundamental physiological principle that the men should warmup gradually before performing strenuous exercise. Such action speeds up the circulation to prepare the body to accept the overload and assists in preventing injury. After exercising, the men should be kept mildly active, walking or performing some other muscular activity until their breathing and temperature have returned to normal. The men should never be allowed to cool off too rapidly. In cool or cold

weather, they should put on additional clothing during the cooling-off period.

21. Physical Activity as Age Increases

In combat, where severe physical demands are made on troops, all men, regardless of their age, must be physically ready to meet the situation. There is no physiological reason for men to cease exercise or exertion as they reach 40 or any other age. Increased age usually brings increased responsibility which, in many instances, leads to a routine that is almost devoid of physical activity. The key to fitness with increased age is to continue exercising at a reasonable level up to and including exercise of a vigorous type (chaps 8 and 30). When compared to younger personnel, older personnel who have not regularly maintained a reasonable state of physical fitness will require a longer period to become fit. Older individuals generally will require a longer period of time to recover from physical effort than will younger men. If general health is good, there is ample evidence that older personnel can develop and maintain a degree of fitness which will permit vigorous activity and efficient performance of duties.

CHAPTER 3

PHYSICAL READINESS TRAINING

22. Physical Readiness

An important objective of training is the attainment and maintenance of operational readiness. Complete personnel readiness must include physical training and conditioning of men to sustain operations at any time and under all conditions of climate and environment. This combination of training to develop proficiency in physical skills and conditioning to improve strength and endurance results in physical readiness.

23. Necessity for Physical Readiness Training

The degree of physical fitness required of the soldier can be acquired only through physical exercise activities. The performance of purely military duties, such as drills and marching, is not enough to build all the desired areas of fitness. The softening influences of our mechanized civilization add difficulties to the problem of conditioning men and thereby make physical fitness more important than ever before. Even within TOE units, labor saving devices and mechanized equipment exert this softening effect. If men are to be developed and maintained at the desired standard of physical fitness, a well-conceived plan of physical readiness training must be a basic part of every training program. The soldier cannot be adequately prepared in any other way for the hard work and arduous demands associated with military life.

24. Objective

The overall objective of the physical readiness training program is to develop individuals who are physically capable and ready to perform their duty assignments or missions during training and in combat. To attain the objective of physical readiness, exercise activities must be aimed at—

a. Developing sufficient strength to perform required duties, and adequate endurance to sustain activity over a long period of time (chap 30).

b. Developing muscle tone adequate to maintain proper posture and reasonable weight control (chap 31).

c. Developing proficiency in certain military physical skills which are essential to personal safety and effective combat performance (chap 16). As skill is developed, agility and coordination will be attained. The essential skills are:

(1) *Running*—Distance and sprint running on roads and cross country.

(2) *Jumping*—Broad jumping, and vertical jumping downward from a height.

(3) *Dodging*—Change of body direction rapidly while running.

(4) *Climbing and traversing*—Vertical climbing of rope, poles, walls, and cargo nets. Traversing horizontal objects such as ropes, pipes, and ladders.

(5) *Crawling*—High crawl and low crawl for speed and stealth.

(6) *Throwing*—Propelling objects such as grenades for distance and accuracy.

(7) *Vaulting*—Surmounting low objects such as fences and barriers by use of hand assists.

(8) *Carrying*—Carrying objects and employment of man carries.

(9) *Balancing*—Maintaining proper body balance on narrow walkways and at heights above normal.

(10) *Falling*—Contact with the ground from standing, running, and jumping postures.

(11) *Swimming* (in specialized situations)—Employment of water survival techniques.

d. Instilling certain character traits which are beneficial to successful accomplishment of military missions to include:

(1) *Confidence*—Developing confidence through achieving progressively more difficult tasks as physical ability develops.

(2) *Aggressiveness*—Participation in combative activities and contests to develop desire and willingness to overcome an opponent.

(3) *Reaction under pressure*—Training the soldier to think and to act quickly while under pressure is desirable. Competitive contests and game situations are good training vehicles for the development of this trait.

(4) *Teamwork*—The trait of working together as a team can be developed through competitive events in which a number of men must coordinate their efforts in accomplishment of a physical task.

25. Benefits of Exercise

The benefits of exercise are not always understood. Some of the more important products of exercise are listed below.

a. Muscular tone is improved and, at the same time, muscular strength and endurance are developed.

b. Circulo-respiratory endurance, or *wind*, is improved through a process of opening up dormant lung capacity to absorb greater amounts of oxygen.

c. Circulation of the blood is speeded up and extended to a greater portion of the body as the force exerted by exercise forces the blood to service all parts of the body. The efficiency and effectiveness of the heart, lungs, and blood vessels are improved.

d. Flexibility is maintained. A wider range of muscular movement is possible and the ability to rapidly accomplish a greater number of physical skills is developed.

e. Elimination of body waste is regulated and assisted by bending and twisting of the body and the general speedup of body processes caused by exercise.

f. Tension is often relieved through the working off of excess nervous energy. Participation in exercise assists to relieve daily worries and cares.

g. Sleep is often improved because of the natural relaxation which follows exercise. A byproduct of sound sleep is often relief of tension.

h. Control of obesity (fat) is made possible by using up excessive amounts of fat-producing food elements.

i. Susceptibility to injury is reduced through exercise. Muscles, tendons, and joints are strengthened and injuries such as hernia, back strain, and joint sprains are less likely to occur if muscles are maintained in proper tone.

26. History of Army Physical Readiness

Every war in which the US has been involved, since 1860, has revealed the physical deficiencies

of our men during the initial periods of mobilization. This realization followed the Civil War and has recurred regularly in each national emergency.

a. Training programs in each war were geared to the physical need of the era and success was dependent upon the amount of time available during training to physically prepare troops for battle conditions. Frequently, casualties in initial engagements were attributed to the inability of our soldiers to physically withstand the rigors of combat over rugged terrain and under unfavorable climatic conditions, yet our men have stood the test of battle when properly prepared.

b. During World War II the first physical conditioning doctrine that could be scientifically justified by testing procedure was introduced. As the war progressed, this program was effective in the physical conditioning of millions of men for combat.

c. Postwar periods have traditionally been a time of consolidation, and unfortunately some leaders have considered the conditioning phase of the training program to be a wartime tool. With such a philosophy prevalent between wars, physical readiness was relegated to a place of secondary importance resulting in a serious lowering of combat effectiveness. The initial commitment of troops in Korea was a dramatic display of this failure to recognize the extreme physical nature of warfare.

d. Over a period of years and the course of several wars, the costly lessons learned from our past military experiences led to an increasing interest in the physical condition of the fighting man. With this interest has come the ever increasing realization that our troops must be well conditioned to operate effectively. No longer can we afford emphasis on physical fitness during wartime and de-emphasis during peacetime. It is evident that, in spite of increased mechanization and modern weapons, physical readiness retains a vital place in the life of each individual soldier and in every unit within the Army.

e. Commanders are well aware of the need for rugged and well-conditioned soldiers, yet the daily operational demands of housekeeping, maintenance, support, training, operations, and other time-consuming tasks make it necessary that commanders *create* the opportunity for frequent, regular, and vigorous exercise periods to insure the avoidance of past errors.

CHAPTER 4

PHYSICAL READINESS LEADERSHIP

Section I. GENERAL LEADERSHIP RESPONSIBILITIES

27. Purpose and Scope

a. The purpose of this chapter is to outline physical readiness responsibilities, qualifications, and duties of instructors, commanders, staff planners, supervisors, and unit leaders.

b. The purpose of this section is to provide information relevant to the leadership required in assuring success of the physical readiness effort. In the full development of a man's total resources the process is not all physical. To be effective in developing physical readiness, leaders must realize that mind and attitude are also important to success. The more important psychological considerations are:

28. Psychological Considerations

a. Understanding the Value of Physical Readiness. A desire to be physically ready should be created in all personnel. Motivation is increased and men take greater interest in their individual physical fitness if they understand the value and benefits of vigorous exercise. When men realize their efforts are an investment in their own personal welfare, it should not be difficult to obtain their cooperation. Men should understand the objectives, the benefits, and the value of each type of exercise activity contained in their program. Men should also understand the relation of physical readiness to survival in combat.

b. Positive Approach. Physical readiness training is strenuous and demanding. It is a simple matter for a soldier to mangle if he chooses to do so, and for this reason it is a responsibility of leadership to create an atmosphere of desire and motivation. Nothing should be done to destroy this attitude, in fact it should be fostered. A negative approach must not be identified with physical readiness training.

c. Maintain Motivation. Any tendency on the part of leaders to administer punishment to individuals who appear not to be complying with proper form, or appear not to be doing their best, is to be discouraged. Punitive measures in the form of multiple repetitions of a physical activity may do more harm than good. A positive form of leadership should be utilized with men who are having difficulty, and only in *unusual* cases should fear of punishment be the motivating factor behind good performance.

d. Seek Cooperation and Develop Morale. In a program where maximum physical stress is placed upon the soldier, it is necessary to gain his cooperation. Favorable reaction is enhanced by proper planning and organization, reasonable yet not easy requirements, use of competition, and application of a progressive program resulting in physical fitness. With the development of physical fitness there is an equal development of morale.

Section II. COMMAND AND SUPERVISORY FUNCTIONS

29. Command Functions

Commanders should take the following actions to support physical readiness training:

a. Instill command interest in development of physical readiness which will assure success, and indicate to subordinate personnel the importance of this training to the welfare of the organization.

b. Allot and monitor sufficient time for the achievement of objectives. The substitution of other training or routine duties for scheduled physical readiness training is unwise.

c. Assign and utilize qualified personnel to supervise and conduct physical readiness training. If leadership personnel are not competent, necessary action should be implemented to locally train an adequate number of leaders.

d. Make necessary facilities and funds available to support a program which will be sufficient to develop the physical readiness of all personnel.

e. Assure that the physical fitness of individuals is measured in order to evaluate progress and to determine if the program is successful.

30. Supervisory Functions

Leaders responsible for planning and supervising physical readiness training should take the following actions to provide effective training:

- a. Assure the preparation of physical readiness training schedules which will apply the principles of physical conditioning (para 18), and see that these schedules are developed with a particular type of program plan as a goal (para 39).
- b. Provide for wide participation of as many personnel as possible. All personnel, regardless of position or age, will benefit from regular exercise. In some instances special efforts are necessary to overcome obstacles to regular and frequent training. Special effort is also necessary to insure remedial conditioning is provided for personnel who are physically substandard, and for all personnel after extended absence from the conditioning process due to leave, sickness, injury, and travel (chap 9).
- c. Prevent improper use of time allotted for physical readiness training. Time wasting includes unprepared instructors; assignment of a group larger than a platoon to one instructor; progression which does not keep pace with the physical development of the men; extreme formality which usually emphasizes discipline at the expense of physical fitness; inadequate equipment or facilities which require waiting periods between

exercise; and lengthy rest periods which interfere with the application of overload.

- d. Check to determine that the program contains vigorous physical activity. Such activity progressively places greater demands upon the body during each exercise session, and also over the duration of the training program. To be of benefit, exercise must tire the muscles and cause the heart rate to increase its rate of beat.

- e. Determine that each physical fitness program has an overall objective (para 24), and observe training as necessary to insure that the objectives are being achieved.

- f. Observe physical readiness training to insure the use of a positive approach. To implement a positive attitude, small unit leaders and instructors should have an understanding, fair, and sympathetic attitude; recognize individual differences; and motivate men toward their best effort.

- g. Guide and inform small unit leaders and instructors concerning approved techniques, directives, and literature. As necessary, arrange for local training of instructors to include clinics, conferences, schools, and demonstrations (app B).

- h. Determine the effectiveness of physical readiness training by observation of training, analysis of field inspection reports, and analysis of individual physical fitness test scores which may be combined to reflect the fitness of the unit.

Section III. SMALL UNIT LEADERS AND INSTRUCTORS

31. Responsibility

The instruction and conduct of physical readiness activities is the function of platoon leaders and personnel assigned as instructors. Experience has proven the effectiveness of physical fitness development when conducted in squad and platoon-size units under direct control of the leader with overall supervision being exercised by the parent unit commander; for example, the platoons of a company all exercising at the same time under the general supervision of the company commander, with each platoon conducting the assignment separately and under its own leadership.

32. Your Assignment

You may be a small unit leader or an instructor in a school or training center. If you are a unit leader, you may be assigned to a combat or support unit. In this assignment you will be responsible for all training to include physical readiness training. In a different situation you may find

yourself assigned as a physical readiness instructor in a school or training situation where your time is fully devoted to physical readiness development. In either case you hold an important position of leadership as related to the physical fitness of your men.

33. Your Training

You may come to the assignment either fully or partially trained, or this may be your first responsibility for the development of physical fitness. If you have had previous training through experience, make certain your information is supplemented with study of this manual to determine that your experience has been correct. If you have had professional training in physical education during civilian life, but no Army experience in this area, you should also supplement your preparation with information from this manual to learn the methods used by the Army. If you are new to this area of training, take advantage of various ways to learn including attendance at

available leader training courses in this subject area, self study and practice, and discussion with experienced leaders.

34. Your Objective

As a physical readiness training leader you have two general objectives. The first is to motivate your men to want to be physically fit, and second, to conduct a program that will develop a high degree of physical fitness. Motivated men will react enthusiastically to the program and such an approach to physical fitness aids greatly in achieving the local program objectives.

35. Your Personal Fitness

As a small unit leader who must instruct and demonstrate fitness activities, it is necessary that you be in such physical condition to do the job without undue physical stress. Your physical condition should enable you to do those things you must demonstrate. Your strength, endurance, posture, and skill should set the example. This does not mean you must excel, as your men do not expect championship performance; at the same time they do expect, and deserve, a creditable showing of fitness for the job.

a. Naturally, a previous assignment of a sedentary nature, or the passage of the younger years, makes it necessary to expend effort to regain an acceptable degree of physical fitness.

b. The use of assistants as demonstrators is permissible for specific functions, yet this will not always be feasible. You must look the part and be in a state of good physical fitness to command the respect of your men.

36. Your Knowledge

It is necessary for you to possess three types of knowledge to properly administer physical readiness training. They are—

a. *Leadership Knowledge.* You must understand men, know how to lead and motivate them, understand how they learn, and apply this knowledge wisely in the day-to-day training situation.

b. *Understanding of Body Functioning.* A more intelligent application of an exercise program can be made when you understand and apply the principles which govern the physical conditioning of the body. You are in a better position with such knowledge to prescribe, adjust, and regulate dosage and progression as necessary to attain fitness (chap 30).

c. *Technique of Exercise Activities.* You will need to understand the contribution each type of physical activity makes to physical fitness, and how each activity is applied properly during the development of such fitness. Skill to demonstrate and lead the various activities is necessarily a part of technique and is invaluable to the instructor, or small unit leader (app B).

PART TWO
PHYSICAL READINESS TRAINING PROGRAMS
CHAPTER 5
DEVELOPING PHYSICAL READINESS PROGRAMS

Section I. CONSIDERATIONS IN ASSEMBLING PROGRAMS

37. Purpose

The purpose of this chapter is to inform the personnel who plan and administer physical readiness training as to the proper procedure in developing programs to meet organizational objectives and standards.

38. Scope

This chapter contains program planning guidance including factors to be considered in developing programs; definitions of activity packages and systems of exercise; how to assemble a program; making a proper selection of activity packages; and systems used in implementing the packages.

39. Program Considerations

To implement workable and effective programs (AR 600-9) the planner must—

a. Recognize the Needs of Troops. Troop units are inherently different in their organization and mission. The physical readiness program must be tailored to the mission and to the current state of physical condition as represented by the majority of personnel. Programs to meet this need are of the following types:

(1) *Developmental programs.* Troops in a poor state of physical readiness are in need of a program which will develop strength, endurance, physical skills, and character traits which are beneficial to successful accomplishment of military missions (para 24). Such programs should be applied progressively to gradually achieve the desired level of fitness and skill.

(2) *Maintenance programs.* Once troops, through participation in a developmental program, reach the sustaining stage of conditioning (para 17), their goal is then to maintain this level of achievement by participation in a maintenance program.

(3) *Remedial programs.* The term *remedial* is usually applied to those individuals or groups of individuals who possess substandard physical fitness. For example, a remedial physical conditioning program could be applied to personnel who are overweight, who fail to reach physical fitness test standards, or who have missed extended periods of conditioning due to illness, injury, extended hospitalization or other causes of absence (chap 9).

(4) *Leadership development programs.* Programs or courses of instruction designed to develop physical fitness leaders are in constant session throughout the Army. Such instruction is located in Drill Sergeants Schools, NCO Academies, unit schools and clinics, and in branch service schools. These leadership courses may have the dual objective of providing knowledge and techniques, and at the same time the student is being physically conditioned.

b. Consider Time Available. The amount of time for training operations varies considerably. However, every unit can find time to conduct physical readiness training. Frequent short intervals are preferred over occasional longer periods. The general demand for training time is so urgent that every minute of time allotted for physical readiness training should be utilized. By careful planning and organization leaders can make effective use of time scheduled for this purpose.

c. Organize for Various Size Groups. It is essential to stress exercise rather than formality. Men must complete the program where they are—on the training field, in the motor pool, on the range, next to the classroom, in the office area, in the shop, aboard ship or elsewhere. It is not always possible to assemble company-size units. Platoon-size groups are more appropriate for the proper conduct of physical conditioning activities. In certain situations it may be necessary to operate ex-

ercise programs for section- or squad-size units. This manual outlines programs for all situations and types of organizations.

d. Provide for Climate and Exercise Area. In programing and scheduling, the climate and terrain govern the selection of activities.

(1) Seasonal changes cause differences in temperature, rainfall, wind chill, and snow. These changes should be anticipated as such factors will dictate the appropriate type of program. When weather conditions are anticipated to be adverse, inclement weather plans should be part of the schedule.

(2) Local terrain and available exercise areas may also govern the selection of activities and the type of program which can be adequately supported. Some activities, due to minimum support and space requirements, can be completed in any area.

e. Plan for Seasonal Change. As most physical readiness training is conducted out-of-doors, it is necessary to recognize seasonal change. A program should be divided into fall, winter, spring, and summer parts. In addition to changes of weather, the light conditions change. For example, an early morning program started in the summer will have ideal light conditions, yet in the fall or winter season, darkness will occur at that same hour and interfere with the conduct of the program. Programs should be developed in seasonal

blocks and provisions made for anticipated changes in conditions.

f. Consider Needed Facilities. An excellent program can be conducted with practically no facilities since there are exercises which require no equipment; however, a better program can be developed when supported by certain facilities and items of equipment. Proper command support, plus ingenuity, will solve this problem. (Items of equipment, when necessary to support the recommended exercises, are included in the chapters on exercise activities.)

g. Specify Appropriate Uniform. The uniform worn for exercising depends upon the season, the weather, and local regulations. All men should be dressed alike. Undershirts are preferred as the upper garment when the weather permits. A uniform that restricts free movement of the body should not be worn when exercising.

h. Consider Availability of Instructors. Leaders who can lead and direct the scheduled activity must be available. Organizational units should train junior officers and NCOs down to squad or section leaders to instruct and lead the various activities (app B).

i. Secure Command Support. Prepare and brief the commander to assure his full understanding of the objectives and administration of the program. The full support of the commander will greatly improve the chances of success.

Section II. SELECTION AND SCHEDULING OF ACTIVITIES

40. Exercise Activities

After considering the impact of physiological factors (para 14), psychological factors (para 28), and program factors (para 30), the planner must determine the exercise activities which will be appropriate to include in his program. An exercise activity is a single means of exercise usually identified by the name applied; for example, running, log exercises, and obstacle course.

41. Activity Packages

Many of the physical activities prescribed in this manual are arranged in prescribed sequences known as *activity packages*.

a. An activity package is a number of exercises of the same type, assembled as a group or a set, and arranged in a specific sequence. Exercise packages are organized in such a manner that *not more than 15 minutes* will be required to complete the execution of any package.

b. Each type of activity is explained in later chapters. The number of available drills, tables, or circuits, the manner of organization, and the contribution each makes to the total program are covered. Full understanding of this information will greatly assist in developing effective programs.

c. Various designations are used to identify these exercise packages; for example, conditioning exercises when arranged in a set order are known as "drills," and other packaged activities are designated as "tables" or "circuits." The following activities are contained in packages:

- (1) *Activity packages for groups.*
 - (a) Conditioning Drill One.
 - (b) Conditioning Drill Two.
 - (c) Conditioning Drill Three.
 - (d) Rifle Drill.
 - (e) Log Drill.
 - (f) Grass Drill.
 - (g) Running Tables.

- (h) Guerrilla Tables.
- (i) Circuit-Interval Table.
- (j) Combatives Tables.
- (k) Relay Tables.
- (l) Strength Circuits:
 1. Fixed Circuit.
 2. Movable Circuit.
 3. Simplified Circuit (Circuit-Interval

Table).

(2) *Activity packages for individuals.*

- (a) The 6-12 Plan.
- (b) The Chairborne Conditioner.
- (c) Weight Training.
- (d) Isometric Exercise.

42. Advantages of Packaged Activities

The use of exercise packages simplifies the scheduling and conduct of exercise and results in the following benefits:

a. Schedule development is simplified as the planner assembles packages which will satisfy the training objective. There is no need to deal with selection of individual activities or to be concerned about the amount of time to be expended on each.

b. Any 15-minute period can be used to perform an activity.

c. If longer periods of time are available or if the objective demands, several packages can be assembled to provide a more complete or longer period of activity.

d. Men are assured a balanced set of exercises or activities as each package is carefully arranged to reach all muscle groups.

e. The instructor can concentrate upon the conduct of a vigorous workout as he need not concern himself with selecting the type and duration of the activity.

43. Nonpackaged Activities

There are several types of activity which are not packaged. Activities in this category are obstacle courses, combat water survival swimming, team contests, and team sports. If time permits, these activities can be scheduled in combination with packaged activities, or they may be scheduled separately. Normally a longer period of time is required to conduct one of these activities; for example, most of the nonpackaged activities require a 50-minute period to satisfactorily complete their objective. The benefits of these activities should not be overlooked in the scheduling of physical

readiness training as some desirable objectives cannot be attained without their use.

44. Systems of Exercise

Several systems of exercise are available and various activity packages can be applied through the use of these systems. Each system is based upon a method of specific organization as follows:

a. *Single Activity System.* A system in which the squad, section, or platoon leader assumes command of his unit at the beginning of the exercise period. He immediately moves his unit to a pre-designated exercise site at double time, forms his unit in a circle around him, grounds clothing and equipment as appropriate, and quickly moves into the exercise routine prescribed for that period. There is usually no time to teach; therefore, the men must know the activity to be used. At the conclusion of the 5- to 15-minute period, he returns his unit to the instructional area at double time and releases his unit for the next scheduled activity.

b. *Progressive Activity System.* A system in which several activity packages are completed by all men (company or platoon) in the same order during the period. For example, Drill One followed by dual combatives, and finally a 1-mile run. This system is usually progressive from a warmup activity such as Drill One, to an activity which contributes in a major way to one of the objectives such as the development of aggressiveness through combatives, or to a circulo-respiratory development activity such as running.

c. *Rotating Activity System.* This is a system where the same number of activities or stations is used as there are platoons in the company. Each platoon rotates through each station in turn. With four platoons in a 50-minute period about 10 minutes can be devoted to each station, or with three platoons approximately 15 minutes is available at each station. Activities must be of a type that can be covered in the time allotted. For example, with three platoons Station 1 could be Conditioning Drill One; Station 2, Running; and Station 3, a Team Contest.

d. *Circuit System.* In this method a number of stations are set up to provide various types of exercise. Equipment and/or items of apparatus are usually employed. The idea is to keep all men busy and exercising vigorously for a short period of time at each station. The fixed strength circuit and the movable strength circuits are examples of this system (chap 15). Station changes must be rapid and the exercise must be started quickly after such change as the time period at each sta-

tion is short. Since the objective is to exercise at top speed, the motivation comes from frequent changes of activity by moving to another station featuring a different type of exercise. Rotation by groups continues until all men have covered all stations.

e. Interval System. This type of training stresses the development of strength and endurance. It involves heavy work for a specified time, alternated with lighter work and recovery. At no time during the workout does the exercise stop. This procedure is repeated and the intensity increased gradually as exercise tolerance permits, but always with adequate recovery. As physical condition improves, dosage increases. The important factor involved is stress, recover, stress, recover, and so on. This system is often applied through running, but other activities of a continuous nature may also be used. An example is the Circuit-Interval Table (chap 15).

45. Procedure to Apply in Determining Program

The planner should follow these steps in developing a program:

a. Evaluate the unit in view of the psychological, physiological, and program considerations with emphasis upon unit objective and time available.

b. For each day's program select an activity package, or a combination of activities which will contribute to the objective, and then determine the system to be used in implementing the selected activities.

c. In deciding upon the system to use in implementing the selected activities, the choice will be influenced by the unit objective and the applicable program considerations outlined in this chapter. There are several possible choices and much opportunity for flexibility in program development. For example, the weekly program may contain various exercise packages, systems, and time periods. This flexibility is illustrated in chapter 7. Additional guidance is contained in chapters which follow on physical training program planning for various types of organizations and personnel.

CHAPTER 6

PHYSICAL READINESS DURING INDIVIDUAL TRAINING

46. Objective

The physical readiness objective during individual training is to develop a level of physical fitness in the individual to support his performance of duty.

47. Application

The content of this chapter is applicable to basic combat and advanced individual training. Program content for these two phases of training is prescribed by current Army directives. The physical readiness training specified by these directives is vigorous and progressive and, coupled with other types of training received during BCT and AIT, results in well-conditioned replacements.

a. Army Training Programs. The program of training for Basic Combat Training (BCT) is specified by ATP 21-114, and for Modified Basic Training (MBT) by ATP 21-111.

b. Army Subject Schedules. The outline of physical training for BCT is contained in ASubjScd 21-37. Other closely related training which makes a major contribution to physical readiness during BCT is contained in ASubjScd 21-150. Advanced Individual Training (AIT) is specified by branch army subject schedules which are keyed to the MOS specialty for which individuals are to be trained.

48. Basic Combat Training

Recruits report for BCT in various degrees of physical condition and at various physical skill levels. During BCT they pass through the toughening stage and are well within the slow improvement stage of conditioning (para 17) by the end of the training cycle.

a. Program Content. The BCT program of physical readiness consists of physical training and physical contact-confidence training.

(1) Army Subject Schedule 21-37 provides a standardized program allotting approximately 4 hours per week for physical training. The schedule features progressive and vigorous physical activity designed to develop strength, endurance, coordination, explosive power, and basic military

skills such as running, jumping, carrying, and crawling.

(2) A means of providing the recruit an opportunity to engage an opponent in strenuous personal combat and to develop confidence is afforded outside of physical readiness training. This training provides the recruit a chance to test his skill against an opponent in bayonet training, pugil training, and against the obstacles of the confidence course. This varied training is designed to teach skills and techniques enabling the recruit to overcome an opponent, to instill confidence in his own ability, to develop his aggressiveness and will to win, and to afford additional opportunity to develop physical fitness.

b. Posture Training. The development of good posture and proper bearing (chap 31) is not confined to a few minutes' instruction during the training day, but is a constant factor during the BCT program. This is true whether the recruit is standing, walking, or sitting. Recruits develop good posture by development of muscle tone to assist in holding the body parts in the proper alignment.

c. Evaluation of Physical Fitness. The recruit is administered the Basic Physical Fitness Test at the beginning and at the end of the training cycle. He must meet the Army minimum score of 300 points on the final test.

d. Remedial Training. Training companies should conduct remedial physical conditioning as the situation warrants (chap 9). If it is clear the recruit cannot perform the physical tasks of BCT, or due to extremely poor physical condition cannot improve fast enough to keep up with the pace of the training routine, then he should be transferred to the Special Training Company for special attention.

49. Advanced Individual Training

Although the concentration during advanced individual training is upon technical and branch oriented subjects, the physical readiness aspect of this training must not be neglected. Training and combat operations are largely physical and stren-

uous in nature. To maintain and improve the physical base established during BCT, a time block for physical training is provided during AIT. This training is standardized in length for all personnel at 8 hours per week.

a. Program Content. The time allotment and scope for physical training are contained in appropriate MOS designated branch Army Subject Schedules. Exercise activities designed to support this time allotment are contained in ASubjSed 21-37. This schedule is intended to maintain and improve the level of fitness attained in BCT. In cases where the branch requirement for physical fitness (following AIT) is in excess of a maintenance level, the branch service school can increase the intensity of the program during the preparation of the specific MOS Army Subject Schedules.

b. Evaluation of Physical Fitness. The soldier in AIT is administered at least one Advanced Physical Fitness Test during the training cycle. He must attain or exceed the 60-point level on each event and achieve the minimum score of 300 points on this test.

c. Remedial Physical Conditioning. With the satisfactory completion of strenuous physical fitness preparation during BCT, there should be only a minimum requirement for remedial physical conditioning during AIT. If some men are below standard, the training company should develop a remedial program (chap 9) to overcome the problem.

50. Scheduling

The physical training subject schedule for individual training (ASubjSed 21-37) will furnish valuable assistance to the training officer in integrating physical training into the master training schedule. Lesson plan outlines for the hours allotted are contained in the subject schedule and should be of assistance to the instructor in development of detailed lesson plans.

a. This program is designed to make the most of the limited time allotted to physical training. The subject content adheres to accepted current concepts of physical conditioning. The effectiveness of the instruction outlined in this schedule depends upon the caliber of leadership.

b. The hours allotted to physical training are considered to be the minimum, and any lost time seriously affects the progression necessary to insure success of the program. The tendency to call off physical training due to inclement weather should be held to a minimum. Since the program can be conducted anywhere, full use should be made of hard surface and blacktop areas when the ground is wet.

c. The time of day for training is unimportant except for the hour immediately following the morning and noon meals. Some units have initiated "before breakfast" physical training over and above the regularly allotted hours. If scheduled, this period should not exceed 15 to 20 minutes of not too vigorous activity, terminating at least 30 minutes before breakfast.

d. If the commander desires additional short periods of physical training, one of the packaged activities should be selected. This conditioning period can be accomplished in 15-minute periods during midmorning or midafternoon, or at the end of the training day.

e. Valuable physical conditioning is derived from the more vigorous phases of training in such basic military subjects as tactical training, patrolling, technique of fire, close combat, and marches. These items of individual and field training should be thoroughly exploited to add to the all-round physical conditioning of the individual trainee. In addition, movement to and from training areas can be used to good advantage by double timing, speed marching, or a combination of both. Definite procedures should be established as control measures, and are best accomplished in the training center standard operational procedure on concurrent physical conditioning.

51. Leadership

The time devoted to learning the techniques of leadership in training schools is never adequate to master an entire subject. For this reason officers who serve as platoon leaders or company training officers, and noncommissioned officers who serve as drill sergeants, should continue their preparation by study of this manual (chap 4 and app B).

CHAPTER 7

COMBAT AND COMBAT SUPPORT TROOP PROGRAMS

Section I. INTRODUCTION

52. Objective

The objective of physical readiness training for combat and combat support troops is to develop individuals who are physically capable, and units that are physically ready, to perform their duty assignments and missions during training or in combat.

53. Application

This chapter pertains to the development and maintenance of physical readiness during basic unit, advanced unit, field exercise, and operational readiness training phases for combat and combat support troops, and also combat service support troops (para 7).

a. The number of hours allotted for basic and advanced unit training depends upon the type of unit and its mission. Each branch of service develops Army Training Programs (ATP) which specify the time allotted for physical training.

b. At the conclusion of basic unit, advanced unit, and field exercise periods of training, the unit enters operational readiness training. During this training, the commander specifies the amount

and type of all training to include physical readiness training.

c. During all unit training, every member of the unit, regardless of position or age, must participate in vigorous exercise to attain the objective. Upon assignment to a unit, the individual generally has reached the end of the slow improvement stage of conditioning. Therefore, during the early part of unit training, he normally reaches the sustaining stage. Walking, running, and climbing during unit training contribute to a high level of fitness, but these alone are not sufficient. To remain in the sustaining stage of physical fitness requires continued, regular exercise of a vigorous nature.

54. Planning Unit Programs

Prior to attempting to plan and schedule physical training for troop units, program planners should have a complete knowledge concerning the information contained in Part One of this manual. Specific planning guidance is included in chapter 5. This material will be invaluable as background to select and schedule programs under the flexible scheduling concept contained in this publication.

Section II. COMBAT AND COMBAT SUPPORT UNIT PROGRAMS

55. Objective

The physical objectives for the combat and combat support unit soldier (para 7) are outlined in detail in paragraph 24. The attributes listed in the four areas of paragraph 24 should be developed in each combat and combat support unit soldier. He must possess these qualifications if he is to successfully complete his mission.

56. Standards of Fitness

The physical standards to be attained by combat and combat support unit personnel are more demanding than those expected of other personnel due to the nature of the job requirement. It is not a simple matter to summarize the expected performance of a combat or combat support unit sol-

dier; however, as a measure of his physical combat readiness, he must attain or exceed the standards as required by the Advanced Physical Fitness Test (chap 25).

57. Program Development

Various packages and systems are provided to afford the commander maximum flexibility to fit an effective program to his situation. The unit situation may change from day to day and from unit to unit. For this reason, sample weekly schedules are included to demonstrate various possible combinations of scheduling. The steps to apply in designing a program to fit the unit are as follows:

a. Determine the type of program needed. That

is, a developmental or maintenance program (para 39).

b. Determine the time required per week to accomplish the needed program.

c. In consideration of other scheduled training and the needed program, divide the time into daily blocks. On a daily basis it is possible to schedule one 15-minute period, or one 30-minute period, or a 45-50-minute period; and in some cases, two 15-minute periods, one in the morning and the other in the afternoon.

d. With the type of program needed and the objectives in mind, select an activity package, or other activity for each day's scheduled physical training. At this same time the system to be used in employment of the selected activity or activities must be determined. This selection will affect the support required in equipment, areas, instructors, transportation, and similar requirements.

e. Write the program as developed into the unit training schedule.

58. Sample Weekly Programs

Various weekly programs are illustrated to show the variety and flexibility which is possible.

a. A sample program (fig 1) illustrates a 15-minute time allotment in which the single system is used with various 15-minute activity packages scheduled each day. In this program 1½ hours are scheduled for the week.

b. A more comprehensive weekly program (fig

2) illustrates the scheduling of various length periods, a variety of activities, and the use of three systems during the week. In this schedule 3¼ hours are included for the week. The following should be noted concerning this schedule:

(1) On Monday a 50-minute period is available for physical readiness training; three 15-minute packages are scheduled and each platoon, under its own leadership, will progress through each scheduled activity in turn.

(2) On Tuesday, Wednesday, Thursday, and again on Saturday, only a 15-minute period is available; here the single activity system is utilized in which each platoon leader supervises the training of his own platoon.

(3) On Friday the training is under company control due to a facility problem. In this example only one strength circuit and one cross-country course are available and each will accommodate only one platoon. For this reason, a Conditioning Drill One station is included and a platoon assigned to each station as shown and they rotate through each activity within the 50-minute period.

c. A third sample schedule for combat and combat support units (fig 3) illustrates the use of the single activity system utilizing 4 hours of training. This schedule includes sustaining-type activities for a unit that has passed through both the toughening and slow improvement stages of conditioning. The use of competitive-type activities is featured to assist in holding the interest of the men and providing self-motivation.

DAY	TIME	ACTIVITY
MONDAY	15 MIN.	RUNNING, TABLE I
TUESDAY	15 MIN.	COMBATIVES, TABLE I
WEDNESDAY	15 MIN.	CONDITIONING DRILL ONE
THURSDAY	15 MIN.	RELAYS TABLE II
FRIDAY	15 MIN.	CONDITIONING DRILL ONE
SATURDAY	15 MIN.	RUNNING, TABLE I

Figure 1. Sample schedule A—single activities.

DAY	TOTAL TIME	TIME PER ACTIVITY	ACTIVITIES	REMARKS
MONDAY	50 MIN.	15 MIN.	RIFLE DRILL	PROGRESSIVE ACTIVITIES SYSTEM
		15 MIN.	COMBATIVES, TABLE I	
		15 MIN.	RUNNING, TABLE II	
TUESDAY	15 MIN.	15 MIN.	GUERRILLA EXERCISES, TABLE I	SINGLE ACTIVITY
WEDNESDAY	15 MIN.	15 MIN.	RIFLE DRILL	SINGLE ACTIVITY
THURSDAY	15 MIN.	15 MIN.	CIRCUIT-INTERVAL TABLE	SINGLE ACTIVITY
FRIDAY	50 MIN.	15 MIN.	STRENGTH CIRCUIT (FIXED)	ROTATING ACTIVITY SYSTEM
		15 MIN.	CONDITIONING DRILL ONE	
		15 MIN.	CROSS-COUNTRY RUN	
SATURDAY	15 MIN.	15 MIN.	WARMUP RUN AND GRASS DRILL, TABLE I	SINGLE ACTIVITY

Figure 2. Sample schedule B—various time periods, activities, and systems.

d. Many other scheduling combinations are possible through use of the packaged activities, various lengths of time periods, and different systems of administering the activities. Due to the type of

duty assigned, some combat and combat support personnel will be better able to follow the type of program recommended for combat service support units.

Section III. COMBAT SERVICE SUPPORT UNIT PROGRAM

59. Objective

The physical objectives for combat service support troops are outlined in paragraph 52. More specifically, soldiers in service support units must maintain strength, endurance (both muscular and circular-respiratory), and coordination.

60. Standards of Fitness

The physical standards of the combat service support soldier are established at a level to insure an adequate degree of fitness and result in successful attainment of the objective. The minimum objective for combat service support troops is reflected in the standards as specified by the staff and specialist physical fitness test (chap 25).

61. Program Development

a. Combat service support units usually have difficulty finding time for any training activity as they are committed to supporting the combat

units. Personnel are often dispersed individually to recover vehicles, deliver or pick up supplies, drive trucks, make repairs, and other similar duties. Other support personnel work in one area such as a motor pool, an office, or ration breakdown point.

b. The physical readiness program for combat service support personnel must recognize the requirement for a program which will apply both to the individuals who depart and return to a central work area at intervals during the day, as well as to the men who remain in the same area throughout the day. The packaged activities are ideal for this purpose due to the short time required for their execution, plus their adaptability, making it possible for them to be accomplished within the work area. There are several ways to provide such training:

(1) Prior to movement to the work area complete the selected exercise package in the barracks area during the early morning.

(2) Administer the exercise by unit (section or platoon) upon arrival at the work area and prior to beginning work.

(3) Accomplish the scheduled activity during a designated period in the day, with those individuals who are not available performing the exercise individually upon their return.

(4) On days when it is difficult to assemble the majority of men, have each man execute the exercise individually, or complete the exercise in small groups when they return to the work area.

62. Sample Weekly Programs

a. The sample weekly schedule (fig 4) is designed to be accomplished within the work area. This sample demonstrates several points as follows:

(1) A 15-minute period is shown each day. On Monday, Wednesday, and Friday these exercises could be conducted by section or platoon, and when those men who are absent become available later in the day they can execute the prescribed table of exercise on an individual basis.

(2) On Tuesday an apparatus is used which would be difficult to supply for each man; therefore, men could individually leave their work at opportune times and execute the prescribed table.

(3) On Thursday and Saturday, due to the nature of the activity scheduled, section- or platoon-size groups should execute the prescribed packages.

(4) If time is available during one afternoon a longer period of competitive activity can be scheduled in place of the 15-minute period, as illustrated.

b. Combat service support troop units may find it possible to assemble men for platoon or group physical training. If this is practical, then the schedules similar to sample schedules (fig 1, 2, and 3) may be used.

c. Flexibility of program planning is possible through the use of packaged activities. Programs and schedules other than those illustrated in this chapter may be assembled to provide schedules to fit any situation.

DAY	TIME	ACTIVITY
MONDAY	15 MIN.	RUNNING - CROSS COUNTRY
TUESDAY	60 MIN	TEAM ATHLETICS - TOUCH FOOTBALL
WEDNESDAY	15 MIN.	RUNNING - CROSS COUNTRY
THURSDAY	15 MIN	LOG DRILL
	15 MIN.	DUAL COMBATIVES
FRIDAY	60 MIN.	SPEED MARCH
SATURDAY	30 MIN.	TEAM CONTESTS

Figure 3. Sample schedule C—sustaining activities.

DAY	TIME	ACTIVITIES	REMARKS
MONDAY	15 MINUTES	WEIGHT TRAINING, TABLE I	EXECUTED BY GROUP OR INDIVIDU- ALLY
TUESDAY	15 MINUTES	CHAIRBORNE CONDITIONER, TABLE I	EXECUTED IN- DIVIDUAL- LY
WEDNESDAY	15 MINUTES	CONDITIONING DRILL ONE	EXECUTED BY GROUP OR INDIVID- UALLY
THURSDAY	15 MINUTES	MOVABLE STRENGTH CIRCUIT	EXECUTED BY GROUP
FRIDAY	15 MINUTES	ISOMETRIC EXERCISES TABLE I	EXECUTED BY GROUP OR INDIVIDU- ALLY
SATURDAY	15 MINUTES	RUNNING, TABLE I	EXECUTED BY GROUP

Figure 4. Sample schedule D—combat service support troop personnel.

CHAPTER 8

PHYSICAL FITNESS FOR STAFF AND SPECIALIST PERSONNEL

Section I. CONSIDERATIONS IN PLANNING PROGRAMS

63. Application

This chapter provides guidance toward physical fitness for those personnel who are not in a training situation and get little or no vigorous exercise during the duty day. This type of situation usually applies to personnel who occupy staff and specialist positions.

64. Objective

Age varies for those in this category and while individual desires and abilities are not the same, there are certain objectives which are common to all. Generally, the objective is to retain muscular strength and endurance, maintain the *wind*, maintain muscle tone and flexibility, and practice coordination activities. Specifically, for those under 40 years of age, the objective will be to attain peak physical condition in order to meet mission requirements, be ready to quickly assume more strenuous duties, or to qualify when participating in a physical fitness test.

65. Importance of Exercise

There is evidence that our rich diet, lack of muscular activity, and emotional stress may be reducing longevity. Exercise is not a cure for all of these ills, but its importance to the total welfare of the human machine is better understood as research evidence mounts in favor of exercise. This evidence supports the Army's belief that exercise is of such importance that if not attained as part of our duty assignment, we should insert it, preferably on a daily basis, into our weekly routine.

66. Fitness and Age

The physiological deterioration which accompanies age can be slowed but not halted. There is no reason why persons over 40 should not maintain a degree of fitness commensurate with their age. Physiologists tell us that the capacity to perform physical tasks begins to decline somewhat at approximately age 25. Factors which slow this decline are:

a. Heredity. Some of us inherit a body that has a slower rate of aging.

b. Good Health Habits. The faithful practice of adequate sleep, diet control, and body hygiene will result in better health and fitness.

c. Exercise. Participation in a regular form of exercise adjusted in intensity and type as age increases.

d. Mental Outlook. A desire to remain active and a conscious effort to emphasize activity rather than the sedentary life is very important.

67. Problem Areas

In establishing group physical activity program for personnel in specialist and staff positions, the program planner encounters several problem areas: Among these problems are:

a. Time. Personnel involved in this type of job have no duty time programmed by their unit for physical fitness. For example, the tank mechanic must keep the tanks rolling; the personnel officer must remain in an office and care for administration; the clerk must type and file; the staff officer must work out plans and projects. To assemble such personnel at the same place and time is a difficult task.

b. Age. Young people usually gain the benefit of exercise naturally, because the activities that appeal to them are vigorous. As age increases, large muscle activities usually decrease. However, at any age the infirmities associated with lack of exercise may take their toll: flabbiness, shortness of breath, poor circulation, stiffness, tension, fitful sleep, obesity, and susceptibility to injury become more prevalent. Older men often remember a level of fitness they maintained as young men. In later years they try to achieve the same level. Failing to do so, they think it useless to settle for less. Others, feeling that exercise is for young men, make no effort to maintain physical fitness. Within a group of staff and specialist personnel the age span may be from the late teens to 60.

40. This fact creates a problem in selecting activities to fit the needs of various age groups.

c. Physical Needs. Some men, regardless of age, may be in excellent physical condition and others may be in poor condition. All personnel will not have the same physical need which may cause a problem at the beginning of the program. Those personnel in good condition may become impatient waiting for the others to pass through the toughening stage.

d. Physical Profiles. Some personnel in this category will have been diverted into the specialist category due to their profile assignment. Certain concessions may be required due to these profiles which may complicate program planning. A close check should be maintained on men with profiles and on all men over 40 regardless of profile.

e. Attitude. The attitude of some personnel is one of disinterest.

(1) Some men are too tired to be interested. If physical activity is eliminated from the daily routine, a declining state of physical fitness will result. The individual will eventually have just enough or perhaps not enough physical ability to get through the sedentary duties which constitute

the day's work. At best he is completely "beat" at the end of the day or at worst he "drags" through the latter part of the day with too little energy to be effective.

(2) Others feel exercise is not dignified. In our highly technical and cultivated society the local attitude may not be conducive to exercise. In some instances exercise is looked upon as a waste of time, as a mark of crudeness, or as a mark of the unintelligent. Good honest sweat is not a trademark of getting ahead in these instances, yet there are professions where this attitude would prove to be detrimental to the completion of the mission. The Army is certainly the last place in our society where such an attitude should be accepted as desirable.

f. Interest. The selection of physical activities must be carefully handled for this type group. Some will want to participate only in those activities of their interest. Frankly, some activities are of such little vigor that the outcome toward developing and maintaining a satisfactory degree of physical fitness is questionable. At the same time, if the activities cannot hold the interest of the group, the program suffers. Boredom also must be countered as the program continues over a long period.

Section II. ORGANIZATION AND CONDUCT OF PROGRAMS

68. Types of Programs

Programs of physical activity for staff and specialist personnel can either be group or individual programs. Group programs are more successful as group spirit will carry men along and provide incentive. A great deal of willpower is necessary to continue a personal fitness program over an extended period of time. Many problems plague the individual as he attempts to organize and conduct his own program. Some of these problems are lack of knowledge on his part as to what form of exercise he should pursue, and lack of facilities, time, and interest. The individual usually prefers a group program as problems of time, place, selection of activity, facilities, and equipment are established or provided for him.

69. Group Programs

To be successful a group program must overcome the problem areas outlined in paragraph 67. The following solutions to these problems have been successfully applied:

a. Scheduled Time. Programs should be scheduled at a time when the maximum number of personnel can attend. During, or immediately after,

the duty day is best. Early morning and after supper periods are generally least successful. In some instances, two periods are scheduled each day and the individual is permitted to determine which period he will attend. Exercise programs should be scheduled a minimum of three times per week and preferably on a daily basis.

b. Age Divisions. Two elements must be considered if the group is to be divided into subgroups. The first consideration is the level of physical condition and the second is age. At the beginning those in poor condition and older personnel (over 30) may be in the same group, and the second group may be made up of younger men (17 to 30) who are in good physical condition. In the conduct of the activities, progression and overload should be regulated according to the needs of each group.

c. Physical Profile Allowances. Care should be exercised to insure that individuals who have physical profiles are made to feel part of the group. Also, some of the activities may be too difficult for them to accomplish. If these men are considered as individuals and allowances are made for their handicaps, they can benefit from the activities that they accomplish.

d. *Meeting Individual Needs and Interests.* The program must be dignified. Some of the physical activities which the new recruit finds interesting and challenging offer little interest for the more experienced soldier. A varied program usually insures that personnel interests are met while boredom is reduced. Conditioning activities and running followed by competitive sports proves to be a method of holding interest and satisfying the need for vigorous activity. Competition in team and in dual sport tournaments adds interest and offers variety as compared to unorganized activity.

70. Recommended Group Activities

Most of the activities included in Parts Three and Four of this manual are suitable. The following activities are particularly appropriate for staff and specialist personnel: conditioning drills, log exercises, grass drills, running, strength circuits, swimming, and team sports. Individual sports may also be added. These sports must be vigorous in order to make a definite contribution to physical fitness. For the methods of organizing a group program see chapters 5 and 7.

71. Personal Fitness Programs

Personal programs are difficult to maintain, yet some men are successful with year-round programs while others who attempt their own programs have good intentions but fail due to backsliding. There are many reasons for this condition. The following are three common problems that contribute to backsliding:

a. *Time Limitations.* Some men try activities which are not interesting to them and soon busy themselves with other nonphysical activities which "choke off" the time for exercise. Others begin an overambitious program which takes too much time and they drop, rather than trim, their program. Still others decide upon a daily program which is difficult to maintain. When they are forced to occasionally miss the daily workout, no visible signs of harm are apparent. First, it is an occasional forced miss; next, it is a frequent voluntary absence; and finally, no activity remains. The only solution is for the individual to understand the benefit and necessity of exercise, set up a reasonable program, and adopt it as part of his daily life.

b. *No Facilities.* Many of us have a favorite and beneficial physical activity which we pursue faithfully. Through a change in season, or perhaps transfer to a new post, the facilities needed for the activity are unavailable. Therefore, we feel justified in nonpursuit of exercise. An individual

program must be adjusted to accommodate such problems.

c. *Loss of Interest.* Often individuals adopt a program that fails to fit their aptitude, interest, or need. For example, some people are bored by a particular type of exercise, yet because their best friend is a faithful advocate of this form of exercise they adopt it with a predictable loss of interest. The beginner will rapidly lose interest during the learning period in an activity which requires a high degree of skill. Therefore, an understanding that as skill develops satisfaction will also develop may assist in sustaining interest through the learning period.

72. Choice of Activities

Any combination of physical activity is possible on an individual basis. The activities you select should be suited to your interest, ability, physical need, age, and the time and facilities available for exercise. In many cases these items limit the selection of a program but in no case should they serve as an excuse for no physical activity.

73. Dual Sports

Dual sports, popular with many men, require facilities that are available at many installations. Included in this category are such games as bad minton, tennis, handball, golf, and bowling. Most men enjoy the competition offered by dual sport and these sports also call for participation with companions, which many people prefer over exercising alone. Information concerning dual sport is readily available at newsstands or libraries.

74. Noncompetitive Activities

Some men prefer individual noncompetitive activities. Such activity includes weight training, swimming, running, walking, and conditioning exercises. In these activities you can set the pace and control of your program as you are not dependent upon others. You may wish to participate in one or more of these activities. It is not the intent here to promote any certain activity over the other; that choice is for you to make. The plan that works best for the majority of men is one in which conditioning exercises are used as a basic and constant means of exercise. Such exercise has the following advantages:

- a. The activity can be completed in a short time.
- b. No special facilities or equipment are required.
- c. Dosage and progression can be controlled by the individual.

d. Complicated skill need not be developed to receive benefit.

e. There is no dependence upon others to assist in completing the activity.

f. Daily participation is easier because of the simplicity and convenience of the exercise.

75. Recommended Conditioning Activities

You may use conditioning exercises as a basic form of exercise and supplement them on a regular or occasional basis with other forms of physical activity. To assist you in regulating dosage and progression and to provide convenient forms of exercises, the following examples of noncompetitive conditioning activities are recommended.

a. *The 6-12 Plan.* This plan features six tables of conditioning exercises which have been closely graded for age. These six tables contain six exercises each and a table can be completed in 12 minutes. The tables are progressive in difficulty from 1 through 6, and progression guidance is provided (chap 18).

b. *Weight Training.* One table for weight training is provided consisting of seven exercises. Fif-

teen minutes is adequate to complete the table (chap 18).

c. *Chairborne Conditioner.* This apparatus can be constructed from pipe at any shop with welding facilities. Two tables of exercises are provided, with the second table progressively more difficult than the first. Fifteen minutes is adequate to complete a table (chap 18).

d. *Isometric Exercises.* These simple exercises are organized into three tables and can be completed in almost any area in less than 15 minutes (chap 18).

e. *Running.* Running is an excellent means of maintaining circulo-respiratory endurance. Chapter 14 describes various forms of running. The "Run for Your Life" program was developed especially for individuals (app C).

76. Running for Men Over 40

After a preliminary period of conditioning with the nonrunning activities as contained in paragraph 75, men over 40 should add running to their program. The type of running should be a steady double time; sprint running should be avoided.

CHAPTER 9

REMEDIAL PHYSICAL CONDITIONING

Section I. INTRODUCTION

77. Definition

Remedial physical conditioning is a process by which physically substandard personnel are conditioned to meet the standard prescribed for their group.

78. Application

The company, battery, or troop commander identifies personnel who cannot achieve the prescribed Army Physical Fitness Evaluation Standards at the time of the semi-annual administration of the required test. Notation is made of the particular weakness as indicated by failure of certain test events. These men are then placed in a remedial program, either at platoon or company level, and extra time is devoted to overcoming the weakness. These extra periods of conditioning may be during or after duty hours, as determined by local conditions.

79. Need for Remedial Action

To achieve a full degree of operational readiness it is necessary to bring all men up to the prescribed standard. Experience has demonstrated that some men will have difficulty due to a poor state of fitness, overweight, or lack of motivation. Attention to these individual deficiencies will help improve unit physical readiness.

80. Medical Reconditioning Responsibility

Physical reconditioning is the treatment during hospitalization that is aimed at restoring physical fitness to damaged areas of the body. This treatment is accomplished through the use of progressively graded physical activities under professional supervision. Reconditioning is a medical responsibility.

Section II. DETECTING INDIVIDUAL NEED

81. Types of Deficiencies

Physical deficiencies which can be corrected by exercise fall into several categories.

a. Lack of Strength in Body Parts. The major muscle areas concerned are the arms, shoulder girdle, back, abdomen, and legs.

b. Lack of Overall Endurance. Usually there is deficient muscular and circulo-respiratory (wind) endurance.

c. Deficiency in Coordination and Agility. In these cases physical skill is not developed to a satisfactory degree in activities such as crawling, running, jumping, climbing, traversing, vaulting, pushing, pulling, lifting, and carrying.

d. Overweight or Underweight. Either condition may interfere with physical fitness and accomplishment of mission. Lack of exercise is not always the cause. The cause may be malfunction of normal physiological functions or it may be due to poor health habits such as over- or un-

dereating, lack of adequate rest, or overconsumption of alcohol.

e. Lack of Motivation. All personnel are not motivated to attain and/or maintain a desirable state of fitness. Some personnel do not understand the importance of physical fitness, some find exercise too difficult, while others find it inconvenient.

82. Causes of Deficiencies

There are several reasons which cause men to be deficient in physical fitness.

a. Absence of exercise.

b. Exercise which fails to develop all muscle groups and components of fitness.

c. Exercise which is not vigorous or lacks progression.

d. Injury or illness which depletes fitness.

e. Inadequate amounts of sleep or rest.

83. Methods of Detection

The commander has several means of detecting physical deficiencies:

a. Through analysis of physical fitness test performance. The scorecards of individuals who fall below required standards should be analyzed to determine the areas of failure.

b. By observation of men as they perform physical tasks.

(1) Men who have difficulty during physical training or in physical types of work.

(2) Personnel who are obese and experience difficulty.

c. Observation and attention to those personnel who are:

(1) Often on sick call.

(2) Returnees from hospitalization.

(3) Newly assigned.

Section III. ADMINISTRATION OF REMEDIAL ACTION

84. Group Attitude

Men who are singled out as being physically deficient are self-conscious and are not always convinced they need extra help. They must be encouraged and not made to feel guilty about their state of fitness.

85. Motivation

Within a deficient group motivation may be low. These men must be convinced that a special remedial program which is tailored to their needs will help them eliminate their deficiencies.

86. Leadership

The leader of this group must study each man and know his deficiencies. He must counsel men individually, maintain records, observe men closely as they progress through the program, and adjust the program as required.

87. Measurement

The fitness development of men in the remedial group should be measured by the appropriate test of the APFE either individually, or as a group when improvement in performance is noted. When testing reveals the individual to be satisfactory, he should be released from the group. There may be exceptions to this policy in the case of men who are overweight or in the execution of an exercise program as prescribed by medical authorities.

88. Organization of a Remedial Group

a. A remedial group is usually a small number of men within a company-size unit. In some situations it may be larger, numbering 50 to 75 men. In the case of a larger group divide the men initially into subgroups according to ability and prescribe realistic exercise loads. General conditioning activities will be sufficient in the early part of the program to qualify men who are on the borderline. This will reduce the size of the group and permit more specialized attention to those who remain.

b. As the program progresses it will be necessary to regroup men who have similar deficiencies so they can concentrate on their weakness. For example:

(1) One group may be weak in the arms and shoulders. This group, with an assistant instructor in charge, can concentrate on pullups, rope climb, pushups, rifle exercises, horizontal ladder, and similar exercises.

(2) Another group may be weak in overall strength and endurance. This group should concentrate on conditioning drills, running, grass drill, and strength circuit.

(3) It may be necessary to form some groups to improve physical skills, such as an inability to throw, quickly change direction while running, to vault, or to carry a load. Lack of coordination or lack of practice may cause such deficiencies. Therefore, instructors must provide an opportunity to practice and correct weaknesses as they are noted.

PART THREE
PHYSICAL ACTIVITIES
CHAPTER 10
CONDITIONING DRILLS ONE, TWO, AND THREE

Section I. INTRODUCTION

89. Description and Function

Conditioning drills are calisthenic-type exercises organized and numbered in a set pattern. Each drill contains seven exercises which can be completed in 15 minutes. The function of conditioning drills is to exercise all major muscle areas in order to develop strength, endurance, coordination, and flexibility.

90. Area and Equipment

Any level area is satisfactory for conduct of the drills. Drills One and Two contain ground exercises; if ground conditions are unsatisfactory Drill Three should be used as it contains no ground positions. Usually, no equipment is required; however, if the group exceeds a platoon in size an instructor's stand is necessary.

91. Formation

The extended rectangular formation is prescribed (app B).

92. Starting Dosage and Progression

The starting number is six repetitions of each exercise. The acceptable rate of progression is an increase of one repetition for each three periods of exercise. This rate is continued until 12 repeti-

tions, with no rest between exercises, can be completed. At this point the level reached should be maintained until another drill is used. Progression can also be gained by moving from Drill One to the more demanding Drill Two.

93. Starting Positions

Starting positions vary with the exercise and are explained as part of each exercise. Basic starting positions are explained in appendix B.

94. Leadership

A principal instructor is required to demonstrate and lead the drill. He must be familiar with leadership techniques peculiar to conditioning drills to include method of teaching the exercises, commands, counting cadence, cumulative count, formation, and utilization of assistant leaders.

95. Place in the Program

Conditioning Drills One, Two, and Three benefit all major muscles of the body. They are easy to learn, perform, administer, and supervise. These features, coupled with the short time required for completion, the fact that no equipment is necessary, and adaptability to most areas of execution, make these drills possible in any program.

Section II. CONDITIONING DRILL ONE

96. Exercise 1. High Jumper

a. Starting Position. Feet separated shoulder width, knees flexed, body bent forward at the waist, arms alined with the trunk and hips, elbows locked, palms facing, fingers extended and joined, head and eyes to the front (1, fig 5). (Elbows remain locked throughout the exercise.)

b. Cadence. Moderate.

c. Movement. A four-count exercise: at the count of—

(1) ONE—Take a slight jump into the air, swinging the arms forward and up to shoulder level.

(2) TWO—Take a slight jump into the air

and swing the arms downward and back, returning to the starting position.

(3) **THREE**—Take a vigorous leap into the air, swinging the arms forward and up to an overhead position, momentarily looking skyward. On returning to the ground the knees are flexed, head and eyes return to the front.

(4) **FOUR**—Repeat the action of count two.

97. Exercise 2. Bend and Reach

a. Starting Position. Feet spread more than shoulder width, arms overhead, elbows locked, palms facing, fingers extended and joined, head and eyes to the front (2, fig 5).

b. Cadence. Moderate.

c. Movement. A four-count exercise: at the count of—

(1) **ONE**—Bend at the knees and waist, swing the arms straight downward and reach between the legs. Touch the ground as far to the rear as possible and look to the rear. (Elbows remain locked throughout the exercise.)

(2) **TWO**—Recover sharply to the starting position.

(3) **THREE**—Repeat the action of count ONE.

(4) **FOUR**—Repeat the action of count TWO.

98. Exercise 3. Pushup

a. Starting Position. Front leaning rest position: to assume this position there is a silent one-two count. On the silent count of one, assume the squatting position, heels together, elbows locked inside the knees, hands flat on the ground directly beneath the shoulders. On the silent count of two, thrust the legs to the rear, toes and heels together, body straight from head to heels (3, fig 5).

b. Cadence. Moderate.

c. Movement. A four-count exercise: at the count of—

(1) **ONE**—Flex the elbows lowering the body until the chest touches the ground.

(2) **TWO**—Raise the body until elbows are straight and locked.

(3) **THREE**—Repeat the action of count ONE.

(4) **FOUR**—Repeat the action of count TWO. (On returning to position of attention the silent one-two count is used in reverse.)

99. Exercise 4. Trunk Twister

a. Starting Position. Feet are spread more than shoulder width apart, fingers laced behind neck, thumbs pointing downward, elbows back (4, fig 5). (Elbows remain well back throughout the exercise.)

b. Cadence. Slow.

c. Movement. A four-count exercise: at the count of—

(1) **ONE**—Keeping the knees locked and back straight, bend forward at the waist sharply, with a slight recovery.

(2) **TWO**—Twist the trunk to the left vigorously at the waist, keeping the elbows back. The left elbow is higher than the right.

(3) **THREE**—Twist vigorously to the right so the left elbow comes under the right.

(4) **FOUR**—Straighten sharply to the starting position.

Note. Do not attempt to touch the elbows to the knee on counts TWO and THREE.

100. Exercise 5. Squat Bender

a. Starting Position. Feet are spread less than shoulder width apart, hands on hips, thumbs small of back, elbows back (5, fig 5).

b. Cadence. Moderate.

c. Movement. A four-count exercise: at the count of—

(1) **ONE**—Assume a half knee bend position, maintain balance on the balls of the feet, with trunk inclined slightly forward thrust arms forward to shoulder level, elbows locked, palms down.

(2) **TWO**—Recover to starting position. Elbows are well back.

(3) **THREE**—Keeping the knees locked, bend forward at the waist, touching the ground front of the toes.

(4) **FOUR**—Vigorously recover to the starting position.

101. Exercise 6. Body Twist

a. Starting Position. On the back, arms extended sideward on the ground, palms down, legs are raised to a near vertical position, feet together, knees locked (6, fig 5).

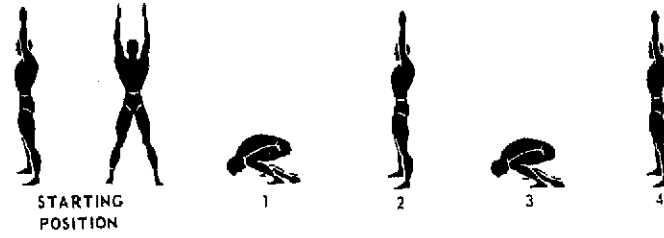
b. Cadence. Slow-fast.

c. Movement. A four-count exercise: at the count of—

A. HIGH JUMPER EXERCISE 1



B. BEND AND REACH EXERCISE 2



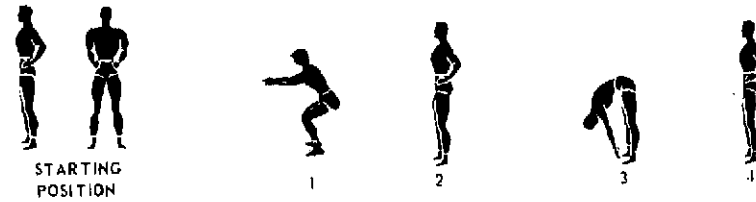
C. PUSH UP EXERCISE 3



D. TRUNK TWISTER EXERCISE 4



E. SQUAT BENDER EXERCISE 5



F. BODY TWIST EXERCISE 6



G. STATIONARY RUN EXERCISE 7



Figure 5. Conditioning drill one.

(1) ONE—Lower legs slowly to your left until they touch the ground near the left hand, keeping the knees straight and shoulders on the ground.

(2) TWO—Recover to the starting position by quickly raising the legs, keep knees straight and feet together.

(3) THREE—Repeat movement of count ONE, except the movement is to the right side.

(4) FOUR—Recover sharply to the starting position.

102. Exercise 7. Stationary Run

a. Starting Position. Position of attention (7, fig 5).

b. Cadence. Fast.

Section III. CONDITIONING DRILL TWO

103. Exercise 1. Lunger

a. Starting Position. Position of attention (1, fig 6).

b. Cadence. Moderate.

c. Movement. An eight-count exercise: at the count of—

(1) ONE—Lunge diagonally to the left front by stepping in that direction with the left foot, arms sideward at shoulder level, palms up, head and shoulders square to the front.

(2) TWO—Bend sharply forward and downward over the left thigh and wrap the arms around the thigh, hands grasping the opposite shoulders.

(3) THREE—Recover to the first position by releasing the arms, straightening the trunk and extending the arms sideward, palms up.

(4) FOUR—Resume the position of attention by dropping the arms and returning the left foot to the side of the right.

(5) On the counts of FIVE, SIX, SEVEN, and EIGHT repeat the exercise to the right.

104. Exercise 2. Turn and Bend

a. Starting Position. Side straddle, arms overhead (2, fig 6).

b. Cadence. Moderate.

c. Movement. A four-count exercise: at the count of—

(1) ONE—Turn the trunk to the left and bend forward over the left thigh, attempting to

c. Movement.

(1) At the command of execution start running in place, first lifting the left foot and continue double time cadence; follow the instructor as he counts two repetitions of cadence; for example, 1, 2, 3, 4—1, 2, 3, 4. The instructor then gives informal commands such as "FOLLOW ME. Run on the toes and balls of the feet, keeping the back straight. Speed it up. Increase to a sprint, raise the knees high, lean forward at the waist, and pump the arms vigorously. Slow it down."

(2) To halt the exercise the instructor will count two repetitions of cadence as the left foot strikes the ground: 1, 2, 3, 4—1, 2, 3, HALT.

Note. When counting cadence the instructor counts only as the left foot strikes the ground. The duration of the exercise is approximately 1½ minutes.

touch the fingertips to the ground outside the left foot. Keep the left knee straight. On successive repetitions attempt to touch farther and farther to the side.

(2) TWO—Recover to the starting position.

(3) THREE—Turn the trunk to the right and bend forward over the right thigh, trying to touch the hands to the ground outside the right foot. Keep the right knee straight.

(4) FOUR—Recover to the starting position.

105. Exercise 3. Eight Count Pushup

a. Starting Position. Position of attention (3, fig 6).

b. Cadence. Moderate.

c. Movement. An eight-count exercise: at the count of—

(1) ONE—Assume the squat position, palms on the ground directly beneath the shoulders, elbows locked inside the knees.

(2) TWO—Thrust the legs to the rear assuming the front leaning rest position.

(3) THREE—Flex the elbows until the chest touches the ground.

(4) FOUR—Raise the body on a straight plane until the elbows are locked.

(5) FIVE—Repeat the action of count THREE.

(6) SIX—Repeat the action of count FOUR.

(7) SEVEN—Recover to the squatting position as in count ONE (elbows locked inside the knees).

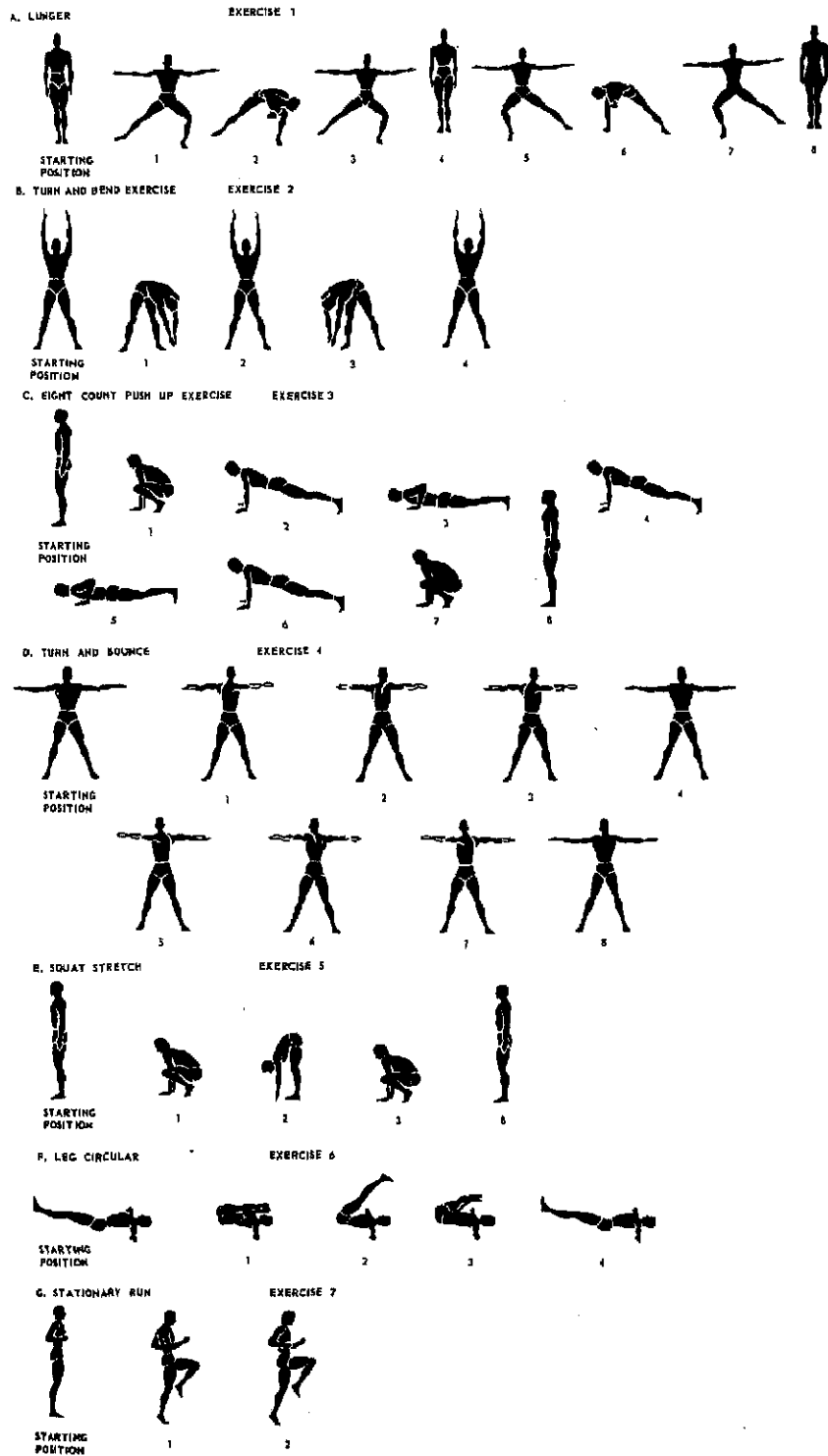


Figure 6. Conditioning drill two.

(8) EIGHT—Return sharply to the position of attention.

106. Exercise 4. Turn and Bounce

a. *Starting Position.* Feet spread more than shoulder width apart, arms sideward at shoulder level, palms up (4, fig 6).

b. *Cadence.* Slow.

c. *Movement.* An eight-count exercise: at the count of—

(1) ONE—Turn sharply to the left as far as possible, then recover slightly.

(2) TWO—Again turn to the left as far as possible and recover as in ONE.

(3) THREE—Repeat the action of count TWO.

(4) FOUR—Recover sharply to the starting position.

(5) FIVE—Turn sharply to the right as far as possible, then recover slightly.

(6) SIX—Again turn to the right as far as possible and recover as in FIVE.

(7) SEVEN—Repeat the action of count SIX.

(8) EIGHT—Return to the starting position.

Note. The head and hips remain to the front throughout the exercise and the knees and elbows are locked at all times.

107. Exercise 5. Squat Stretch

a. *Starting Position.* Attention (5, fig 6).

b. *Cadence.* Moderate.

c. *Movement.* A four-count exercise: at the count of—

(1) ONE—Squat, placing the hands on the ground about 12 inches in front of the feet.

(2) TWO—Keeping the fingertips on the ground, straighten the knees completely and raise the hips.

(3) THREE—Recover to position ONE.

(4) FOUR—Recover to the starting position.

108. Exercise 6. Leg Circular

a. *Starting Position.* On the back, arms stretched sideward, palms down, feet raised 18 inches from ground, knees straight (6, fig 6).

b. *Cadence.* Slow.

c. *Movement.* A four-count exercise: at the count of—

(1) ONE—Swing the legs as far as possible to the left, keeping the knees straight and the legs together.

(2) TWO—Swing the extended legs overhead with the thighs as close as possible to the trunk.

(3) THREE—Swing the legs as far as possible to the right.

(4) FOUR—Recover to the starting position.

109. Exercise 7. Stationary Run

a. *Starting Position.* Position of attention (fig 6).

b. *Cadence.* Fast.

c. *Movement.*

(1) At the command of execution start running in place, first lifting the left foot and continue double time cadence; follow the instructor as he counts two repetitions of cadence; for example, 1, 2, 3, 4—1, 2, 3, 4. The instructor then gives informal commands such as "FOLLOW ME. Run on the toes and balls of the feet, keeping the back straight. Speed it up. Increase to a sprint, raise the knees high, lean forward at the waist, and pump the arms vigorously. Slow it down."

(2) To halt the exercise the instructor will count two repetitions of cadence as the left foot strikes the ground: 1, 2, 3, 4—1, 2, 3, HALT.

Note. When counting cadence the instructor counts only as the left foot strikes the ground. The duration of the exercise is approximately 1½ minutes.

Section IV. CONDITIONING DRILL THREE

110. Exercise 1. Side Straddle Hop

a. *Starting Position.* Position of attention (1, fig 7).

b. *Cadence.* Moderate.

c. *Movement.* A four-count exercise: at the count of—

(1) ONE—Take a slight jump into the air,

moving the legs sideward (more than shoulder width apart), at the same time swing the arms overhead (to an overhead position), clapping the palms together.

(2) TWO—Take a slight jump into the air swinging the arms sideward and downward, returning to the starting position.

(3) THREE—Repeat the action of count ONE.

(4) FOUR—Repeat the action of count TWO.

111. Exercise 2. Back Bender

a. Starting Position. Standing, feet 12 inches apart, fingers laced behind the head (2, fig 7).

b. Cadence. Slow.

c. Movement. A four-count exercise: at the count of—

(1) ONE—Bend the upper trunk backward, raising the chest high, pulling the elbows back, and looking upward. Keep the knees straight.

(2) TWO—Recover to the starting position.

(3) THREE—Repeat the action of count ONE.

(4) FOUR—Recover to the starting position.

112. Exercise 3. Squat Thrust

a. Starting Position. Position of attention (3, fig 7).

b. Cadence. Moderate.

c. Movement. A four-count exercise: at the count of—

(1) ONE—Assume the squat position; heels together, placing the hands flat on the ground, shoulder width apart, elbows locked and inside the legs.

(2) TWO—Thrust the legs to the rear, assuming the front leaning rest position, body in line from head to heel, heels and toes together.

(3) THREE—Return to the squat position as in ONE.

(4) FOUR—Return to position of attention.

113. Exercise 4. Side Bender

a. Starting Position. Feet are spread more than shoulder width apart, arms are raised sideward and overhead, thumbs interlocked, palms to front, fingers extended and joined, elbows locked (4, fig 7).

b. Cadence. Slow.

c. Movement. An eight-count exercise: at the count of—

(1) ONE—Bend to left as far as possible, then recover slightly.

(2) TWO—Again bend to the left as far as possible, then recover slightly.

(3) THREE—Repeat the action of count TWO.

(4) FOUR—Recover sharply to the starting position.

(5) FIVE—Bend to the right as far as possible, then recover slightly.

(6) SIX—Again bend to the right as far as possible, then recover slightly.

(7) SEVEN—Repeat the action of count SIX.

(8) EIGHT—Recover sharply to the starting position.

Note. Keep the elbows and knees locked throughout the exercise. The bend should occur to the side and not to the front.

114. Exercise 5. Knee Bender

a. Starting Position. Feet are spread less than shoulder width apart, hands on hips, thumbs in small of back, elbows back (5, fig 7).

b. Cadence. Moderate.

c. Movement. A four-count exercise: on the count of—

(1) ONE—Do a half knee bend, lean trunk slightly forward at the waist, slide the arms along the outside of the legs until the extended fingers touch the top of the boots, or calf of the leg should boots not be worn, palms touching the legs.

(2) TWO—Recover sharply to the starting position.

(3) THREE—Repeat the action of count ONE.

(4) FOUR—Repeat the action of count TWO.

115. Exercise 6. Bottoms Up

a. Starting Position. Front leaning rest position, a silent one-two count is used as in the push-ups (6, fig 7).

b. Cadence. Moderate.

c. Movement. A four-count exercise: at the count of—

(1) ONE—With the weight on the hands and knees locked, jump forward bringing the feet as close to the hands as possible; look to the rear.

(2) TWO—Keeping the knees locked, thrust the legs backward assuming the front leaning rest position.

(3) THREE—Repeat the action of count ONE.

(4) FOUR—Repeat the action of count TWO.

116. Exercise 7. Stationary Run

a. Starting Position. Position of attention (7, fig 7).

b. Cadence. Fast.

c. Movement.

(1) At the command of execution start running in place, first lifting the left foot and con-

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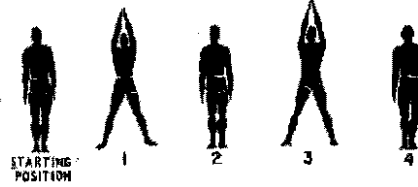
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A. SIDE STRADDLE HOP EXERCISE 1



B. BACK BENDER EXERCISE 2



C. SQUAT THRUST EXERCISE 3



D. SIDE BENDER EXERCISE 4



E. KNEE BENDER EXERCISE 5



F. BOTTOMS UP EXERCISE 6



G. STATIONARY RUN EXERCISE 7



Figure 7. Conditioning drill three.

time double time cadence; follow the instructor as he counts two repetitions of cadence; for example, 1, 2, 3, 4—1, 2, 3, 4. The instructor then gives informal commands such as "FOLLOW ME. Run on the toes and balls of the feet, keeping the back straight. Speed it up. Increase to a sprint, raise the knees high, lean forward at the waist, and

pump the arms vigorously. Slow it down."

(2) To halt the exercise the instructor count two repetitions of cadence as the left strikes the ground: 1, 2, 3, 4—1, 2, 3, HALT.

Note. When counting cadence the instructor is only as the left foot strikes the ground. The duration of the exercise is approximately 1½ minutes.

CHAPTER 11

RIFLE AND LOG DRILLS

Section I. RIFLE DRILL

117. General

Rifle exercises are conditioning exercises performed with a rifle. They can be used in any unit armed with this weapon. In units which are not so armed, Log Drill may be substituted as contained in paragraphs 131 through 143.

118. Description and Function

There are six exercises in Rifle Drill (fig 8), and they are numbered in a set pattern. This drill can be completed within 15 minutes. The addition of the rifle makes the exercise more strenuous and thus provides greater development, particularly of the upper body.

119. Area and Equipment

Any level area is satisfactory for the conduct of this drill. All exercises are completed from a standing position. A rifle is needed for each man and if the group exceeds a platoon in size, an instructor's stand is necessary.

120. Formation

The extended rectangular formation is prescribed as explained in appendix B.

121. Starting Dosage and Progression

The starting dosage and rate of progression are the same as prescribed for conditioning Drills One, Two, and Three (para 92).

122. Starting Positions

Starting positions vary and are explained for each exercise. Basic positions are explained in appendix B. As in all set conditioning drills, the command used to start the exercise is "STARTING POSITION, MOVE." The following specific directions apply to rifle drill:

a. In those exercises starting from the rifle downward position, on the command *MOVE*, execute port arms as prescribed in FM 22-5, and then assume the starting position. The command

to return the men to the position of attention at the conclusion of the exercise is *POSITION OF ATTENTION, MOVE*.

b. In exercises which terminate in the rifle downward position, on the command of execution *MOVE*, the position of port arms is executed followed by order arms as prescribed in FM 22-5.

c. In the exercises which terminate in a position other than the rifle downward position, the men first assume the rifle downward position before executing port arms and order arms.

d. These movements are executed without command. This procedure is specified to facilitate uniformity, and it is not expected that precision will be obtained. To be effective, rifle exercises must be strenuous enough to tire the arms and, when the arms are tired it may not be possible to move them with precision.

123. Leadership

A principal instructor is required to teach, demonstrate, and lead the drill. He must be familiar with leadership techniques for conditioning exercises and the peculiar techniques for Rifle Drill.

124. Place in the Program

Rifle Drill is designed primarily to benefit the muscles of the arms, shoulders, and back. The principal benefit is in development of muscular strength and endurance. The exercises of Rifle Drill are outlined in the following paragraphs.

125. Exercise 1. Foreup, Behind Back

a. *Starting Position.* Rifle downward, feet together (1, fig 8).

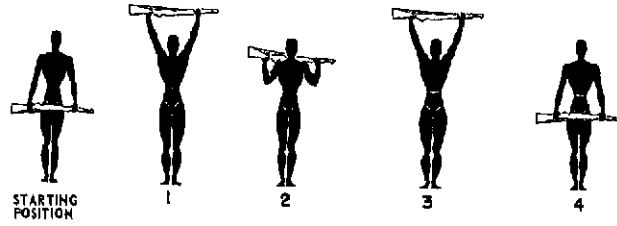
b. *Cadence.* Slow.

c. *Movement.* A four-count exercise: at the count of—

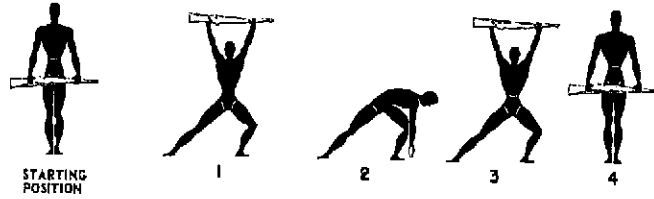
(1) ONE—Swing the arms forward and upward to the overhead position. Inhale.

(2) TWO—Lower the rifle to the back of the

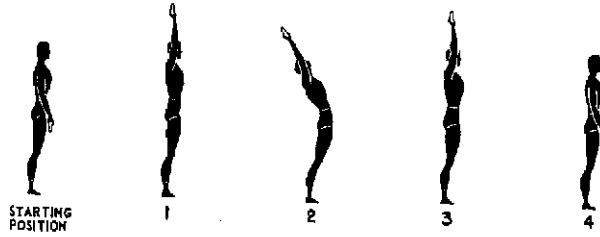
FOREUP, BEHIND BACK, EXERCISE 1



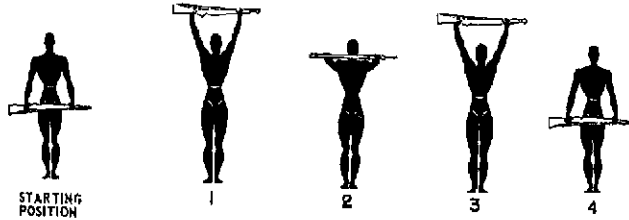
LUNGE SIDE, TURN AND BEND, EXERCISE 2



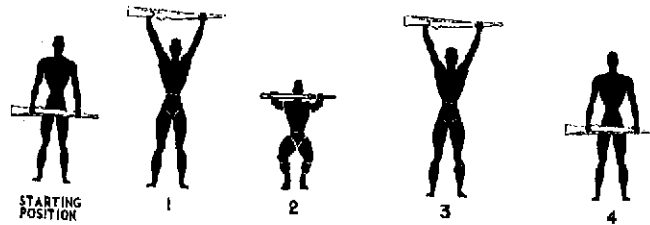
FOREUP, BACK BEND, EXERCISE 3



UP AND FORWARD, EXERCISE 4



FOREUP SQUAT, EXERCISE 5



ARMS FORWARD, SIDE BEND, EXERCISE 6

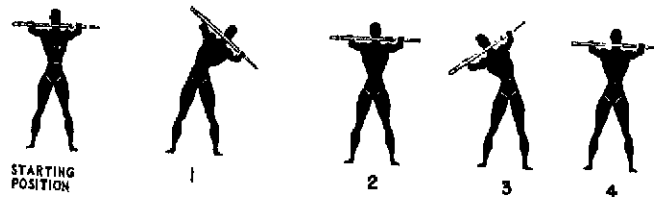


Figure 8. Rifle drill.

shoulders. Exhale.

(3) THREE—Recover to position ONE and inhale.

(4) FOUR—Recover to the starting position and exhale.

126. Exercise 2. Lunge Side, Turn and Bend

a. Starting Position. Rifle downward, feet together (2, fig 8).

b. Cadence. Moderate.

c. Movement. An eight-count exercise: at the count of—

(1) ONE—Lunge sideward to the left, swing the rifle forward and upward to the overhead position.

(2) TWO—Turn the trunk to the left and bend forward over the left hip. At the same time, swing the rifle to a low horizontal in front of the left ankle.

(3) THREE—Recover to position ONE.

(4) FOUR—Recover to the starting position.

(5) FIVE, SIX, SEVEN, and EIGHT—Repeat on the right side.

127. Exercise 3. Foreup, Back Bend

a. Starting Position. Rifle downward, feet together (3, fig 8).

b. Cadence. Moderate.

c. Movement. A four-count exercise; at the count of—

(1) ONE—Swing the arms forward and upward to the overhead position.

(2) TWO—Bend backward, emphasizing the bend in the upper back. The face is up. Keep the knees straight.

(3) THREE—Recover to position ONE.

(4) FOUR—Recover to the starting position.

128. Exercise 4. Up and Forward

a. Starting Position. Rifle downward, feet together (4, fig 8).

b. Cadence. Fast.

c. Movement. A four-count exercise: at the count of—

(1) ONE—Swing the arms forward and upward to the overhead position.

(2) TWO—Swing the arms forward to shoulder level.

(3) THREE—Recover to position ONE.

(4) FOUR—Recover to the starting position.

129. Exercise 5. Foreup, and Squat

a. Starting Position. Rifle downward, feet in narrow stance (5, fig 8).

b. Cadence. Moderate.

c. Movement. A four-count exercise: at the count of—

(1) ONE—Swing the arms forward and upward to the overhead position.

(2) TWO—Swing the arms down to shoulder level and assume the half knee bend position.

(3) THREE—Recover to position ONE.

(4) FOUR—Recover to the starting position.

130. Exercise 6. Arms Forward, Side Bend

a. Starting Position. Side straddle, regular stance, rifle forward (6, fig 8).

b. Cadence. Moderate.

c. Movement. A four-count exercise: at the count of—

(1) ONE—Bend the trunk to the left. Keep the knees straight.

(2) TWO—Recover to the starting position.

(3) THREE—Bend the trunk to the right. Keep the knees straight.

(4) FOUR—Recover to the starting position.

Note. Keep the rifle on the same level as the shoulders throughout the exercise.

Section II. LOG DRILL

131. Description and Function

Log exercises are team conditioning exercises performed with a log. Log teams of six to eight men are used. There are six exercises and they are numbered in a set pattern. The drill can be completed in 15 minutes. Log exercises are excellent for developing strength and muscular endurance because they require the muscles to contract

under maximum loads. Log exercises also develop teamwork.

132. Area and Equipment

a. Any level area is satisfactory for the conduct of this drill. All exercises are completed from a standing position. If the group exceeds one platoon in size an instructor's stand is required.

b. The logs should be from 6 to 8 inches in diameter. They may vary in length from 14 feet (for six men) to 18 feet (for eight men). They should be skinned, smoothed, and dried. The 14-foot logs should weight approximately 300 pounds and the 18-foot logs, 400 pounds. Rings should be painted on the logs to indicate each man's position. When not in use, the logs should be stored on a rack.

133. Formation

a. All men assigned to the same log team should be about the same height at the shoulders. The recommended method of dividing the platoon is to have the men form a single file or column with short men to the front and tall men to the rear. Have the men assume their positions in the column according to shoulder height, not head height. When the men are in position, they are given the command *COUNT OFF BY SIXES (OR EIGHTS)*, *COUNT OFF*, to divide them into six- or eight-man teams. Each team, in turn, then proceeds to the log rack, shoulders a log, and carries it to the exercise area.

b. The log teams form columns in front of the instructor. With the men holding the log in the chest position (para 135f), have them face the instructor and ground the log 10 yards from him. There should be 10 yards between columns and 10 yards between log teams within the columns.

134. Starting Dosage and Progression

The starting dosage and progression is the same as for Rifle Drill, for this information see paragraphs 124 through 130.

135. Starting Positions

The men fall in, facing the log, their toes about 4 inches from it. The basic starting positions (fig 9) and commands are as follows:

a. ONE—RIGHT HAND STARTING POSITION. TWO—MOVE. At the command MOVE, move the left foot 12 inches to the left and lower the body into a flatfoot squat. Keep the back straight, head up, and arms between the legs. Encircle the far side of the log with the left hand. Place the right hand underneath the log (a, fig 9).

b. ONE—LEFT HAND STARTING POSITION, TWO—MOVE. These commands are executed in the same manner as in a above except that the left hand is underneath the log and the right hand encircles its far side (b, fig 9).

c. ONE—RIGHT SHOULDER POSITION. TWO—MOVE. At the command MOVE, pull the

log upward in one continuous motion to the right shoulder. At the same time, move the left foot to the rear and stand up, facing left. Balance the log on the right shoulder with both hands (c, fig 9). This movement cannot be performed from the left hand starting position because of the position of the hands.

d. ONE—LEFT SHOULDER POSITION. TWO—MOVE. These commands should be given from the left hand starting position. At the command MOVE, pull the log upward in one continuous motion, to the left shoulder. At the same time, move the right foot to the rear and stand up facing right. Balance the log on the left shoulder with both hands (d, fig 9). This movement cannot be performed from the right hand starting position.

e. ONE—WAIST POSITION. TWO—MOVE. From the right hand starting position pull the log waist high. Keep the arms straight and fingers laced underneath the log. The body is inclined slightly to the rear and the chest is lifted and arched (e, fig 9).

f. ONE—CHEST POSITION. TWO—MOVE. These commands should be given after assuming the waist position. On the command MOVE, shift the log to a position high on the chest, bring the left arm under the log and hold the log in the bend of the arms (f, fig 9). Keep the upper arms parallel to the ground.

g. To move the log from the right shoulder to the left shoulder, the commands are: ONE—LEFT SHOULDER POSITION. TWO—MOVE. On the command MOVE, push the log overhead and lower it to the opposite shoulder.

h. To return the log to the ground from any of the above positions, the commands are: ONE—STARTING POSITION. TWO—MOVE. At the command MOVE, slowly lower the log to the ground. The hands and fingers must be kept from under the log.

136. Leadership

A principal instructor is required to teach, demonstrate, and lead the drill. He must be familiar with the leadership techniques for conditioning exercises and the peculiar techniques for Log Drill.

137. Place in the Program

Log exercises may be used in lieu of the conditioning exercises (Drills One, Two, and Three) and also in lieu of rifle exercises, after the men have become somewhat conditioned. At such time, log

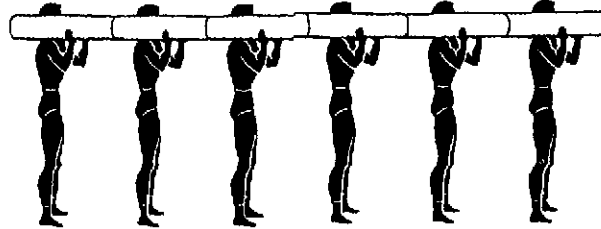
A RIGHT HAND STARTING POSITION



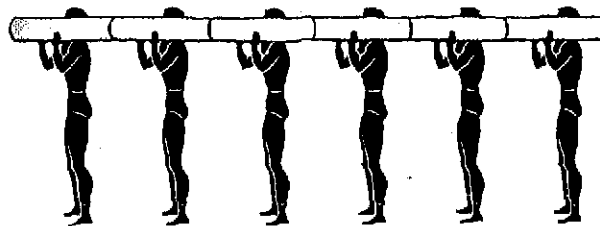
B LEFT HAND STARTING POSITION



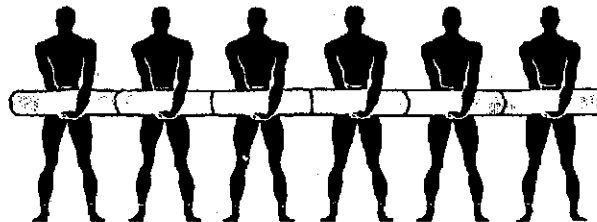
C RIGHT SHOULDER POSITION



D LEFT SHOULDER POSITION



E WAIST POSITION



F CHEST POSITION

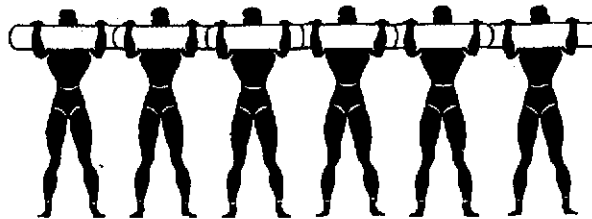


Figure 9. Starting positions, log drill.

exercises provide a welcome change in the physical training program. The exercises of Log Drill are outlined in the following paragraphs.

138. Exercise 1. Two-Arm Pushup

a. Starting Position. Right or left shoulder position. Regular stance (1, fig 10).

b. *Cadence.* Moderate.

c. *Movement.* A four-count exercise: at the count of—

(1) ONE—Push the log overhead until the elbows lock.

(2) TWO—Lower the log to the opposite shoulder.

(3) THREE—Repeat the action of count ONE.

(4) FOUR—Recover to the starting position.

139. Exercise 2. Forward Bender

a. *Starting Position.* Chest position. Regular stance (2, fig. 10).

b. *Cadence.* Moderate.

c. *Movement.* A four-count exercise: at the count of—

(1) ONE—Bend forward at the waist, keeping the back and legs straight.

(2) TWO—Recover to the starting position.

(3) THREE—Repeat the action of count ONE.

(4) FOUR—Recover to the starting position.

140. Exercise 3. Straddle Jump

a. *Starting Position.* Right or left shoulder position, feet together, fingers interlaced on top of the log (3, fig. 10).

b. *Cadence.* Moderate.

c. *Movement.* A four-count exercise: at the count of—

(1) ONE—Jump to a side straddle. Pull down on the log with both hands to keep it from bouncing on the shoulder.

(2) TWO—Recover to the starting position.

(3) THREE—Repeat the action of count ONE.

(4) FOUR—Recover to the starting position.

141. Exercise 4. Side Bender

a. *Starting Position.* Right shoulder position, feet regular stance (4, fig. 10).

b. *Cadence.* Moderate.

c. *Movement.* A four-count exercise: at the count of—

(1) ONE—Bend sideward to the left as far as possible, bending the left knee.

(2) TWO—Recover to the starting position.

(3) THREE—Repeat the action of count ONE.

(4) FOUR—Recover to the starting position.

d. After completing the required number of repetitions, change shoulders and execute an equal number of repetitions to the other side.

142. Exercise 5. Knee Bend

a. *Starting Position.* Right or left shoulder position. Narrow stance. Fingers interlocked on top of the log (5, fig. 10).

b. *Cadence.* Slow.

c. *Movement.* A four-count exercise: at the count of—

(1) ONE—Flex the knees to a half squat position.

(2) TWO—Recover to the starting position.

(3) THREE—Lower the body to a half squat position. (Lean slightly forward.)

(4) FOUR—Recover to the starting position.

Note. Pull forward and downward on the log throughout the exercise.

143. Exercise 6. Overhead Toss

a. *Starting Position.* Right or left shoulder position, regular stance. The knees are bent to a quarter-squat (6, fig. 10).

b. *Cadence.* Moderate.

c. *Movement.* A four-count exercise: at the count of—

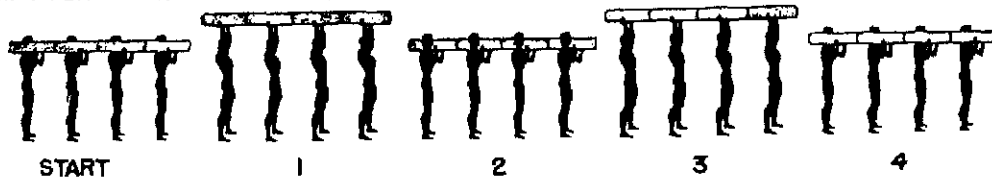
(1) ONE—Straighten the knees and toss the log into the air approximately 12 inches overhead. Catch the log with both hands and lower it toward the opposite shoulder. As the log is caught, lower the body into a quartersquat.

(2) TWO—Again toss the log into the air and when caught return it to the original shoulder.

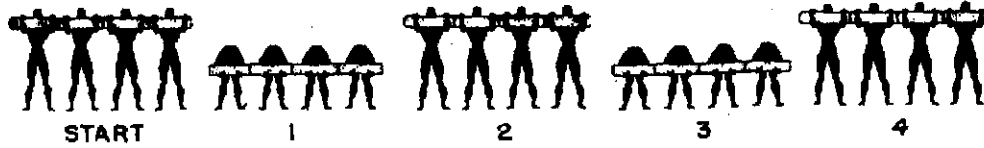
(3) THREE—Repeat the action of count ONE.

(4) FOUR—Recover to the starting position.

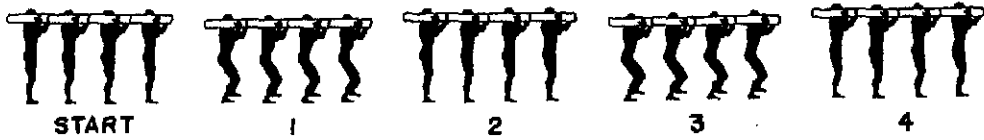
TWO-ARM PUSHUP EXERCISE 1



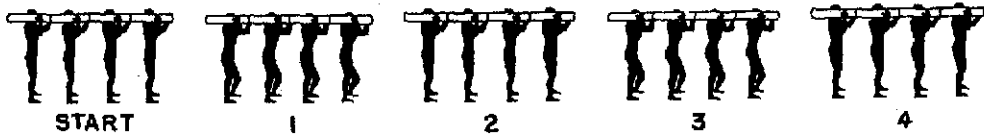
FORWARD BENDER EXERCISE 2



STRADDLE JUMP EXERCISE 3



SIDE BENDER EXERCISE 4



DEEP KNEE BEND EXERCISE 5



OVERHEAD TOSS EXERCISE 6

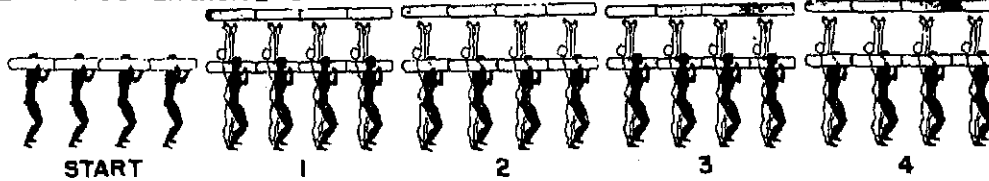


Figure 10. Log drill.

CHAPTER 12

GRASS DRILLS

Section I. INTRODUCTION

144. Description and Function

Grass drills consist of movements which feature rapid changes in body position. These drills are designed to vigorously exercise all major muscle groups. Each individual responds to commands as rapidly as possible and all movements are at top speed. No cadence is counted, but men continue to execute multiple repetitions of an exercise until the next command is given. The function of the drills is to decrease reaction time, develop muscular endurance, increase strength, and improve cir- culo-respiratory endurance. These drills are extremely strenuous; therefore they are continued only for short periods of time. There are two drills: Drill One and Drill Two. Each drill contains six exercises.

145. Area and Equipment

Any level area suitable for ground contact and large enough to accommodate the group is adequate. No equipment is needed.

146. Formation

All movements are executed in place. The extended, rectangular formation is recommended for a platoon- or company-size unit. The circle formation is suitable for groups of squad or section size.

147. Dosage and Progression

At the beginning of an exercise program, 2 to 3 minutes will insure a good workout. Progression is gained by gradually increasing the length of time devoted to the drills. As the physical condition of the men improves, the periods should be gradually lengthened to 5 minutes. As the second drill is more difficult than the first, some progression can be attained by initially executing grass Drill One, then as the program and the men progress, introduce Drill Two. To extend the duration of the drill it may be necessary to repeat the drill.

148. Starting Position

a. The drills are started from the GO position. Other basic positions are FRONT, BACK, and STOP (a, fig 11).

(1) GO. Running in place (top speed): on the toes and balls of feet, knees raised high, arms pumping, body bent forward at waist.

(2) FRONT. Prone position: elbows bent (along body), palms flat on ground directly under the shoulders, legs straight and together.

(3) BACK. Supine position (flat on back): arms extended near side on ground with palms down, leg straight and together, feet toward the stand or instructor.

(4) STOP. Football lineman stance: feet spread and staggered, left arm across left thigh, right arm straight, knuckles on ground, head up, back parallel with ground.

b. To assume the FRONT or BACK position from the STANDING, GO, or STOP position, vigorously and rapidly change to the prescribed position (b, fig 11).

c. To change from the FRONT to the BACK position, quickly do a pushup, move the feet several short steps to the right or left, lift the arm on the side toward which the feet move, and thrust the legs vigorously to the front (c, fig 11).

d. To move from the BACK to the FRONT position, sit up quickly, place both hands on the ground to the right or the left of the legs. Move the feet several short steps to the rear on the side opposite the hands. When the feet are opposite the hands, thrust the legs vigorously to the rear and lower the body to the ground (d, fig 11).

149. Place in the Program

Grass drills can be executed in a short period of time. The drills may be executed when only a few minutes are available for exercise, or they may be executed in conjunction with another type of

A. FOUR BASIC POSITIONS



GO



FRONT

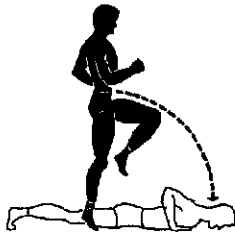


BACK



STOP

B. ASSUMING FRONT AND BACK POSITIONS



C. CHANGING FROM FRONT TO BACK



D. CHANGING FROM BACK TO FRONT



Figure 11. Basic positions for grass drills.

activity. Grass drills are an excellent occasional substitute for running when time is a factor.

150. Leadership

A warmup activity of lesser intensity should precede grass drill. During the instruction phase and conduct of these drills the following points should be applied:

a. The instructor executes only GO and STOP with the troops. This allows him to supervise the drill.

b. The commands peculiar to grass drills are given in rapid succession without the usual preparatory command.

c. To prevent confusion, the instructor should give commands sharply to distinguish them from comments or encouragement.

d. As soon as the men are familiar with the drill, they perform all exercises as vigorously and as rapidly as possible. All exercises are executed continuously until the next command is given.

Insist on top speed performance; anything less is ineffective.

e. The commands for each exercise are identical to the name of the exercise.

f. Men are not to be required to assume the position of attention once the drills are started. To halt the drill for instructions or for rest, the command UP is used. At this command, the men assume a relaxed standing position. Do not de-

mand formality. At the conclusion of a vigorous 5-minute grass drill, it is physically impossible for men to stand at attention.

g. The sequence of commands for the execution of grass drills should occur in the order as contained in this example of Drill One. "GO, GO, knee bend; GO, BACK, Situps; GO, FRONT, Mountain Climber; GO, FRONT, Roll Left; GO, STOP, UP."

Section II. GRASS DRILL ONE AND TWO

151. Grass Drill One

a. *Bouncing Ball.* From the FRONT position, push up, supporting the body on the hands (shoulder-width apart) and feet. Keep the back and legs in line and the knees straight. Bounce up and down by a series of short, upward springs from the hands, hips, and feet simultaneously.

b. *Bicycle.* From the BACK position, raise the legs and hips. Keep the elbows on the ground and support the hips with the hands. Move the legs vigorously as if pedaling a bicycle.

c. *Knee Bend.* From the STOP position, assume a half knee bend, the feet on line, hands at the sides. Execute half knee bends.

d. *Situps.* From the BACK position and with arms stretched overhead, sit up, reach forward, and touch toes. Return to the supine position.

e. *Mountain Climber.* From the STOP position, place both hands on the ground directly under the shoulders. Thrust the right leg to the rear, knee straight. The left foot should be close to the left hand, the left knee outside the left arm. Shift the weight to the hands, thrust off with the rear (right) foot and bring that foot up close to the right hand, the right knee outside the right arm. At the same time, thrust the left leg vigorously to the rear, knee straight. Continue at a fast cadence, alternating the legs.

f. *Roll Left.* From the BACK or FRONT position, make one complete roll in the direction com-

manded. On completing the roll, return to the FRONT or BACK position.

152. Grass Drill Two

a. *Legs Over.* From the BACK position and with arms stretched overhead, palms up, raise the legs upward and then swing them backward over the head until the toes touch the ground behind the head. Return legs to the starting position.

b. *V-Up and Touch Toes.* From the BACK position, raise the legs with the knees straight, sit up until the trunk and legs form a V, and touch the toes with the hands. Return to the BACK position.

c. *Rocker.* In the FRONT position, clasp the hands behind the back, arch the body, holding the head back. Start rocking, using the front part of the trunk as a rocker.

d. *Bounce and Clap Hands.* The procedure is the same as for bouncing ball (fig 12), but while in the air, clap the hands. This requires a more vigorous bounce or spring.

e. *Leg Spreader.* From the BACK position, raise the legs so that the heels are 10 to 12 inches from the ground, spread them apart as far as possible, then close them together. Open and close legs as rapidly as possible.

f. *Forward Roll.* For forward roll from the STOP position, place both hands on the ground, tuck the head, and do ONE complete forward roll, keeping the legs tucked as you roll, and come back to the STOP position.

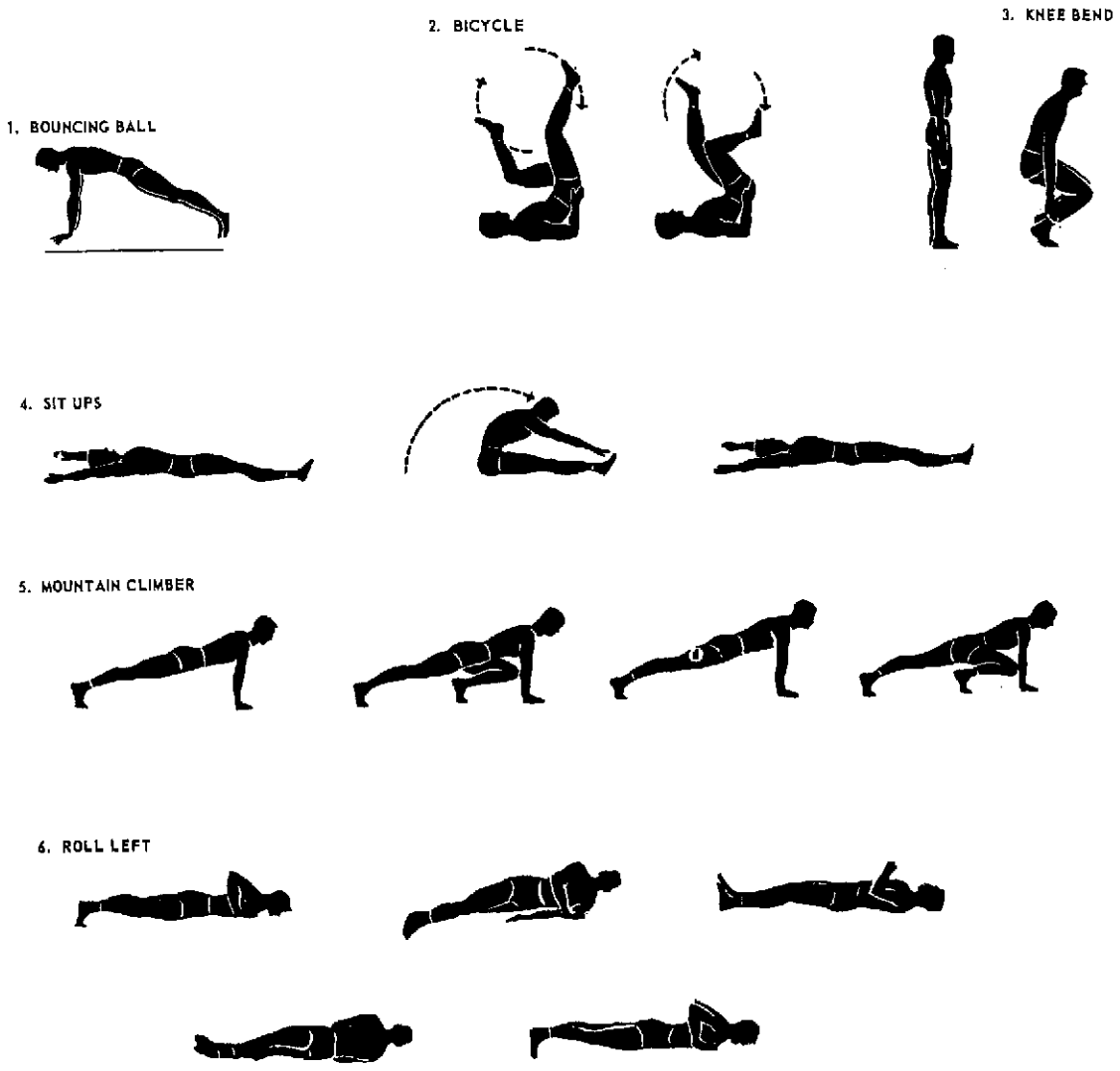
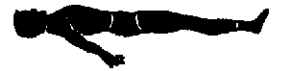


Figure 12. Grass drill one.

A. LEGS OVER



B. V-UP AND TOUGH TOES



C. ROCKER



D. BOUNCE AND CLAP HANDS



E. LEG SPREADER



SIDE VIEW



FRONT VIEW

F. FORWARD ROLL



Figure 15. Grass drill two.

CHAPTER 13

GUERRILLA EXERCISES

Section I. INTRODUCTION

153. Description and Function

Guerrilla exercises are individual exercises of an informal nature which require rapid change of body position and the execution of various basic skills while moving forward. The group moves in a circle formation while performing the exercises. This activity increases strength and endurance, aids flexibility, and develops coordination. There are two tables of guerrilla exercises, each of which can be completed in 15 minutes.

154. Area and Equipment

Any level area is suitable for the conduct of guerrilla exercises. Other than with the hands, no ground contact is required. There is no equipment requirement.

155. Formation

a. The circle formation (app B) is used for guerrilla exercises. Each platoon, under an instructor, forms its own circle and engages in guerrilla exercises. If the platoon exceeds 30 men, double or concentric circles may be used.

b. When the circle is formed, the instructor steps into the center of the circle and moves *clockwise* in a *small* circle. He commands: QUICK TIME, MARCH, 1-2-3-4. (Rapid cadence of approximately 130 counts per minute. Cadence and step are maintained between exercises.)

c. To re-form the platoon after completing guerrilla exercises, the instructor halts the men and places the base man or platoon guide where he wishes and commands:

- (1) BASE MAN (or platoon guide), POST.
- (2) FALL OUT AND FALL IN ON THE BASE MAN (or platoon guide).

156. Dosage and Progression

One table per conditioning period is the normal dosage. Progression may be attained by moving from table I to table II. Another method of progression is to shorten the quick time marching

periods between exercises and perform all exercises a second time.

157. Place in the Program

Many men have not had the opportunity to perform the simple skills involved in guerrilla exercises. The conduct of these exercises is a simple matter as they can be performed easily and quickly in almost any situation. The tables of exercise are applicable to all personnel. The tables can constitute a station within a 1-hour period or be completed within a separate 15-minute period.

158. Leadership

a. To execute the exercises, the men continue at quick time while the instructor explains and demonstrates the exercise to be performed, and then issues commands accordingly. In each instance, the preparatory command will be the name of the exercise, and the command of execution will always be MARCH. To terminate each exercise, the command is QUICK TIME, MARCH. The men immediately pick up the step as the instructor counts cadence.

b. The leader can determine the duration of each exercise by observing its effect upon the participants. Depending on its vigor, each exercise should be continued for 20 to 40 seconds unless specified differently in the tables.

c. To form for double guerrillas, the commands for pairing the men (who are in circle formation) are:

- (1) PLATOON, HALT.
- (2) FROM (designate an individual), BY TWO'S, COUNT OFF. (Example 1-2; 1-2; 1-2; etc.)
- (3) EVEN NUMBERS MOVE UP BEHIND ODD NUMBERS. (At this time adjust pairs according to height and weight.)
- (4) YOU ARE NOW PAIRED UP FOR DOUBLE GUERRILLAS. (To change the men's positions, merely command "CHANGE.")
- (5) FORWARD, MARCH.

Section II. GUERRILLA TABLES

159. Table 1

a. *Double Time* (1, fig 14). The arms are held in the thrust position. The personnel execute a double time run, maintaining the circle formation and the prescribed distance between personnel. Duration—1 minute.

b. *All Fours* (2, fig 14). Face downward. Support the body on the hands and feet. Walk forward as fast as possible.

c. *Crab Walk* (3, fig 14). Assume the sitting position, lift the hips, supporting the body on the hands and feet, and walk forward feet first.

d. *Broad Jump* (4, fig 14). Jump forward on both feet in a series of broad jumps. Swing the arms vigorously to assist the jumps.

e. *Toe-Touch Walk* (5, fig 14). Walk forward, bending at the waist and touching one hand to the toe of the opposite foot while it is on the ground. Raise the trunk to the vertical position between steps. Keep the knees straight.

f. *Bottoms Up Walk* (6, fig 14). Assume the front leaning rest position and move the feet toward the hands in short steps, keeping the knees locked. When the feet are as close to the hands as possible, walk forward on the hands to the front leaning rest position.

g. *Straddle Run* (7, fig 14). Run forward, leaping to the right from the left foot and to the left from the right foot.

h. *Fireman's Carry*. See *i* below.

i. *Single Shoulder Carry* (8 and 9, fig 14). Two men execute the carries as indicated by the diagram. No. 1 man executes one type; No. 2 man executes the other.

160. Table 2

a. *Double Time* (1, fig 15). The arms are held at

the thrust position. The personnel execute a double time run, maintaining the circle formation and the prescribed distance between personnel. Duration—1 minute.

b. *Toe Grasp Walk* (2, fig 15). Bend forward and grasp toes. With knees slightly bent, walk forward.

c. *Hand-Kick Walk* (3, fig 15). Walk forward, kicking the moving foot upward on every step. At the same time, lean forward and touch the elevated toe with the hand of the opposite arm.

d. *Pike Jumping* (4, fig 15). Jump forward and upward from both feet, keeping the knees straight, and at the same time swing the legs forward and touch the toes with the hands at the top of each jump.

e. *Steam Engine* (5, fig 15). Lace the fingers behind the neck and walk forward in the following manner: as the left leg moves forward, raise the knee high, bend the trunk forward, and touch the outside of the right elbow to the outside of the knee. Then lower the left leg and step forward on the left foot and raise the right leg. Repeat with the right leg and left elbow.

f. *Knee-Touch Walk* (6, fig 15). Walk forward, bending the knees and touching the knee of the rear leg to the ground on each step. The knees are bent and straightened on each step.

g. *Hobble Hopping* (7, fig 15). Hold foot behind back with opposite hand and hop forward. On command "change" grasp the opposite foot with opposite hand and hop forward.

h. *Cross Carry*. See *i* below.

i. *Saddle Back Carry* (8 and 9, fig 15). Two men execute the carries as indicated in the diagram. No. 1 man executes one type; No. 2 man executes the other.

1. DOUBLE TIME



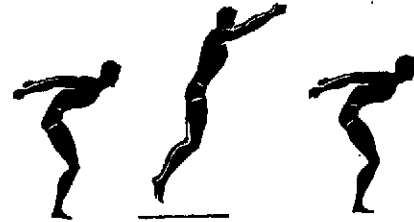
2. ALL FOURS



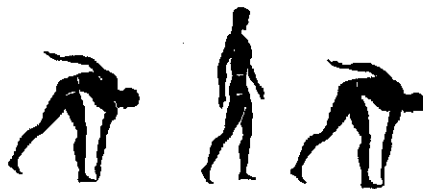
3. CRAB WALK



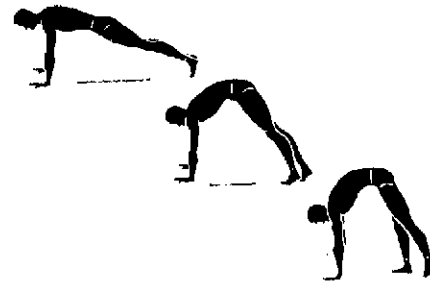
4. BROAD JUMP



5. TOE-TOUCH WALK



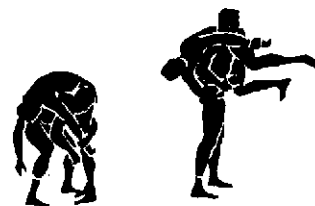
6. BOTTOMS UP WALK



7. STRADDLE RUN



8. FIREMAN'S CARRY

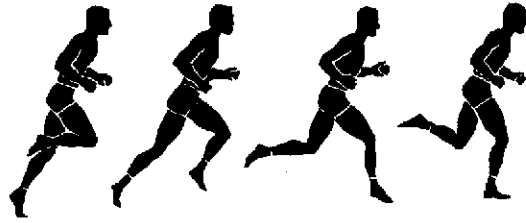


9. SINGLE SHOULDER CARRY



Figure 14. Guerrilla Table I.

1. DOUBLE TIME



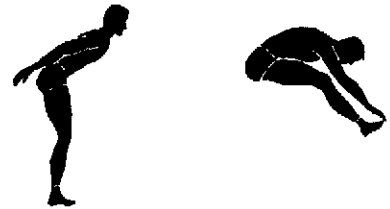
2. TOE-GRASP WALK



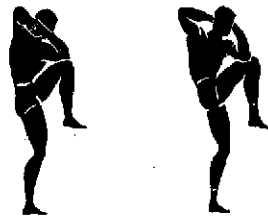
3. HAND-KICK WALK



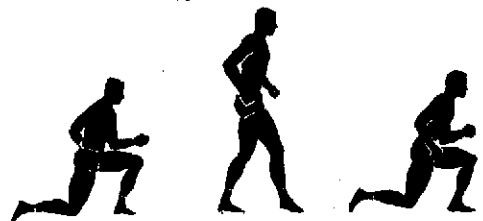
4. PIKE JUMPING



5. STEAM ENGINE



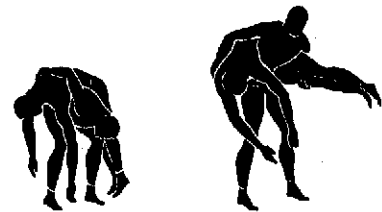
6. KNEE-TOUCH WALK



7. HOBBLE HOPPING



8. CROSS CARRY



9. SADDLE BACK CARRY



Figure 15. Guerrilla Table II.

CHAPTER 14

RUNNING

Section I. INTRODUCTION

161. Circulo-Respiratory Endurance

Circulo-respiratory endurance (wind) depends on the efficiency of the lungs and heart. The maximum effort a man can exert over a period of time is limited by the amount of oxygen his lungs can absorb with each breath inhaled and the amount of carbon dioxide his lungs can expel with each exhalation. The process of absorbing oxygen and expelling carbon dioxide (circulo-respiratory process) is performed by the blood that circulates through the lungs. The average man's capacity for keeping fresh blood circulating through his lungs can be greatly increased by exercise. Running is one of the best exercises for this purpose.

162. Use in the Program

Despite the fact that some men have been endowed with superb muscle structure and strength, unless they have developed circulo-respiratory endurance (wind) to a satisfactory degree, they are not entirely physically fit. Running is one of the best activities to develop circulo-respiratory endurance. Running fits well into the program as the recommended running tables can be completed in 15 minutes or less. In addition to the types of running in this chapter, there are other types which may be used, such as grass drills and the circuit-interval run.

163. Proper Form

The technique for all types of running is fairly constant (fig 16). The head is erect, body slightly forward without bending at the waist, and the arms are at a loose thrust position alternating from front to rear in straight planes. A cross-

body arm movement wastes energy. The movement of the legs and feet will be discussed in subsequent paragraphs dealing with the different types of running. Of primary importance is the fact that in all types of running the toes must be pointed straight ahead. Toeing out is a common error in both running and walking and should be an item of individual correction.

164. Provisions for Instruction

In the development of running skill men require instruction to improve their proficiency. A progressive running program is specified in figures 17—19. This program is divided into running tables progressing from double time to cross-country running, and finally to speed marching. There are 38 periods totaling 34 hours of running.

a. Teach and insist upon proper form. Arm action is important; check to see that arms are held loosely and that the action is relaxed. The faster the run, the more rapid the arm action.

b. Allow the men to breathe through the mouth; the body demands a large supply of oxygen and it can be inhaled in greater quantities through the mouth.

c. Increased lung capacity develops as a result of running. This development is a slow process of gradually opening dormant air sacs in the lungs. The participant's resolve to run long distances may be high, yet if lung capacity is poor due to lack of an adequate amount of running, he will be unable to match his resolve with his performance. Leaders must understand this process and apply this knowledge in order to properly administer a running program.

Section II. TYPES OF RUNNING

165. Double Time

a. *Description and Function.* Double timing is marching at the rate of 180 steps per minute, each step being 30 inches in length. It takes practice to

double time with precision in formation. The troops should keep in step, placing their feet flat on the ground. This, however, should not be a stamping motion—it should be done with as slight

PROPER RUNNING FORM

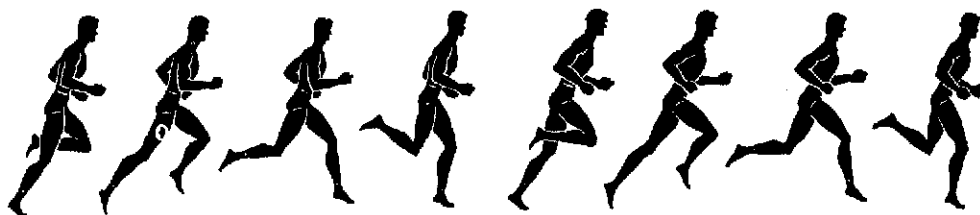


Figure 16. Proper running form.

a jolt as possible. Double timing is like a jog, the difference being that in a jog the feet are lifted off the ground and the running motion is bouncy. In double timing, the feet skim the ground and there is no bounce. Double timing is a method of teaching proper running form while developing circulo-respiratory endurance.

b. *Area.* This type of running can be accomplished on a variety of surfaces. Usually a field or road is utilized.

c. *Starting Time, Distance and Progression.* There is no set standard for alternating quick time and double time in the early conditioning of troops. A general rule is to begin with enough quick-time marching to insure a thorough warming up, then double time about 100 paces. Change again to quick time until the men have made a reasonable recovery, then double time another 100 paces. The amount of double time can be increased and the quick time decreased from week to week, until the men are double timing about 1800 yards (para 169). This type of training should be given at least twice a week, but by no means is it adequate as the only method of conditioning.

d. *Leadership.*

(1) The instructor should be on one side of the column or group, toward the rear, so he can have a full view of all men. Inexperienced instructors have a tendency to supervise from a forward position, and thus do not have all men under observation.

(2) Select a man who can maintain the proper cadence to act as the guide during double time running.

(3) Uncoordinated men who cannot keep step while double timing should be placed in the rear of the formation.

(4) There are several ways for the instructor and group to count cadence while double timing. If not contrary to local policy, learn and use several methods for variety.

(5) Control the time and distance of early

conditioning running to prevent the weaker men from falling out; observe the men closely and bring the group to quick time before they start to falter. Men forced to fall out in the early conditioning stage often form a mental pattern for falling out which persists, although later there is no physical reason for it.

166. Wind Sprints

a. *Description and Function.* This type of running involves a series of 30- or 40-yard dashes, usually conducted in successive waves of squads. Each squad is in line and the squad leader is on the right flank. Wind sprints assist in developing speed, explosive power, and circulo-respiratory endurance.

b. *Area.* Any flat and level area which will permit the squad to form a line and run the required distance may be used.

c. *Starting Distance and Progression.* At the beginning one or two 30-yard sprints will be adequate. Later the distance may be lengthened and up to six or seven repetitions may be used (para 169).

d. *Leadership.*

(1) At the command READY (given by squad leader), each runner assumes the sprinter's starting position. At the command GO, the squad sprints approximately 30 yards, takes 10 yards to stop, and lines up immediately with the squad leader who repeats, READY, GO, and again the squad sprints. At the conclusion of the third sprint the squad waits until all squads of the platoon have completed three sprints, then three more wind sprints are run in the opposite direction.

(2) Valuable time is gained by having each squad ready to go when the preceding squad has moved off its second sprint mark.

167. Cross-Country Running

a. *Description and Function.* Cross-country is a distance run conducted on a course laid out along

roads, across fields, over hills, through woods, and on any irregular ground. The cross-country run may be utilized as a conditioner or as a competitive event; the objective is to cover the distance in the shortest possible time. These runs strengthen leg muscles, and develop circulo-respiratory endurance.

b. Area. Any local area of varied terrain is suitable. The course should be 2 to 2½ miles in length and located to avoid heavy vehicular traffic. The course should be marked by directional arrows until men become familiar with the route.

c. Starting Speed, Distance, and Progression. In the mass training of a large group, leaders should be stationed at the front and the rear of the column and they should make every effort to keep the men together.

(1) After determining the abilities of the men in cross-country running, it is advisable to divide the unit into three groups. The poorest conditioned group is started first, and the best conditioned group, last. The starting time of the groups should be staggered so that all of them finish about the same time.

(2) In preliminary training, the running is similar to ordinary road work in that it begins with rather slow jogging, alternating with walking. The speed and distance of the run is gradually increased. As the condition of the men improves, occasional sprints may be introduced. At first the distance run is from one-half to 1 mile. It is gradually increased to 2 or 2½ miles (para 170).

d. Leadership.

(1) No man should be required to take part in distance running until he has been through a progressively scheduled training program which requires a considerable amount of running.

(2) Cross-country runs should be scheduled occasionally to provide variety in the program. Cross-country running has the advantage of allowing mass participation. Interest can be stimulated by putting the runs on a competitive basis (para 336).

(3) As a single activity, short cross-country runs can be scheduled once a week, gradually increasing the distance as the physical condition of the men improves; or this running can be combined with other activities such as conditioning exercises. Well conditioned men can run 2 to 2½ miles within a 15 minute period.

168. Speed Marching

a. Description and Function. As prescribed here speed marching is used as a physical conditioner.

Speed marching is forced marching, combining quick time and double time. Normal field equipment, individual weapons, and gear are worn and carried during the march.

b. Area. This type of marching and running is completed on roads or trails.

c. Starting Speed, Distance, and Progression.

(1) Because physical conditioning is proportional to the intensity of the exercise, and since the intensity varies with the speed, the faster marches have more conditioning value than the slower and somewhat longer ones. For example, a march of 5 miles in 1 hour has more value than a slower march of 5 miles in 2 hours. Hence, for conditioning, much of the marching should be a combination of quick time and double time. In training marches distances are established at 4, 5, 9, 12 and 16 miles (para 17).

(2) Speed marches should be introduced gradually with allowance for terrain, weight carried, condition of the troops, and the temperature. Marches should become progressively more difficult.

d. Leadership.

(1) In speed marching, both during the quick and the double time, cadence and step are constantly maintained.

(2) The group should not be larger than a company. If company size, all command and control are under company control. If platoon size, the platoon leader controls the march.

(3) It is essential that cadence and step be maintained in a company formation (column or platoons) to prevent accordion action within the column.

(4) To reduce accordion action within the column, reform platoons with short men at the head of the platoon and taller men toward the rear. After facing the platoon or the company to the right, have men (within squads) fall out and fall in according to height.

(5) Commands are used to begin and terminate quick time and double time. Straggling should not occur as men are to be trained up to the demands of the speed march prior to use of this form of conditioning.

(6) In marching the recommended distances, a combination of quick time and double time is less fatiguing than fast quick time marching. For example, 166, 34-inch steps per minute are required to march 4 miles in 45 minutes. A quick time cadence of 166 is far beyond the capabilities of the average unit. However troops can execute this distance by speed marching.

(7) Leaders will be able to determine the combination of pace and cadence which their men are capable of maintaining. Progressive speed marches from 4 miles to the longer marches will identify this capability.

(8) The leader should use a watch to determine distance covered. For example, if marching 5 miles in 1 hour, the unit should cover half the distance in 30 minutes, or three-quarters of the distance in 45 minutes. Experience will establish the number of periods of quick and double time required to travel a given distance.

169. Double Time and Wind Sprint Table

This table is based upon a group which is starting to run as part of its physical readiness program. At the beginning it may be necessary to double time and quick time to cover the distance prescribed. As fitness improves the distance increases but the time remains constant. Note that three periods are devoted to each distance (fig 17).

170. Cross-Country Running Table

There is a progression from table 1 to table 2. In table 2 a different type of running is prescribed and the distances increase with the time remaining at 15 minutes. As in table 1, three periods are devoted to each distance (fig 18).

171. Speed Marching Table

This table is a further progression from tables 1 and 2. Men who have completed the previous ta-

bles will be ready for the specified distances. Field gear normally not carried in tables 1 and 2 will add weight to the runner (fig 19).

172. Run for Your Life Program

a. The "Run for Your Life" Program is a progressive distance running program designed to strengthen the circulo-respiratory system (heart, lungs, and circulatory vessels) by gradually expanding their capacity to handle stress. The program is available to all military personnel, their dependents, and members of the civilian work force, on a voluntary basis. Although not designed as a unit training program, the program provides for unit participation.

b. The running tables specified for the program are based upon widely accepted principles of physical conditioning to include progression, developmental plateaus, and aerobics. They are available to provide a simple, yet effective program for healthy people in any stage of physical fitness, and will satisfy the needs of men, women, and children. Awards are made to individual personnel who achieve specified goals, which results in increased motivation.

c. The "Run for Your Life" Program should be administered throughout the Army in order that participants may transfer and continue running at their new stations. Installation commanders should support the program. For detailed instructions and conduct of the program, refer to appendix C.

TABLE I. DOUBLE TIME AND WIND SPRINTS			
PERIODS	TIME	DOUBLE TIME	WIND SPRINTS
1 - 3	15 MIN.	1/4 MILE	2 SPRINTS - 30 YARDS
4 - 6	15 MIN.	1/2 MILE	3 SPRINTS - 30 YARDS
7 - 9	15 MIN.	3/4 MILE	5 SPRINTS - 30 YARDS
10 - 12	15 MIN.	1 MILE	6 SPRINTS - 30 YARDS

Figure 17. Double time and wind sprints, table 1.

TABLE II. CROSS-COUNTRY RUNNING			
PERIODS	TIME	DISTANCE	METHOD
13 - 15	15 MIN.	1 MILE	BY GROUP
16 - 18	15 MIN.	1 1/2 MILE	BY GROUP
19 - 21	15 MIN.	2 MILES	INDIVIDUALLY
22 - 24	15 MIN.	2 1/2 MILES	INDIVIDUALLY IN COMPETITION

Figure 18. Cross-country running, table 2.

TABLE III. SPEED MARCHING			
PERIODS	TIME	DISTANCE	METHOD
25 - 27	45 MIN.	4 MILES $11:15/mile$	GROUP CONTROL
28 - 30	1 HR.	5 MILES $12/mile$	GROUP CONTROL
31 - 33	2 HRS.	9 MILES $13:20/mile$	GROUP CONTROL
34 - 36	3 HRS.	12 MILES $15/mile$	GROUP CONTROL
37 - 38	4 HRS.	16 MILES $15/mile$	GROUP CONTROL

Figure 19. Speed marching, table 3.

CHAPTER 15

STRENGTH CIRCUITS

Section I. INTRODUCTION

173. Description

A strength circuit is a series of stations where men in small groups exercise vigorously for a short period of time and then move (on signal) to another station where a different form of exercise is available. This rotation of groups continues until all groups move through all stations. Strength circuits contain no set or specific types of exercise stations within the circuit. There are three general types of circuits.

a. Fixed Circuit. This is a circuit in which apparatus of an immovable type (fixed into the ground) is used. A type of fixed circuit is illustrated in figures 20 and 21 and explained in paragraphs 176 through 182.

b. Movable Circuit. This circuit consists of individual exercise apparatus which is portable and can be moved to and from the training area. A type of movable circuit is illustrated in figures 22 and 23 and explained in paragraphs 183 through 188.

c. Simplified Circuit. This circuit requires no equipment or apparatus. A type of simplified circuit is illustrated by the Circuit-Interval Table in figure 24 and explained in paragraphs 189 through 195.

174. Participation

a. The exercises are done at will, but rapid and

continuous work is required of all. Each man has a different nervous and muscular system, and should be considered as an individual whenever possible. One soldier may be able to complete five movements, while another may be able to complete 20, and yet each is receiving the maximum benefit.

b. All three circuits contained in this chapter are designed for platoon-size groups. Expansion beyond this capacity requires a large amount of equipment, as each man in the fixed and movable types of circuits must have an item of equipment available for exercise at each station. A group larger than a platoon could be exercised through use of the simplified type of circuit; however, the group would be unwieldy and control becomes a problem.

175. Place in the Program

All circuits illustrated can be completed in a 15-minute period. This feature allows the exercise of a platoon or smaller group on the circuit for a single 15-minute period, or the scheduling of the circuit as a 15-minute period within a longer period. A circuit can thus be utilized within the rotating activity system of scheduling as explained in chapter 5. Choice of a circuit by the unit depends upon area, facilities, and other local factors; however, there is a circuit for every need.

Section II. FIXED STRENGTH CIRCUIT

176. Objective and Time

a. Objective. The objective of this circuit is to provide a series of exercises which will improve and maintain strength of the body's major muscle groups.

b. Time. This circuit is designed to be accomplished in 15 minutes when conducted on a time-rotation basis, as normally executed for unit

training. For individual use, the circuit may be executed by accomplishing a specific number of repetitions of each exercise. In this case the time required for completion of the circuit would vary slightly depending on the number of repetitions accomplished.

177. Description

The strength circuit is an arrangement of various types of exercise apparatus (fig 21) which has a

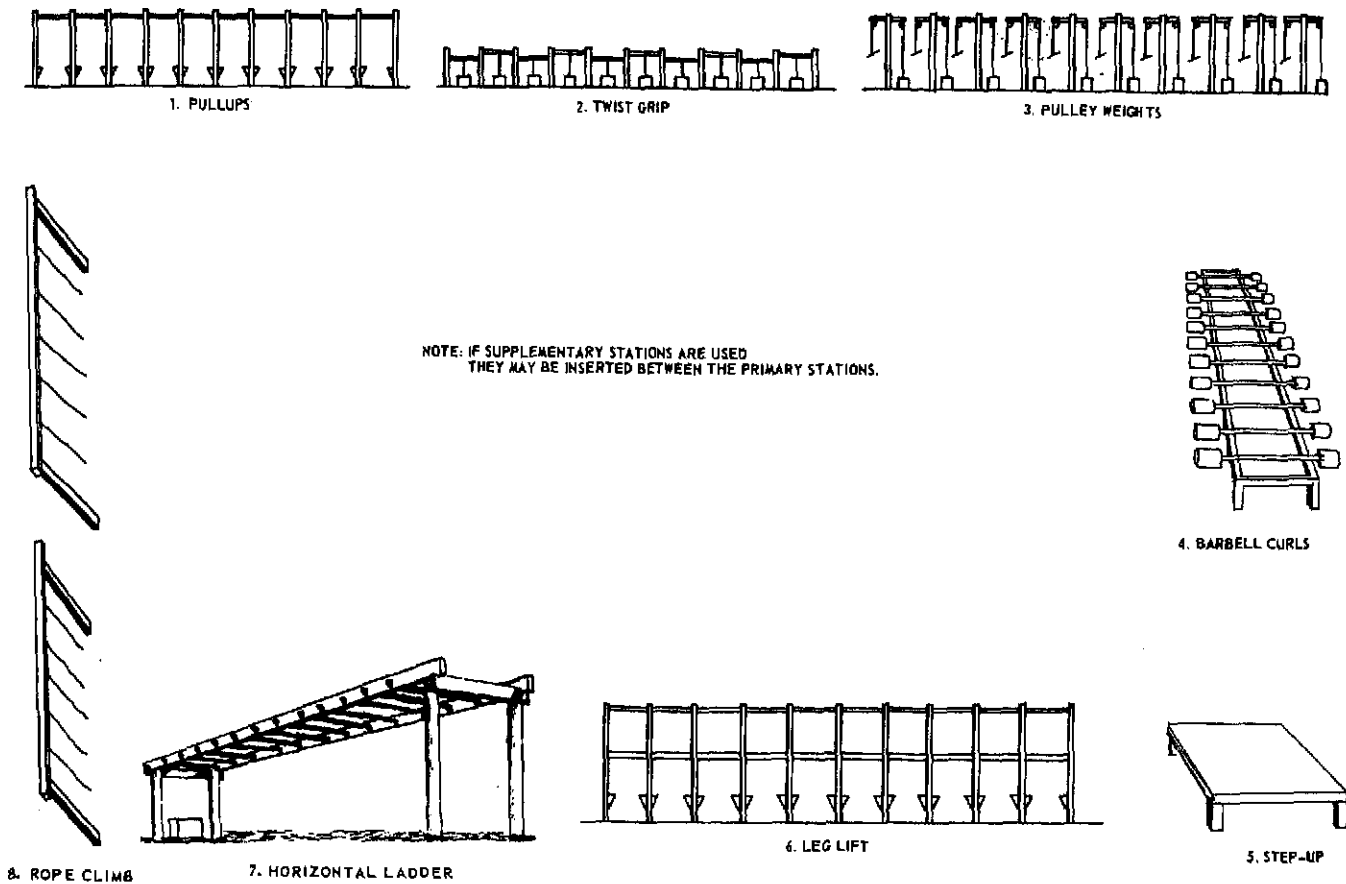


Figure 20. Fixed strength circuit.

fixed position. All apparatus of one type are positioned together to constitute a station. Each station will accommodate 10 men. The participant starts on any station, exercises steadily for a certain period (45 seconds initially), then moves (on command) to the next type of apparatus where he again exercises for an equal period. He continues this process until he has accomplished the exercise required at every station. Eight basic exercises are used, each of which requires apparatus. Four additional supplementary exercises, requiring no equipment, are provided if it is desired to expand the number of stations in the circuit to accommodate more participants at one time. However, the amount of time required for completing the circuit will increase.

178. Warmup

Men must be thoroughly warmed up prior to participating in the circuit system. If personnel have not engaged in vigorous exercise immediately prior to starting the circuit, then the following warmup should be conducted. These exercises should be conducted in the normal formation for conditioning drills. Seven repetitions of each exer-

cise will normally provide sufficient warmup. The exercises are:

- a. High jumper, exercise 1, Conditioning Drill 1.
- b. Bend and reach, exercise 2, Conditioning Drill 1.
- c. Squat bender, exercise 5, Conditioning Drill 1.

179. Control

Close control of all personnel is necessary to insure that a minimum amount of time is spent in moving participants to their initial stations and in moving between stations. One instructor can control the activity on the strength circuit. A stopwatch or wristwatch is required. When troops arrive at the strength circuit, they will be formed for exercise and the warmup drill conducted. The group is then reassembled and formed into a number of files equal to the number of stations being used in the circuit. Each file is then directed to a station. As soon as all participants have reached an exercise position at a station, the command READY, GO is given. After 45 seconds of exer-

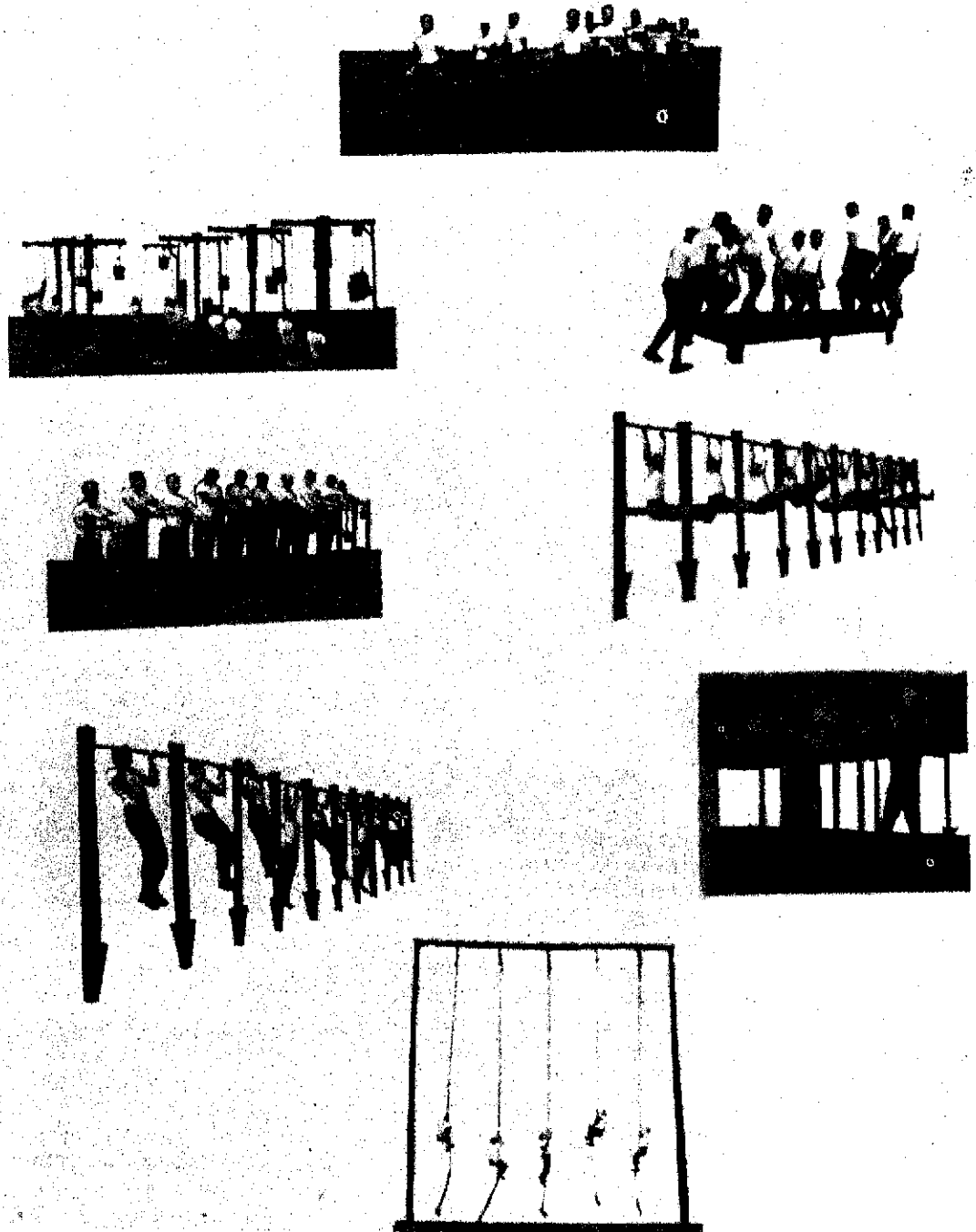


Figure 21. Stations of the fixed strength circuit.

cise, the command STOP, CHANGE OVER is given. Forty-five seconds is allowed for moving to the next station and preparing for the next exercise before the command to exercise is again given. In lieu of verbal commands a whistle may be used to stop and start the exercises. For large groups a megaphone or loudspeaker is useful.

180. Progression

The circuit system adjusts for the varying physical ability of participants through several methods. The man in excellent physical condition can perform the exercises at a faster rate, thus doing more repetitions of each exercise than would a man in poor physical condition. Some exercise

can be adjusted by varying the load applied to the participant, such as changing the method of executing the leg lift or by selecting a heavier weight for the barbell curls. When it becomes apparent during a unit program that the overall fitness of the group has improved, then the exercise may be made more strenuous in two additional ways. First, one or more of the supplementary stations can be added. Second, the time spent exercising at each station can be increased in 5-second increments to a maximum of 60 seconds. The 45-second periods for movement between stations can be reduced. Initially this time is provided for movement and instruction. As men learn the circuit, instruction time should be eliminated, thus allowing only enough time to change stations.

181. Individual Conditioning Program

Timing the exercise periods will be impractical for the individual working alone on the strength circuit. For individual exercise, the participant should select a number of repetitions of each exercise to accomplish, then rotate to the next station after accomplishing these repetitions. The number of repetitions selected should be at or near the maximum that the individual is capable of doing without halting for rest. Remembering these performance levels will provide the participant with goals to strive for or surpass. Merely exercising at a station until he feels tired is not a reliable performance standard for an individual, as he then has no objective method of measuring his progress.

182. The Fixed Circuit Stations

a. Primary Stations (fig 21).

(1) *Pullups.* A horizontal bar placed 8 feet above the ground is required. A space on the bar $4\frac{1}{2}$ feet wide is needed for each participant. The pullup is executed with the palms away from the body, thumbs under the bar. After moving to a position directly under the bar, on the command to exercise, the participant jumps up and grasps the bar with the palms away from the face, thumbs under the bar, and comes to a "dead" hanging position. The exercise is executed by pulling the body directly upward until the chin is placed over the bar, then lowering the body until the elbows are straight and the body is again in the "dead" hanging position. The exercise is repeated as many times as possible until the command is given to stop and move to the next exercise. If a participant has done his maximum number of pullups prior to the command to stop, he will remain in the "dead" hanging position until

the commands STOP and MOVE TO THE NEXT STATION, are given.

(2) *Twist grip.* The apparatus is a free turning horizontal bar, held between uprights placed 30 inches apart. The bar is 52 inches above the ground. A weight of 20 pounds is attached to the center of the bar by a rope long enough to permit the weight to rest on the ground. The participant stands at arm's length from the bar and grasps it with his hands on either side of the rope, palms down, thumbs under the bar. On the command to exercise the hands are rotated so that the backs of the hands are rotated away from the body, thus winding the rope on the bar. The elbows are kept straight to insure that the exercise is performed by the hands and forearms. When the weight is drawn up to the bar, the bar is then rotated in the opposite direction to lower the weight to the ground. This exercise is continued until the commands STOP, and MOVE TO THE NEXT STATION, are given.

(3) *Pulley weights.* The apparatus is a "T" frame with a system of pulleys that suspends a weight of about 90 pounds. The weight is attached to a steel cable which has a drawbar attached to the other end. The participant grasps the drawbar and sits down directly under the bar, legs extended to the front and arms extended overhead. The exercise is executed by pulling the drawbar down behind the head, then extending the arms slowly again until they are fully extended overhead. The exercise is repeated as many times as possible until the command is given to stop and move to the next exercise. Upon completion of the exercise the weight is lowered slowly to the ground.

(4) *Barbell curls.* At this station a barbell is necessary for each participant. The barbell is constructed of $1\frac{1}{4}$ -inch pipe 5 feet long, and two concrete-filled No. 10 cans. Each barbell should weight about 40 pounds. Variance in the weight of the barbells, up to about 55 pounds, will allow appropriate overload to be applied to men who are above average in strength or weight. The participant grasps the bar with the palms forward and assumes a standing position with the barbell held in front of the hips, hands approximately shoulder's width apart. On the command to exercise, the elbows are flexed and the barbell is drawn up until it touches the upper chest. The elbows remain at the sides. Breath is inhaled with the upward movement and exhaled as the barbell is lowered to the starting position. The exercise is repeated as many times as possible until the commands STOP, and MOVE TO THE NEXT APPARATUS, are given.

(5) *Step-up.* The apparatus is a platform 18 inches high and large enough to accommodate 10 men. The participant faces the platform and on the command EXERCISE, steps up onto the platform, bringing his trailing foot up beside his leading foot. He then steps back down to the starting position, leading with the same foot he used in stepping up. After 10 repetitions of the exercise, he changes the lead foot used in stepping up. He repeats this exercise until the commands STOP and MOVE TO THE NEXT STATION, are given.

(6) *Leg lift.* The apparatus is a horizontal bar constructed as described in (1) above. To prevent the body from swaying, a horizontal back support is added 40 inches below the horizontal bar. The arms are kept fully extended. On the command to exercise, the participant jumps up, grasps the bar with the palms forward and the back support behind him. The exercise is executed by raising the legs to a horizontal position then slowly lowering them to the vertical position. The knees are not flexed. The legs are not swung to the rear of a vertical position to gain momentum for raising them in the next repetition of the exercise. The movement is repeated until the commands STOP and MOVE TO THE NEXT EXERCISE, are given. If unable to raise his legs to a horizontal position without flexing his knees, the participant flexes his knees and draws them up to his chest, then lowers his legs to the vertical position.

(7) *Rope climb.* The rope climb is 20 to 30 feet high with five ropes suspended from a horizontal bar which forms the uppermost part of the framework. To prevent the horizontal bar from sagging, and to provide safety, only five ropes are attached to it. There are two frameworks per station. The ropes are 6 feet apart. Any method may be used to climb the rope, and the men climb as high as possible. Personnel who are proficient should climb the rope several times during the time allotted. Caution inexperienced men to take care during descent to avoid rope burns on their hands.

(8) *Horizontal ladder.* Four-lane ladders are required. Ladder dimensions are: height 9 feet, length 20 feet, width 20 feet. The area needed for the construction of the ladder should be 11 yards wide by 25 yards long. On the signal GET READY, the participant steps up onto the supports and grasps the first rung with both hands using the forward grip. The exercise is executed by swinging the feet off the supports and at the same time beginning forward progress by grasping the next rung and propelling the body forward, while alternating hands. Continue to traverse the ladder until the ladder has been tra-

versed five times or, if unable to do five, until tired. Vacant lanes are immediately filled by waiting men in order to give each man in the 10-man group a chance to exercise prior to the change of station signal.

b. *Supplementary Stations.* The following exercises are designed to expand the basic circuit by being inserted in specific places within the system. For each supplementary station used, adequate room for 10 men to exercise is needed.

(1) *Bent Leg Sit-ups or Bottoms up.* These calisthenics are designed to strengthen the abdominal muscles. They will be inserted between the pullup and twist grip stations. The primary stomach exercise is the bent leg sit-up. In case of inclement weather or other conditions that make ground contact undesirable, the bottoms up exercise is used.

(a) *Bent Leg Sit-up.* The participant lies flat on his back with his knees flexed, both feet flat on the ground. The correct angle of the thighs to the ground is 45°. The fingers are interlaced behind the head and the elbows are drawn back even with the back of the neck. At the command to exercise, the participant sits up, keeping his feet flat on the ground and his elbows even with the back of his neck. He then returns to the starting position, repeating the exercise until given the command to stop and move to the next station.

(b) *Bottoms up.* On the command to exercise, the participant assumes the front leaning rest and executes the bottoms up exercise as described in exercise 6, Conditioning Drill 3. He continues this exercise at a moderate cadence until given the command to stop and move to the next station.

(2) *Pushup.* This exercise is designed to strengthen the arm and shoulder girdle muscles. It will be included between the twist grip and pulley weight stations. Upon the command to exercise, the participant executes the push up as described in exercise 3, Conditioning Drill 1. He continues this exercise at a moderate cadence until the command is given to stop and move to the next station.

(3) *Knee bender.* This exercise is designed to build leg muscles and is included between the pulley weight and barbell curl stations. On the command to exercise, the participant executes the half knee bender as described in exercise 5, Conditioning Drill 3. He continues this exercise at a moderate cadence until the command is given to stop and move to the next station.

(4) *Trunk twister.* This exercise strengthens the major muscles of the trunk and is included

between the step-up and leg lift stations. On the command to exercise, the participant executes the trunk twister as described in exercise 4 to Condi-

tioning Drill 2. He continues this exercise at a moderate cadence until the command is given to stop and move to the next station.

Section III. MOVABLE STRENGTH CIRCUIT

183. Introduction

The exercises in this circuit are progressive and the course is planned to gain and hold the interest of the participants. The circuit consists of a series of stations, with each station designed to develop a particular group of muscles. Along with muscular development, correct posture and deep rhythmic breathing should be stressed on this circuit at all times.

184. Equipment

The equipment is set up in files (fig 22). Six files of eight stations will accommodate a platoon of 48 men. Two additional files will support 64 men. A file normally consists of eight stations as listed below.

185. Organization

The platoon marches to the area where the equipment is positioned and forms a file within each lane of stations, covering off on a piece of equipment. Movements are made on the double; the important factor is that no time is wasted in getting to work.

186. Execution

a. The leader places himself in front of the barbell station and controls the rotation from this position. He supervises the entire group, with the assistance of several instructors who move about in the platoon correcting and encouraging the men.

b. The leader starts each group but does not count cadence nor lead the men through the exercises. Each man exercises rapidly but individually.

c. As each man finishes his repetitions with the barbell he places the barbell on the ground and the leader calls, READY, followed by the command FALL OUT ONE. All men move on the double to the station directly in front of them, while the men on the barbell stations go to their right-about to the rear station in their lane.

187. Progression

Initially 40 to 45 seconds per station is adequate. As men become stronger the time should be in-

creased in 5-second increments until a minute to a minute and a half is reached.

188. The Movable Circuit Stations

The best results will be obtained on the movable circuit if the exercises on the various stations are given in the following manner:

a. Station 1, The Barbell (1, fig 23).

(1) The exercises at this station stress the following:

(a) Proper posture.

(b) Deep, rhythmic breathing.

(c) Development of the muscles of the arms, shoulders, and upper body.

(2) Instruction of men in the proper methods of lifting: lifting with the legs; keeping the back straight; and merely gripping with the hands. Two recommended exercises are given below. Only one exercise will be used per period. At successive periods the other exercise may be used.

(a) Exercise 1, two hands military press (1, fig 23). Grasp the barbell with both hands, knuckles up at shoulder width, and lift to the chest. Steadily press to arm's length overhead; lower to the chest resisting weight all the way. Inhale as the weight is pressed up and exhale as the weight is brought down.

(b) Exercise 2, two hands regular curl (1, fig 23). Lift the weight to the waist, with the palms of the hands out, heels together, stomach in, chest lifted and arched, shoulders back, elbows in close to the sides; inhale deeply and curl the weight to the shoulders, using the arms only, at the same time keeping the elbows close to the sides; exhale rhythmically, resisting and lowering the weight to the waist. Emphasize posture and the use of the arms only. This a very valuable exercise for the development of the biceps and grip, and should be repeated from 8 to 16 times, depending on the ability of the participant.

Note. Cadence will not be counted. Each individual works at his own speed and performs the repetitions of the exercises of which he is capable.

b. Station 2, The Jump Rope (2, fig 23). The purpose of this exercise is to develop strength and agility, stamina, efficiency, and timing. The participant should progress until he is able to jump rope at least 3 minutes at top speed.

STATION	NAME & ITEM	NUMBER	SPECIFICATION
1	BARBELL		1 1/4-INCH PIPE 5 FEET LONG WITH CONCRETE FILLED NO. 10 CANS.
2	JUMP ROPE		1/4 - OR 3/8 -INCH ROPE, 10 FEET LONG.
3	TWIST GRIP		HANDLE 12 INCHES LONG, ROPE 4 FEET LONG, NO.10 CAN CONCRETE FILLED.
4	INCLINE PLANE		3/4 - INCH PLYWOOD PLATFORM 2 FEET WIDE AND 4 FEET, 6 INCHES LONG ELEVATED 10 INCHES AT ONE END. STRAP TO HOLD FEET DOWN
5	WAR CLUB		HEAD IS 6 BY 12 INCHES, HANDLE IS 14 INCHES LONG BY 1 1/4 INCHES IN DIAMETER, ABOUT 20 POUNDS.
6	BICYCLE RIDE		PLYWOOD BOARD OR PLATFORM 2 BY 3 FEET WITH 2 BY 2 RUNNERS
7	STEP-UP		A BOX OR STURDY PLATFORM, 18 INCHES HIGH, 18 INCHES WIDE, 24 INCHES LONG.
8	ISOMETERIC PULL		TWO HANDLES 12 INCHES LONG WITH 4 FEET (BETWEEN HANDLES) OF LIGHT WIRE CABLE OR 1/4-INCH ROPE.

Figure 2B. Movable strength circuit.

c. *Station 3, The Twist Grip* (3, fig 2B). The twist grip is an excellent exercise for the development of the hands and forearms. The handle is gripped and twisted, winding the rope until the weighted can is level with the height of the hands, which are horizontal. The weight is lowered in the same manner; the individual resists the weight all the way, occasionally stopping the twisting motion and alternately removing first one hand, then the other, from the handle. A variation of the above exercise is to wind the handle with the palms up, the arms bent, and the elbows held close

to the sides. Maintain good posture and keep the stomach muscles taut throughout this exercise.

d. *Station 4, The Inclined Plane* (4, fig 2B). The inclined plane is a very strenuous station designed for the development of the abdomen. Six to ten repetitions are sufficient for beginners; more are added as ability increases. Men with hernias or recent operations will be excused from participation on this station.

e. *Station 5, The War Club* (5, fig 2B). The war club is a simple and effective means of exercising the principal muscle groups of the body, especially



LEADER

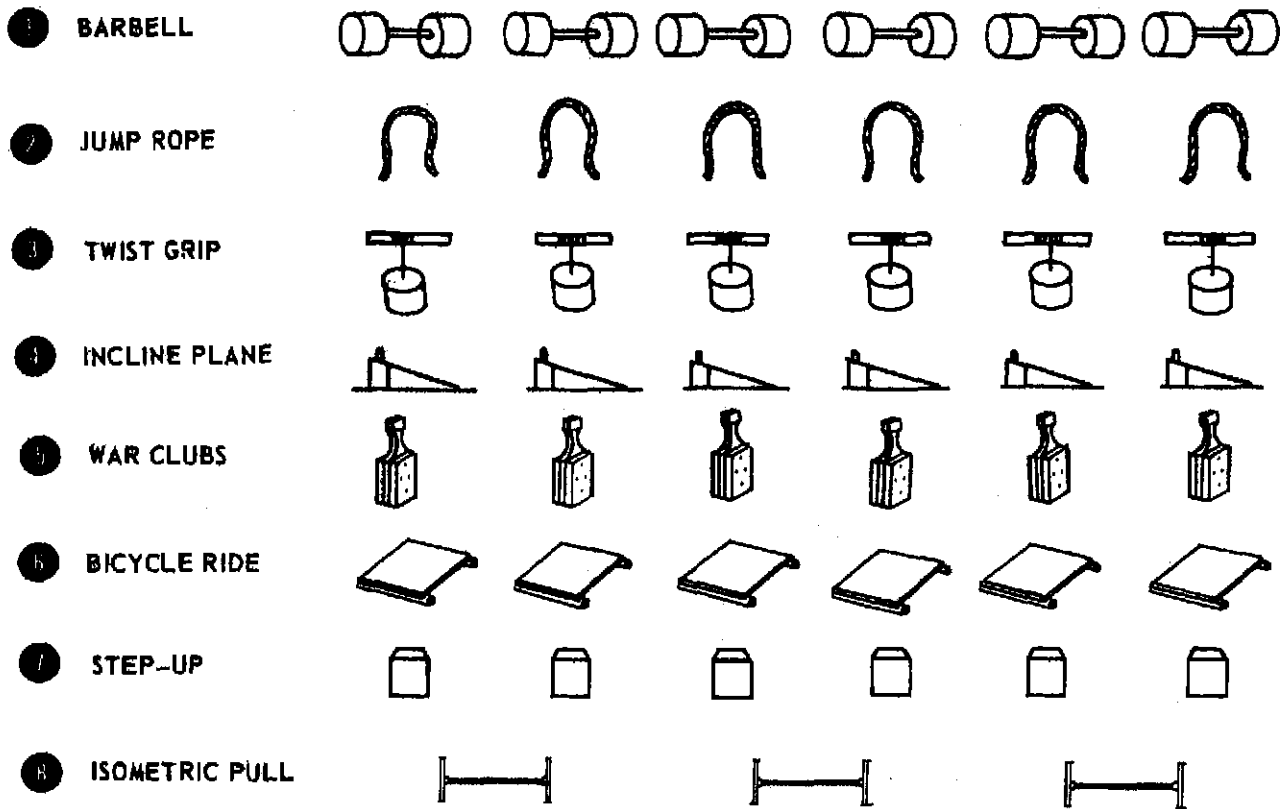


Figure 22—Continued.

those of the trunk, back, and shoulders. In order to gain the maximum benefit from this exercise, care must be taken to keep both feet flat on the ground at all times. Throughout the exercise the weight is swung from arm's length as follows:

(1) As in chopping wood, first on one side, then on the other.

(2) As a batsman warming up with a number of bats.

(3) In large circles, first with one hand and then with the other.

f. Station 6, The Bicycle Ride (6, fig 23). The bicycle ride is well suited to exercising many of the muscle groups of the body, particularly those of the abdomen. Vary the speed of the exercise, but keep the men "riding" the entire period. A variation exercise may be performed by placing the legs together, raising them slowly to a height about 2 feet from the ground, and then lowering them slowly to the ground.

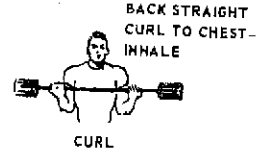
g. Station 7, Step-up (7, fig 23). The step-up which exercises the legs is performed by initially stepping up with the left foot, followed by the right, then stepping down with the left foot followed by the right. Continue for 20 seconds, then change to the right foot as the lead foot for 20 seconds.

h. Station 8, Isometric Pull (8, fig 23). Two trainees work at this station with a cable and perform the following exercises:

(1) Initially start with one man in the supine position and one man sitting. The sitting man lowers his upper body to the ground and pulls his partner up to the sitting position. His partner then performs this same action. Repeat for 20 seconds at a rapid rate.

(2) During the last 20 seconds the same action takes place but in this case the man in the supine position resists the pull of his partner for approximately 5 seconds before allowing himself to be pulled into the sitting position.

1. BARBELL



2. JUMP ROPE



3. TWIST GRIP



4. INCLINE PLANE



5. WAR CLUBS



6. BICYCLE RIDE



7. STEP-UP



8. ISOMETRIC PULL



Figure 28. Stations of the movable strength circuit.

Section IV. CIRCUIT-INTERVAL TABLE

189. Objective

To develop strength and endurance within a short period of time in a rapid and vigorous routine of exercise; no equipment is required.

190. Time

Fifteen minutes is an adequate period to perform all exercises vigorously with the circuit-interval principle.

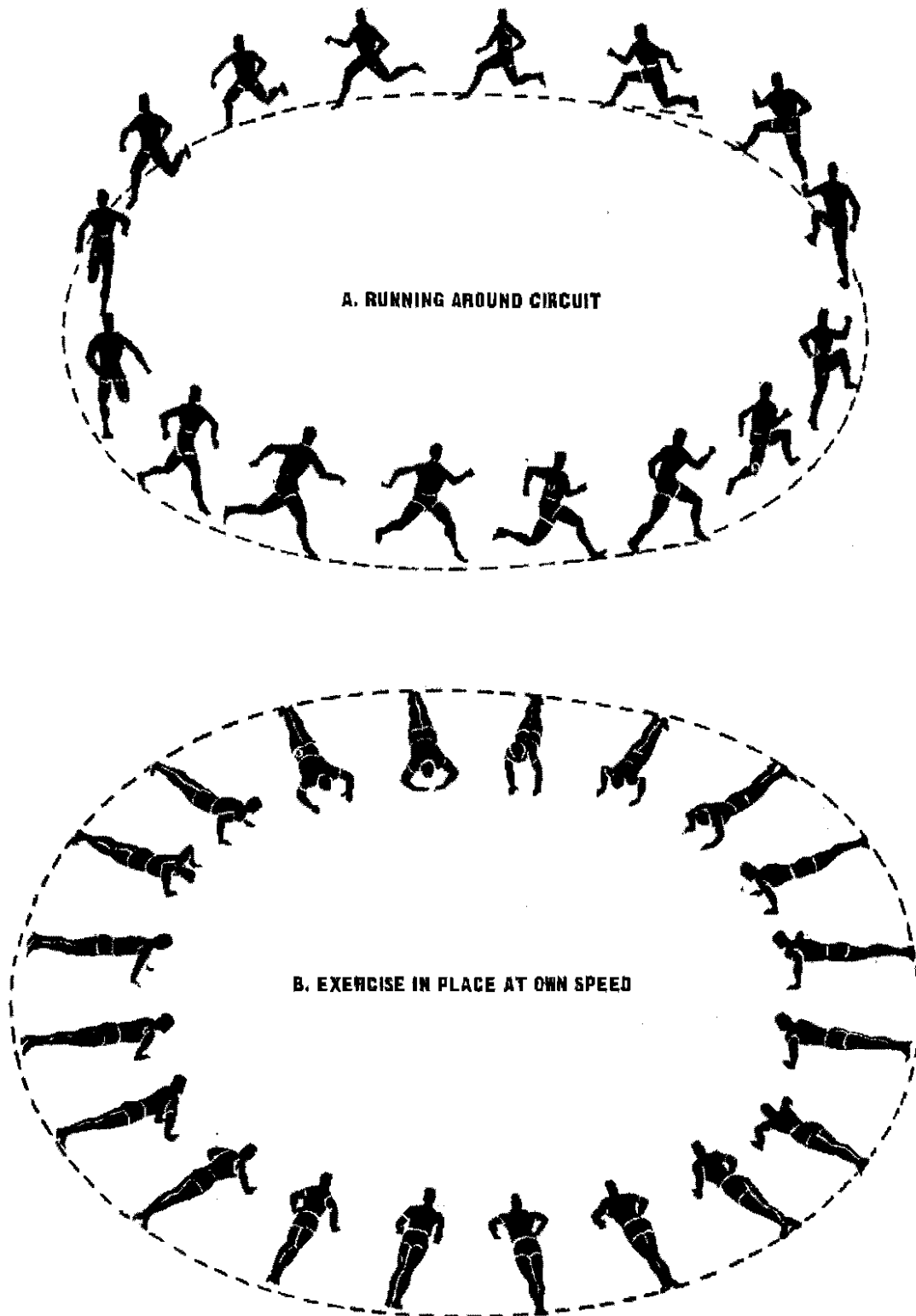


Figure 24. Circuit-interval table.

191. Description

a. A platoon or smaller group is formed in an oval or circular formation with 3- to 5-yard intervals between men. The men are faced to the right and moved forward at quick time and then into double time (A, fig 24). After running several laps, the leader specifies an exercise from the list below (para 192), orders quick time and commands, for example, PUSHUPS. On this command all men immediately hit the ground and rapidly begin doing pushups. No cadence is counted (B, fig 24). After 30 seconds of exercise, the leader commands, ON YOUR FEET, FORWARD, MARCH. The men resume the quick time cadence and when the leader is ready the necessary commands for double time are given. The double time is continued for one or more laps and the process is repeated using a different exercise. This continues until every body part has been exercised.

b. The running and quick time are controlled by the instructor as he observes the effects of the exercise upon the men. Cadence and precision are not important to the objective and should not be used. Speed is important and should be stressed. After the exercise period is started the men do not stop. This circuit method emphasizes stress and recovery, the recovery occurring during the quick time periods.

192. Activities

The following exercises are to be used.

- a. *Phase 1.*
- (1) Pushups.
 - (2) Situps.
 - (3) Squat thrust.

- (4) Bicycle.

b. *Phase 2.*

- (1) High jumper.
- (2) Bend and reach.
- (3) Side bender.
- (4) Body twist.

c. *Phase 3.*

- (1) Eight count pushup.
- (2) Leg circular.
- (3) Knee bender.
- (4) Bottoms up.

193. Progression

The progress is controlled by the leader. He must pace the running, quick time movement, and exercise in such a way that men will receive a vigorous workout yet be able to participate throughout the 15-minute period. Men who are in the initial stages of physical condition will not be able to double time or exercise as long as those who are better conditioned. Consequently, set a pace which can be increased somewhat each workout, thus progressing gradually to a higher level of physical fitness.

194. Leadership

The platoon leader, platoon sergeant, or section leader can lead his group. The leader must execute the exercise with his men in order to feel the effects and thereby adjust the dosage.

195. Place in the Program

This activity may be scheduled whenever a short period of time is available with only a requirement that enough space, indoors or out, be available to form the circle.

CHAPTER 16

BASIC PHYSICAL SKILLS AND OBSTACLE COURSES

Section I. BASIC PHYSICAL SKILLS

196. Purpose and Scope

The purpose of this chapter is to list the basic physical skills and methods for their development. It explains types of obstacle courses, details of construction, and methods of negotiating the various obstacles.

197. Importance of Physical Skills

The objective of physical readiness training is outlined in paragraph 24. Part of this objective is the development of proficiency in the various military physical skills which are essential to personal safety and effective combat operations. In travel by foot over rugged terrain and in the execution of combat duties men must be trained to perform basic skills such as running, jumping, climbing, and carrying. In our modern urban society many men have not had the opportunity to learn these skills. Fast and skillful execution of these basic skills may mean the difference between success and failure.

198. Learning Basic Skills

Men should receive instruction in the basic physical skills which have military application. As in any learning activity, there should be explanation, demonstration, and practice of the skills. The basic skills enumerated below are the minimum skills required by the combat soldier. During training in these skills, agility and coordination will be developed. Complicated facilities are not required for the practice of some skills and much can be accomplished to develop these skills prior to running an obstacle course. The essential skills are as follows:

a. Running (fig 16). Running is used to strengthen the legs, develop circulo-respiratory endurance and to develop proper running form (chap 14). Men should be exposed to running in various situations: on roads, over rough ground, up and down hills, cross-country, and over low obstacles.

b. Jumping (fig 25). In broad jumping the take-off foot is planted firmly and the spring comes from the extension of this leg as the other leg reaches for the far side of a ditch or similar obstacle. The arms are forcefully raised forward and upward to assist in propelling the body. Landing may be on one or both feet depending upon the length of the jump. In jumping downward from a height the jumper should aim his feet at the desired landing spot and jump with the knees slightly bent and feet together, the trunk should be inclined slightly forward. As the feet touch the ground, the shock is absorbed by bending the knees into a full squatting position. If the height is too great or the ground too hard to absorb the shock, then the jumper should execute forward roll or side roll thus eliminating some of the shock.

c. Dodging (fig 26). In combat situations it is often necessary to quickly change directions. To execute this movement while running, a lead foot is firmly planted, (left foot if the direction is to the right and right foot if the direction is to the left). The opposite foot is moved in the new direction. The knees are flexed slightly during the movement and the balanced center of gravity is low. At the time of the direction change the head and trunk are quickly turned in the new direction.

d. Climbing and Surmounting (fig 27). The soldier should know how to effectively climb and surmount various types of obstacles.

(1) *Vertical climbing as in climbing a rope or pole.* Here the techniques are similar. The hands grasp the rope or pole overhead with the palms toward the face, and the body is pulled upward with the arms and shoulders assisted by the feet which grip and assist by pushing downward. If shoulder girdle strength and body coordination are not adequate to permit alternating the hands, the arms act together in pulling upward.

(2) *Climbing as in surmounting a wall.* In going over a wall, the body should be as close to the top as possible and maintain a low silhouette,

since in combat operations it is important to offer as small a target as possible. If a man climbs a wall while carrying a rifle, he should free both hands by slinging the rifle over his back. There are two methods commonly used for surmounting a wall of moderate height, but only one for dropping from it.

(a) *Running, jump, and vault.* Approach the wall at a run, jump forward and upward at the wall and place one foot against it as high up as possible. Use the foot in contact with the wall to help push the body upward while grasping the top of the wall with the hands. Pull the body up with the arms, assisted by pressure of the foot against the wall and swing the legs over, propelling the body over the wall.

(b) *Hook and swing.* Approach the wall at a run and jump forward and upward. Hook one elbow over the wall, locking the arm in place by pulling up until the top of the wall is underneath the armpit. Grasp the top of the wall with the other hand. Draw the leg which is closer to the wall up toward the abdomen as far as possible. Then swing the outside leg over the wall. The body is then carried over with a rolling motion. A variation of this leg action can be used by men who are unable to draw up the leg as described. While hanging with both legs fully extended, start a swinging motion with the legs together. When the legs have enough momentum, swing the outside leg over the wall with a vigorous kick, then follow with the body.

(c) *Dropping.* All drops from the wall are executed in the same manner. One hand is placed against the far side of the wall while the other hand grasps the top. From this position the body is rolled over the wall and "vaulted" away from it with the legs swinging clear. As the body passes over the wall and drops, it should at all times face the wall. This will keep the rifle and other equip-

ment clear. Break the fall by retaining a grasp on the top of the wall as long as possible.

(3) *Climbing ladders and cargo nets.* Rope ladders, stationary vertical ladders, and cargo nets require the same general technique. The important element is to grasp the side supports firmly in the hands about shoulder height and place the feet on a rung which will cause the body to be extended. In movement up one hand is moved upward and a new grasp is secured. At the same time the opposite leg moves up a rung. As the knee straightens, the body is elevated. This process is repeated using the opposite arm and leg. Alternation continues in this manner until the climber reaches the objective.

e. *Traversing Horizontal Objects* (fig 28). The traversing of horizontal objects puts heavy stress on the arms and shoulder girdle area as the feet are usually suspended in the air with the body weight on the arms and shoulders.

(1) *Traversing horizontal ropes or pipes.* The hands grasp the horizontal support overhead with the palms facing. To propel the body forward one hand is released and moved forward to secure a new grasp. At the same time the opposite side of the body is swung forward (some men are able to "walk" in the air, keeping the body to the front and moving the legs in time with the arms as in walking on the ground). The other hand is then released and moved forward; this alternation is continued until the objective is reached.

(2) *Traversing horizontal ladders.* In this situation the movement is the same as used in traversing a rope or pipe. The hands, however, are placed on the rung with the palms away from the face; otherwise, the technique is the same.

f. *Crawling* (fig 29). Crawling in combat situations is an often used skill. Crawling may be high or low.

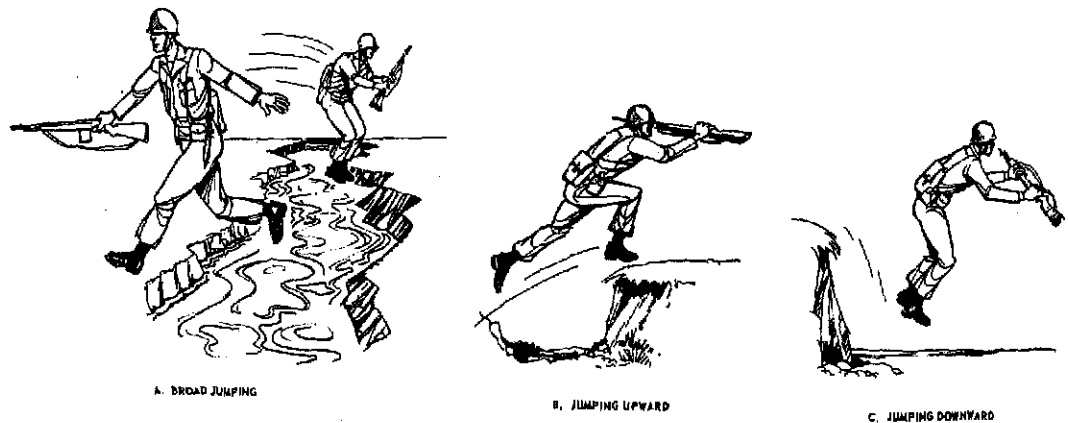


Figure 26. Jumping.

(1) *High crawl.* In the high crawl the soldier moves on his hands and knees, moving one hand and the opposite knee and then continuing to move the hands in alternation with the knees.

(2) *Low crawl.* The soldier is in the prone position usually with the forearms and palms on the ground. He propels himself forward by bending one knee and pushing with the inside edge of the shoe. At the same time the opposite arm moves forward and pulls to the rear. The body remains low and movement is continued by bending the opposite knee and pushing, and at the same time sliding the opposite arm forward and pulling. Alternation of hands and legs continues until the objective is reached.

g. Throwing (fig 30). Throwing may be executed from kneeling or standing positions. The object to be thrown is held in the hand and the throwing arm is bent at the elbow; the hand is then moved to the rear until it is behind the ear. The body is turned so that the lead foot and balance arm are pointing at the target. The balance arm is used to sight over and align the throwing hand with the target. When properly aligned, the elbow is moved rapidly forward until it is at a point just in front of the body where the arm is straightened and the wrist "snapped." This whip motion propels the object to the target. Underhand throws secure momentum by the thrower bending his knees and swinging the throwing arm to the rear. As the knees are straightened the arm is forcefully swung forward from the shoulder and the object released.

h. Vaulting (fig 31). Vaulting is employed to overcome low barriers or fences. The object to be

surmounted is approached at an angle. The hand on the side next to the obstacle is placed on the top of the obstacle; with a straight arm movement the body weight is pushed upward. At the same time the leg on the side next to the obstacle is thrown upward and over the top followed by the other leg. In landing the weight comes down on the leading leg first followed by regaining the balance on both legs. The free arm serves as a balance. A direct (front) approach can also be used at which time both legs go over the object together.

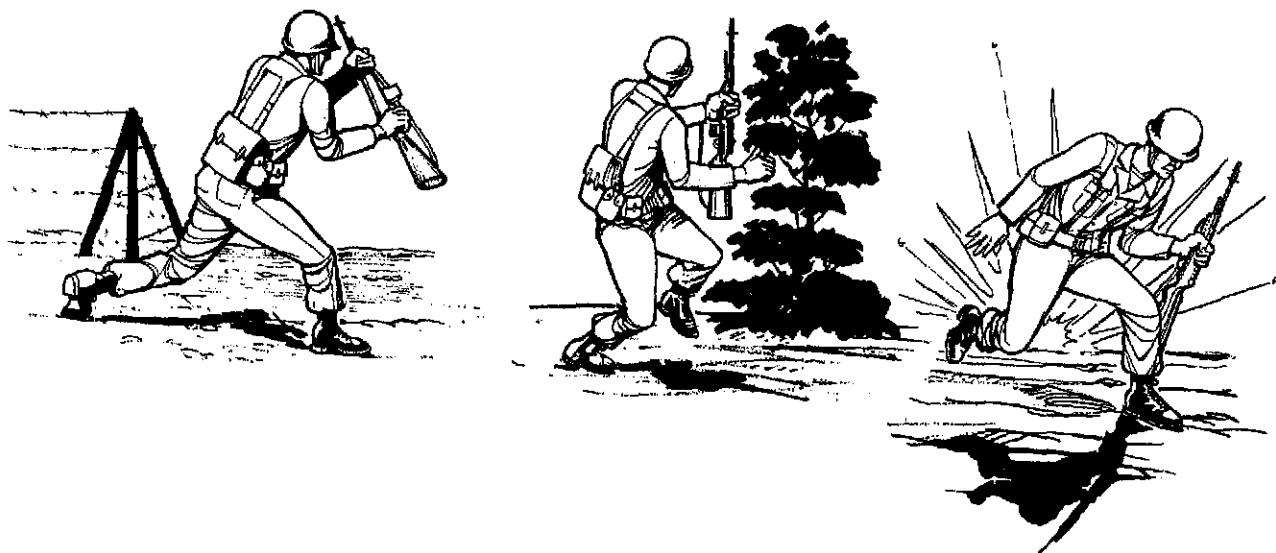
i. Carrying. There are three basic individual means of carrying men in combat situations and one of these methods may be used in carrying objects.

(1) *Fireman's carry* (8, fig 14). "A" stands sideways in front of "B." "A" bends his knees and leans forward, placing one arm through "B's" crotch, grasps the wrist of "B's" arm, which is hanging over his shoulder, and then "A" runs forward.

(2) *Saddle-back carry* (9, fig 15). "A" stands in front of "B." "B" mounts "A's" hips and clasps his arms in front of "A's" chest. "A" grasps "B's" thighs.

(3) *Single-shoulder carry* (9, fig 14). "A" stands in front of and facing "B." "A" assumes a semisquatting position. "B" leans forward until he lies across "A's" right shoulder. "A" clasps his arms around "B's" legs and straightens up, lifting "B" from the ground. "A" then runs forward. This method may also be used to carry heavy objects.

j. Balancing (fig 32). Balancing the body while



A. DODGE TO AVOID OBSTACLE

B. CHANGE OF DIRECTION BEHIND CONCEALMENT

C. DODGE TO AVOID DANGER AREAS

Figure 26. Dodging.

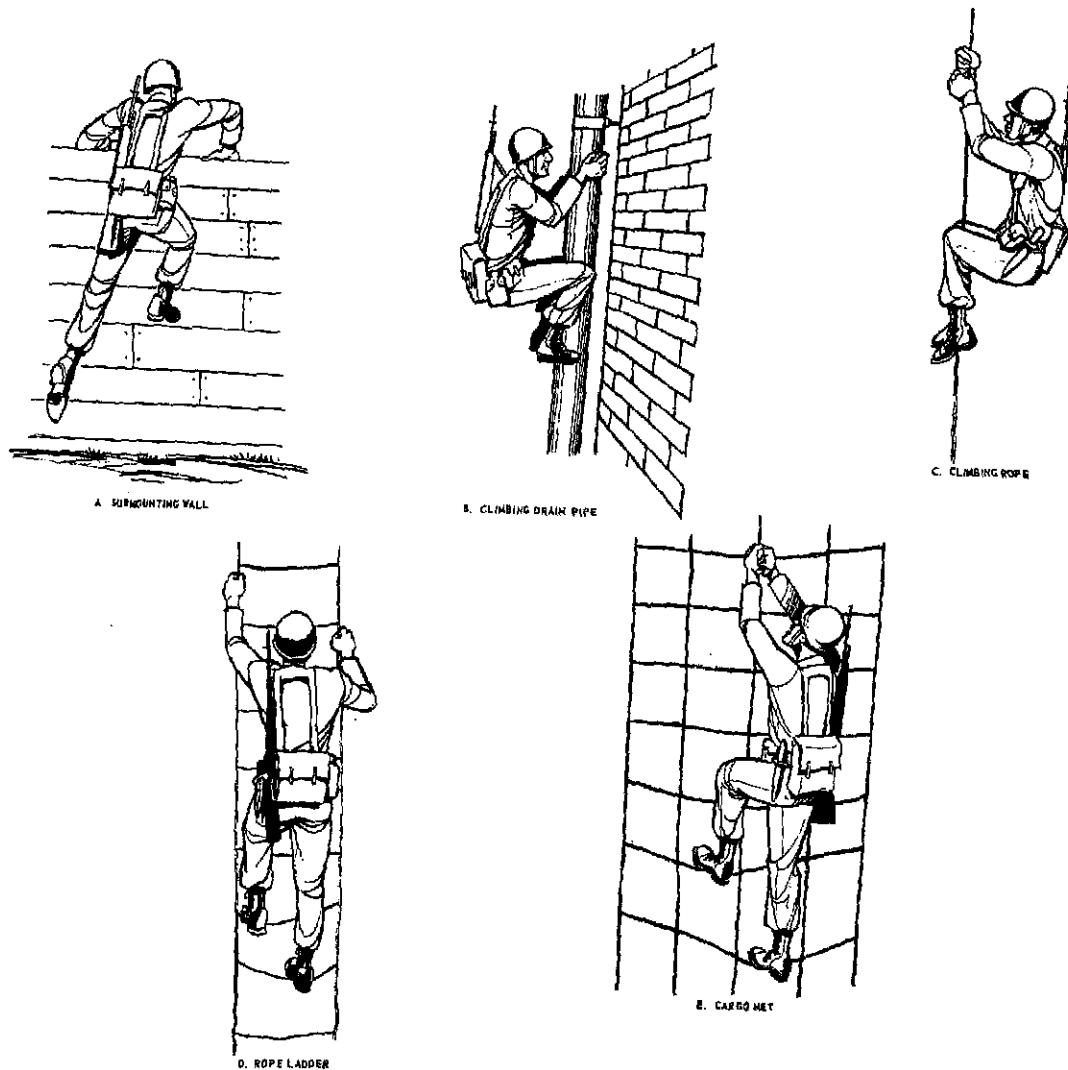


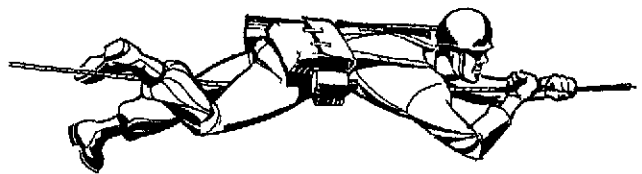
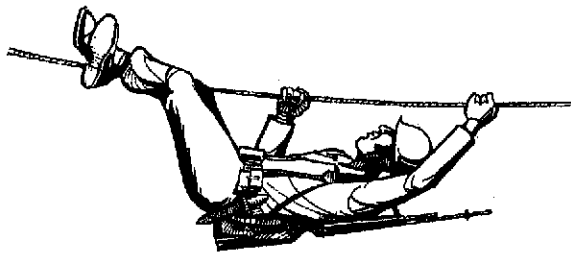
Figure 27. Climbing and surmounting vertical objects.

walking or running on a narrow object, when crossing obstacles, is a skill which requires practice and confidence. Balance is required in negotiating a log placed across a stream, in crossing a narrow beam or rail, and in similar situations. To perform this skill, place the feet on the object to be crossed, hold the arms to the sides at shoulder level, and fix the eyes on the object approximately 5 yards in front of the feet. Generally, it is not a good practice to look down at the feet. Walk the beam by placing first one foot and then the other in the center of the beam, thereby moving forward, using the arms to aid in maintaining balance.

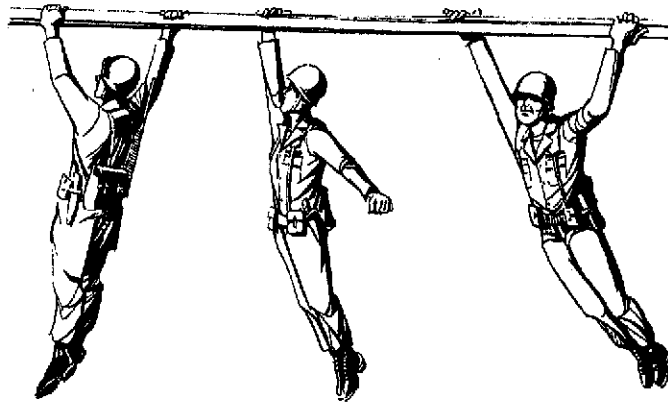
k. *Falling* (fig 83). Injury will be avoided if men are taught to fall properly by using body

momentum to their advantage during a fall rather than to try resisting that force. If enough force is present, such as occurs during a fall while running or in jumping from a height, the man can extend his hands to catch his weight and at the same time duck the head and roll forward onto his feet. The key to falling without injury from the standing position is relaxation and rolling to take the momentum of the fall on the outside of the leg, hip, and buttocks.

l. *Swimming* (fig 84). There is no doubt as to the benefits of swimming and water survival techniques to the soldier. There are, however, problems of training time and facilities to overcome in teaching all men to swim. A full explanation of this skill is available in chapter 17.

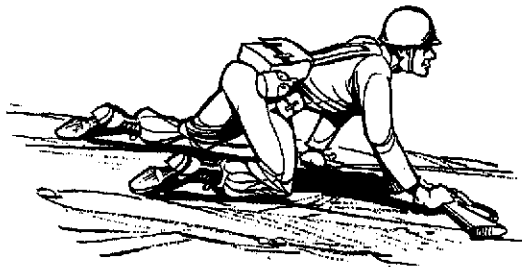


A. ROPE OR CABLE

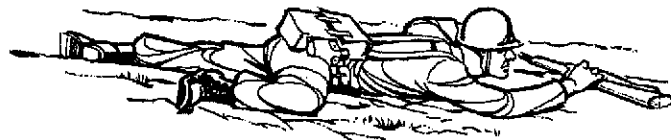


B PIPE OR BEAM

Figure 28. Traversing horizontal objects.

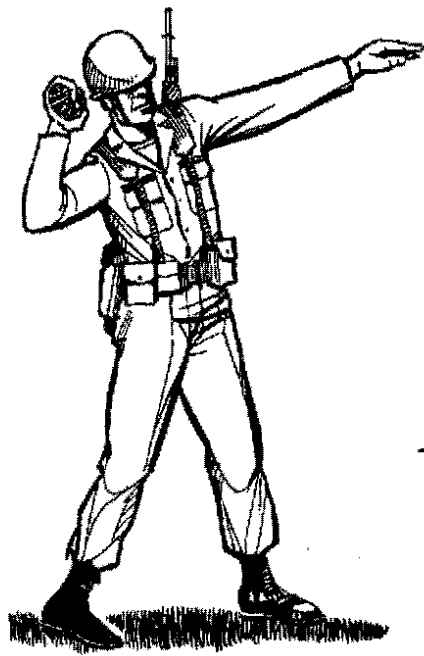


A. HIGH CRAWL

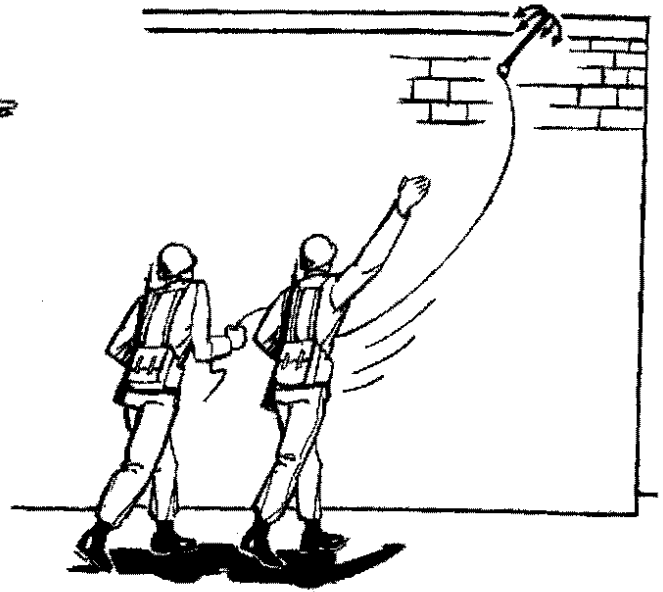


B. LOW CRAWL

Figure 29. Crawling.

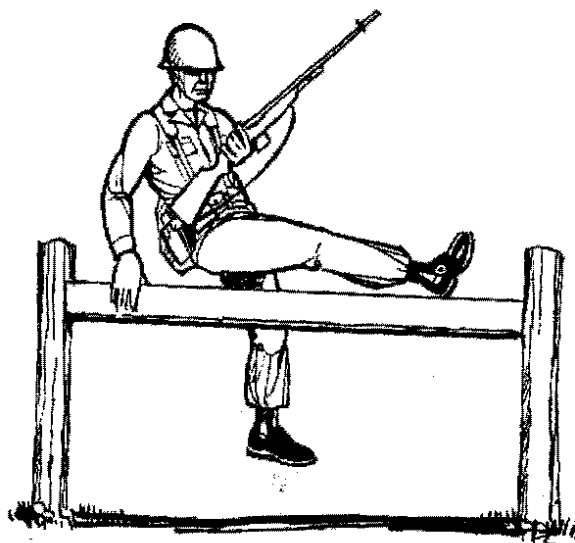


A. OVERHAND THROW

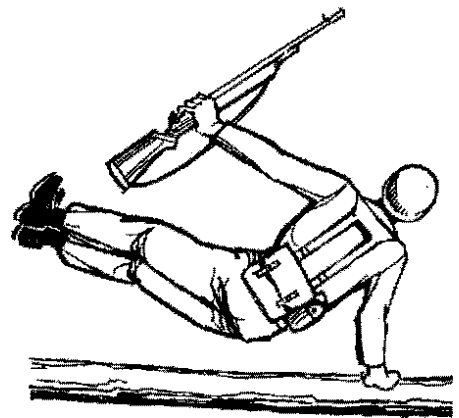


B. UNDERHAND THROW

Figure 80. Throwing.



A. SCISSORS VAULT
(SIDE APPROACH)



B. LEGS TOGETHER
(DIRECT APPROACH)

Figure 81. Vaulting.

Section II. OBSTACLE COURSES

199. Purpose of Obstacle Courses

Obstacle courses are a valuable part of physical readiness training. The challenge presented by the obstacles assists in developing and testing the basic physical skills. Success in combat many times depends upon the soldier's ability to perform one or more of these skills and in some cases he must be able to do these things while fatigued and carrying his field equipment.

200. Types of Courses

The two courses discussed in this chapter are both obstacle type courses. Their difference lies in their function.

a. Conditioning Obstacle Course. This course consists of low obstacles which are designed to be negotiated quickly. The obstacles serve to test various basic skills, and running the course is a test of the soldier's physical condition. After men have received instruction and had an opportunity to practice the skills, they run the course against time.

b. Confidence Obstacle Course. This course is composed of higher and more difficult obstacles than those used in the conditioning course. The confidence course is designed to give the soldier confidence in his mental and physical capacities and to cultivate his spirit of daring. He is encouraged but not compelled to negotiate this course and the course is not run against time.

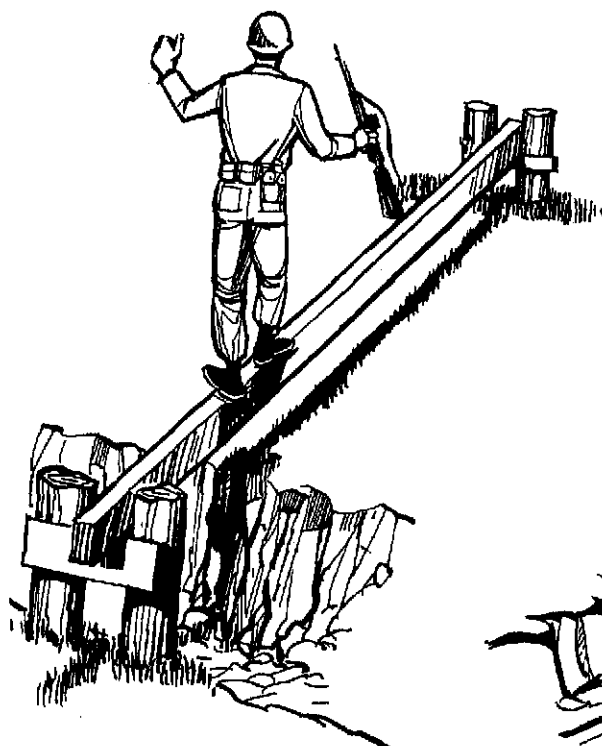
201. Safety Precautions

The instructor should take certain precautions to prevent injury to the men while they are negotiating obstacle courses. A few of the precautions follow:

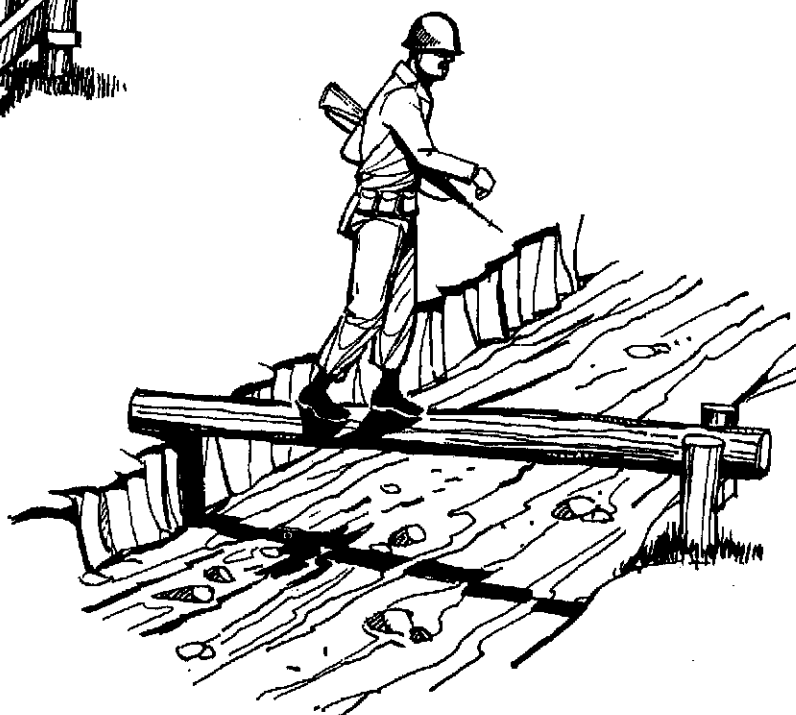
a. Inspect the course for faulty construction of obstacles, protruding nails, rotten logs, condition of the landing pits, and other safety hazards.

b. Have the men do warmup exercises before running the course.

c. Explain and demonstrate the correct techniques for negotiating all obstacles before allowing the men to try them.



A. BEAM OR RAIL

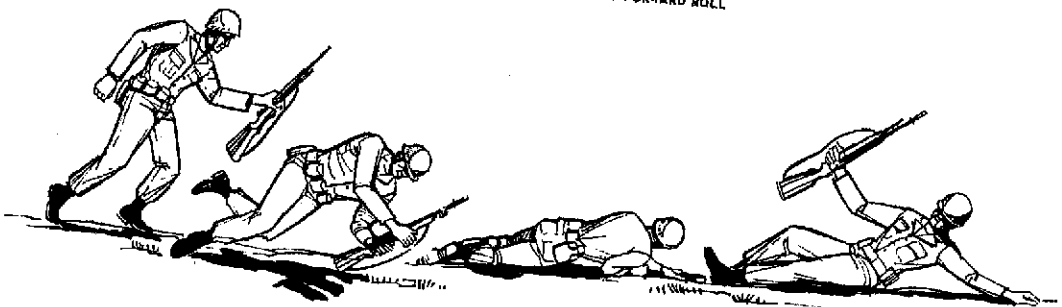


B. LOG

Figure 32. Balancing.

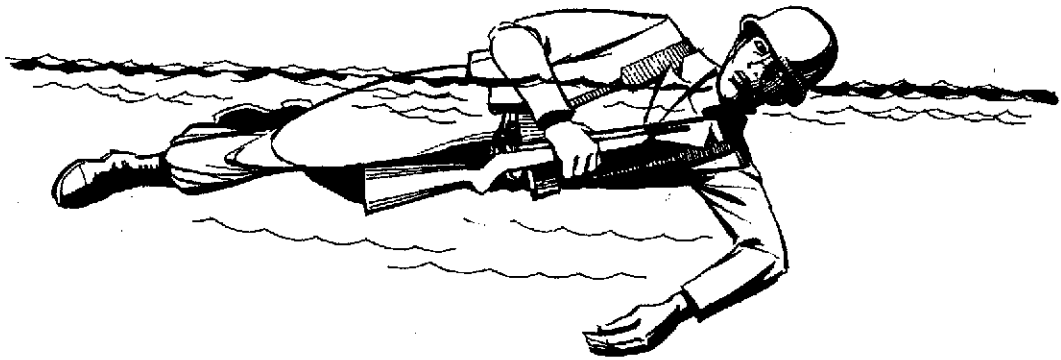


A. ABSORBING SHOCK BY FORWARD ROLL



B. ABSORBING SHOCK ON OUTSIDE OF HIP AND LEG

Figure 33. Falling.



SURVIVAL SWIMMING

Figure 34. Swimming and water survival skills.

d. Give the men at least two weeks of conditioning exercises before scheduling the obstacle and confidence courses.

e. Insure that negotiation of the higher and more dangerous obstacles is under the supervision of an assistant instructor.

f. Do not permit men who have neither practiced the basic skills nor run the conditioning obstacle course to participate in the confidence obstacle course.

g. If weather conditions cause footing or hand-hold surfaces to be slippery, postpone training on the course.

Section III. CONDITIONING OBSTACLE COURSES

202. Construction of Conditioning Obstacle Course

a. Standardization of obstacle courses should not be attempted since topographical conditions vary. Commanders should use ingenuity in constructing a course, making good use of streams, hills, trees, rocks, and other natural obstacles. Since the course is eventually run at high speed, it should not be dangerous.

b. The course should be wide enough for six or eight men to run simultaneously. This encourages

competition. The lanes for the first several obstacles should be wider and the obstacles themselves easier than those that follow. This avoids congestion until the contestants scatter out over the course. The last two or three obstacles should not be too difficult and should not involve high climbing. This prevents injuries and falls resulting from fatigue.

c. The total distance of the course should range from 300 to 450 yards and include from 15 to 25 obstacles. Normally the obstacles should be 20 to

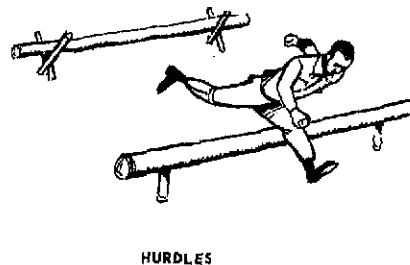
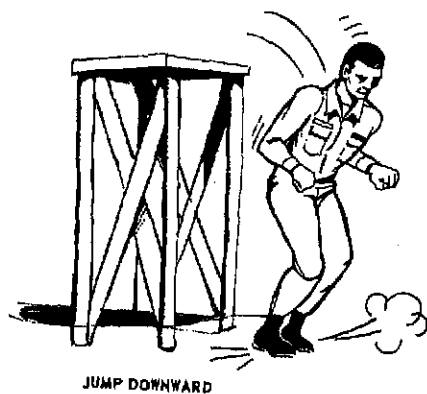
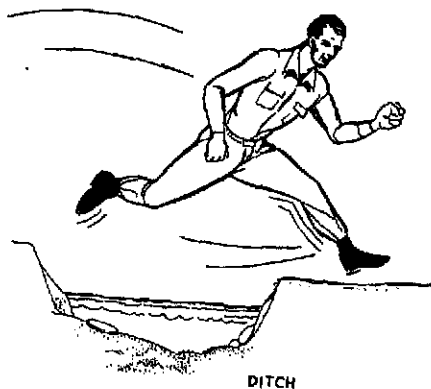
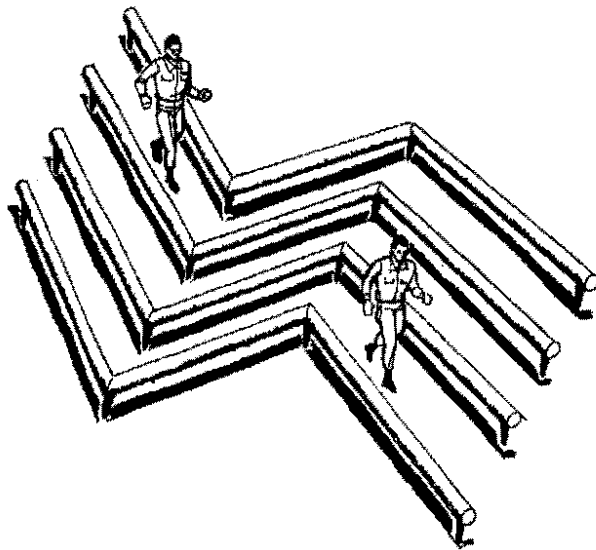
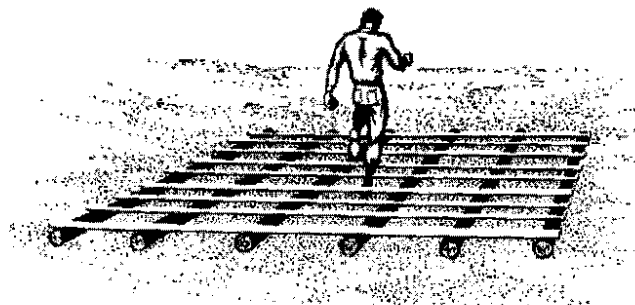
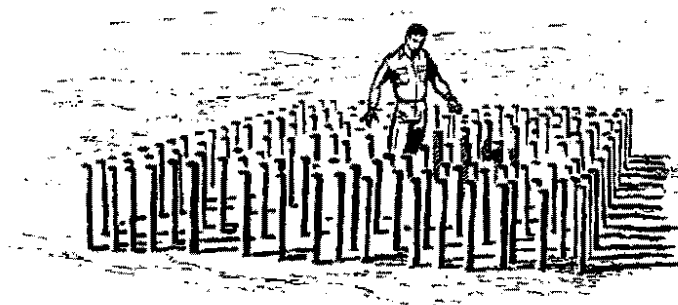


Figure 85. Jumping—types of obstacles.



LANES TO GUIDE CHANGE OF DIRECTION

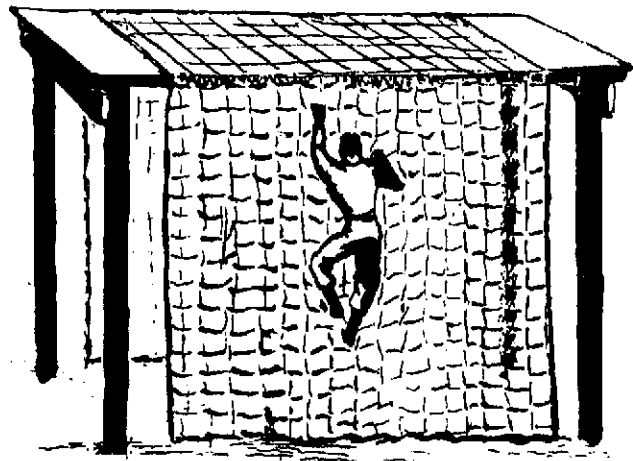


MAZES TO CAUSE CHANGE OF DIRECTION

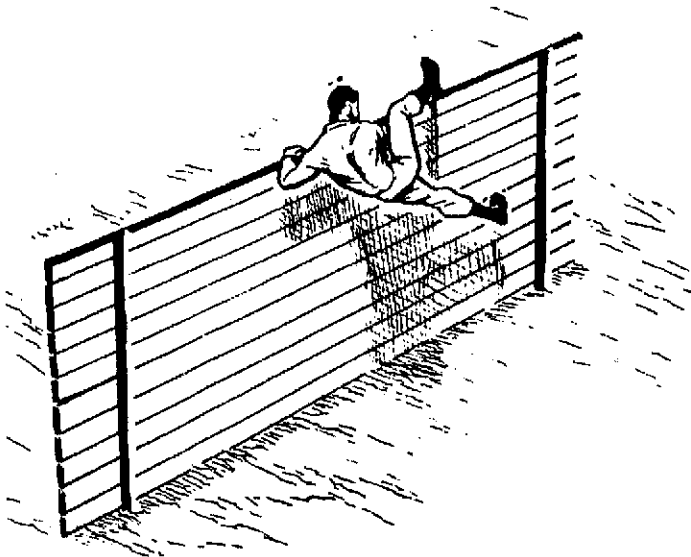
Figure 58. Dodging—types of obstacles.



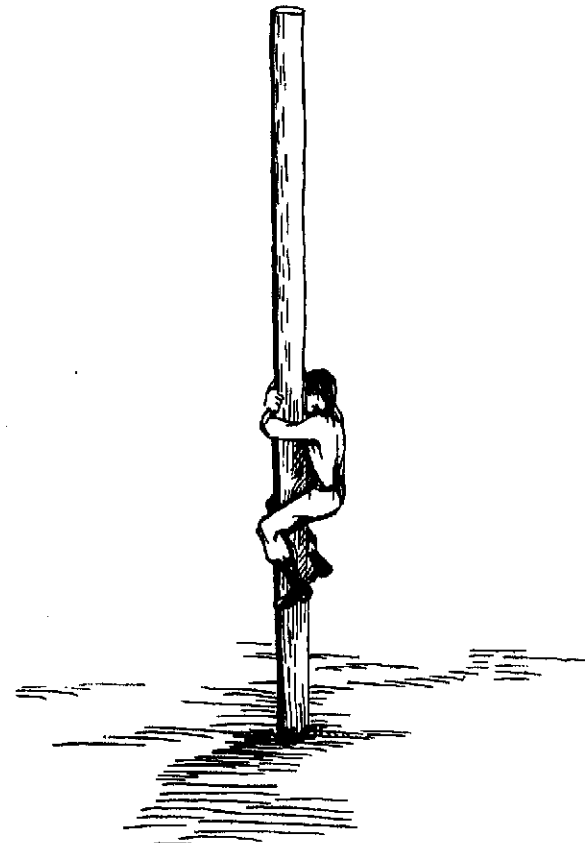
CLIMBING ROPE



CARGO NET

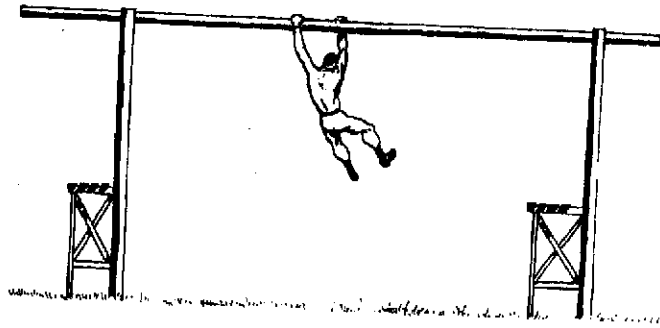


WALL

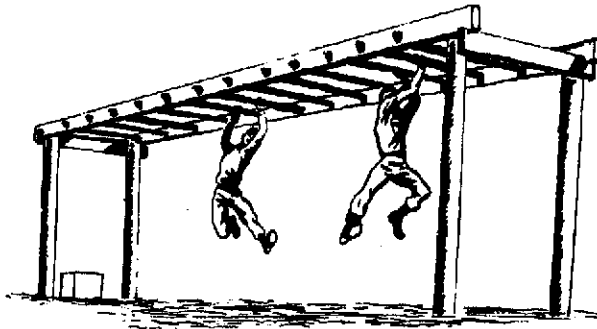


POLE CLIMB

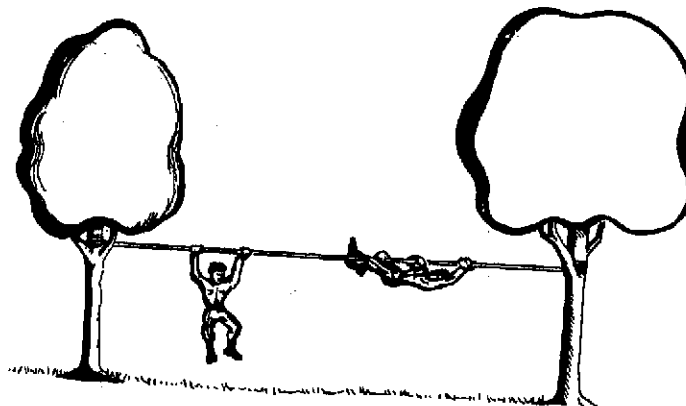
Figure 37. Vertical climbing and surmounting—types of obstacles.



A. PIPE OR BEAM



B. HORIZONTAL LADDER



C. HORIZONTAL ROPE

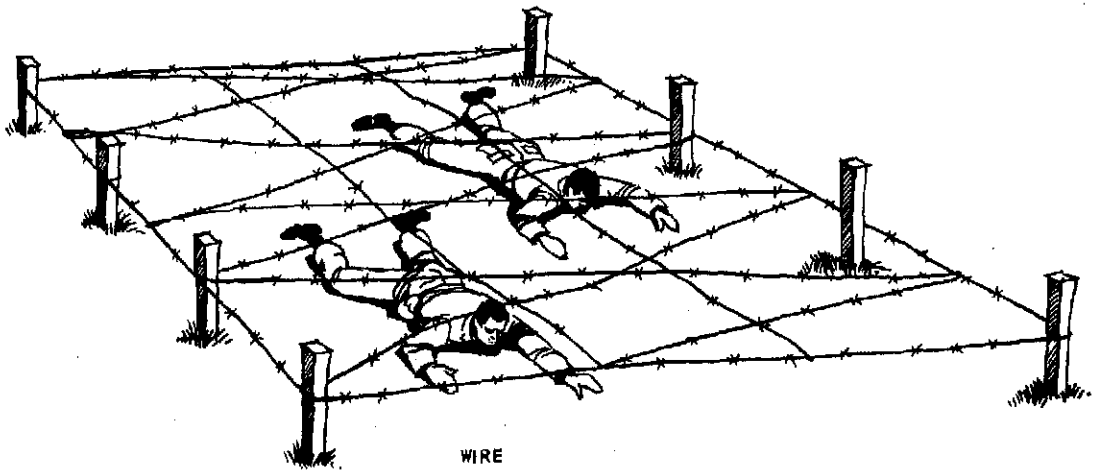
Figure 38. Horizontal traversing—types of obstacles.



TUNNEL



LOW RAIL



WIRE

Figure 39. Crawling—types of obstacles.

30 yards apart and arranged so that those which exercise the same groups of muscles are separated.

d. The obstacles should be strongly built. Peeled logs, 6 to 8 inches in diameter, are ideal for many of the obstacles. Sharp points and corners should be eliminated. Landing pits for jumps or vaults should be filled with sand or sawdust to prevent injuries. The course should be constructed and marked so that it is not possible to side-step or detour obstacles. Sometimes, however, it is desirable to provide alternate obstacles of varying degrees of difficulty. Signs should be placed to indicate the route. If possible, the course should be in the shape of a horseshoe or figure eight so that the finish is close to the start.

203. Use of the Obstacle Course

a. Before troops run an obstacle course they should be instructed in the proper technique of negotiating each obstacle. In each case this tech-

nique should be explained and demonstrated in detail, with emphasis on avoiding injury. Every individual should be given an opportunity to practice on each obstacle until he becomes reasonably proficient at negotiating it. Before the course is run against time, it is advisable for the men to make several runs at a slower pace. During such practice or trial runs, the instructor should observe the performances and make appropriate corrections. The men should never be permitted to run the course for time until they have practiced on all obstacles.

b. The best method of timing the runners is to have the timer stand at the finish and call out the minutes and seconds as each man finishes. If several watches are available, each wave of men may be timed separately. If only one watch is available, the different waves should be started at regular intervals, such as every 30 seconds. If a man fails to negotiate an obstacle, a previously determined penalty should be imposed.

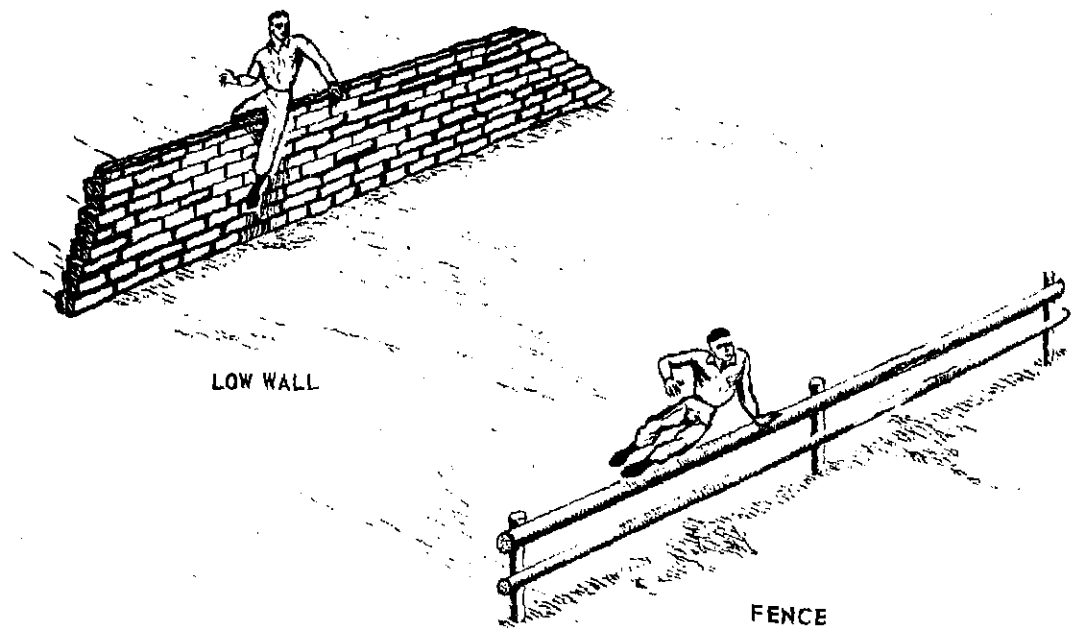


Figure 40. Vaulting—types of obstacles.

204. Types of Obstacles

a. *Jumping Type Obstacles* (fig 35). These obstacles may be ditches which the men can clear with one leap, trenches which the men can jump into, heights which require jumping downward, or hurdles.

b. *Dodging Type Obstacles* (fig 36). Obstacles of this type are usually mazes consisting of posts set in the ground at irregular intervals. The intervals between posts should be rather narrow so that the participants must pick their way carefully through and around them. Lane guides may be established which by their construction guide the men to dodge and change direction.

c. *Vertical Climbing and Surmounting Type Obstacles* (fig 37). These obstacles may be climbing ropes, either plain or knotted and $1\frac{1}{2}$ inches in

diameter; cargo nets, walls 7 or 8 feet high, or vertical poles 6 to 8 inches in diameter and 15 feet high.

d. *Horizontal Traversing Type Obstacles* (fig 38). Horizontal obstacles may be ladders, ropes, pipes, or beams.

e. *Crawling Type Obstacles* (fig 39). Obstacles which require crawling may be constructed of large pipe sections, low rails, and wire.

f. *Vaulting Type Obstacles* (fig 40). Obstacles of 3 to $3\frac{1}{2}$ feet in height such as fences or low walls may be used as a vaulting obstacle.

g. *Balancing Type Obstacles* (fig 41). Beams, logs, and planks may be used as balance obstacles. These items may be used to span water obstacles and dry ditches, or raised off the ground somewhat to simulate these natural depressions.

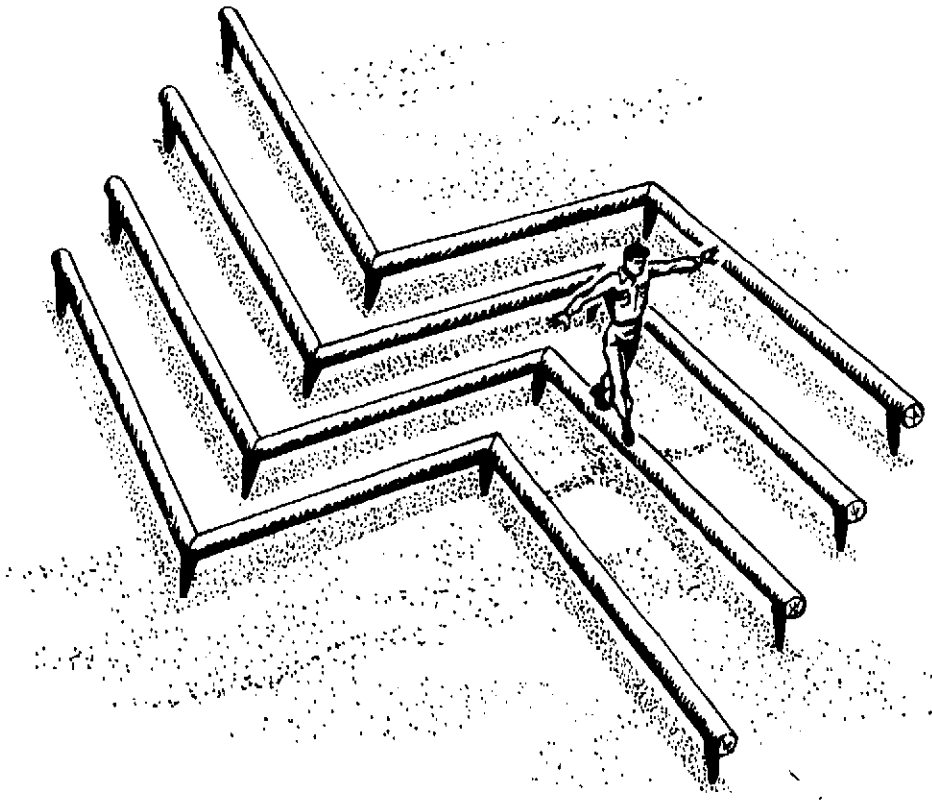
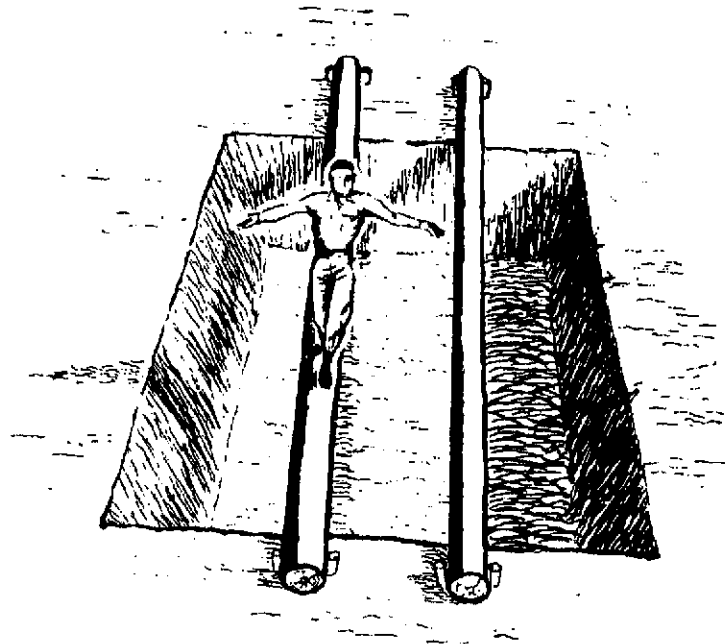


Figure 41. Balancing—types of obstacles.

Section IV. CONFIDENCE OBSTACLE COURSES

205. The Course

This modification of the obstacle course is designed to cultivate confidence and a spirit of daring rather than to exercise and condition the men. The negotiation of a confidence course, however, is strenuous enough to be an excellent physical conditioner. The men should NEVER attempt to negotiate the obstacles at high speed and should not compete for speed. The obstacles vary from fairly easy to extremely difficult. Some are of considerable height, to accustom the men to climbing without fear. Considerable emphasis is placed on obstacles that train and test a man's balance.

206. Course Arrangement and Construction

a. The confidence course accommodates four platoons, one platoon at each group of six obstacles. The course should be made up of about 24 obstacles, numbered and marked as follows:

1 to 6, white numbers on red background.

7 to 12, black numbers on a white background.

13 to 18, white numbers on a blue background.

19 to 24, white numbers on a black background.

b. For construction details of a confidence course refer to Folio No. 1 "Training Facilities," Corps of Engineers, drawing number 28-13-95. Figures 42 through 45 are intended to illustrate the method of negotiation.

c. A few simple pieces of equipment will be provided for men who do not have the strength, courage, or ability to negotiate the obstacles. This equipment includes bars for pullups, ropes to climb, parallel bars, bars of various heights to vault, barbells, medicine balls, and platforms or places for practicing sit-ups. This group should be under an instructor. If the men are encouraged to volunteer to try the easier of the confidence obstacles, they will gradually take their places with the others.

207. Method of Use

The obstacles are divided into groups of six, and each group is designated by a different color (para 206). Each platoon starts at a different color. The men are separated into groups of 8 to 12 at each obstacle. At the starting signal, they proceed throughout the course: 5 to 6, 8 to 7, 24 to 1, and so on. Any man may skip any obstacle he is afraid to try. The men proceed from obstacle to

obstacle until time is called, then they assemble as ordered. The following general rules govern the use of the confidence course:

a. The men are encouraged to try the various obstacles, but they are not compelled to do so. If any man wishes to skip any obstacle, he is permitted to do so.

b. The manner of negotiating any obstacle is left to the discretion of the individual. However, the instructor assists any soldier who experiences difficulty.

c. The example of instructors and especially selected demonstrators will serve to inspire the men to greater effort.

d. If the men are new to the confidence course, a brief orientation is conducted at each obstacle, including an explanation and demonstration of a method of negotiating it.

e. Close supervision must be exercised at all times to prevent injuries. As a safety precaution the highest obstacles should not be used when slippery or wet.

208. Negotiating the Obstacles

Although the men need not conform to any one method of negotiating the obstacles, there should be some uniformity in the approach to them. A general method of negotiating the obstacles is indicated below.

a. *Red Group.* This group contains the first six obstacles, 1 to 6 (fig 42).

(1) *The belly buster.* Men may vault, jump, or climb over. Warn them that the log is not stationary.

(2) *Reverse climb.* Climb the reverse incline and go down the other side to the ground.

(3) *The weaver.* Move from one end of the obstacle to the other by weaving the body under one bar and over the next.

(4) *Hip-hip.* Step over each bar, either alternating legs or using the same lead leg each time.

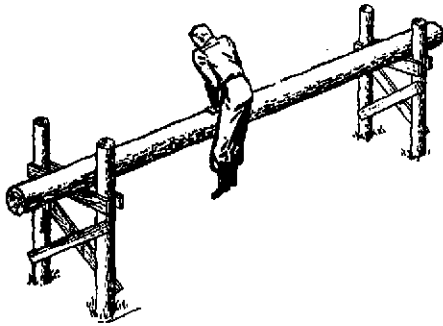
(5) *Balancing logs.* Step up on log, and retaining the balance, walk or run along the log.

(6) *Island hopper.* Jump from one log to another until the obstacle is negotiated.

b. *White Group.* This group is composed of the second six obstacles, 7 to 12 (fig 43).

(1) *The tough nut.* Step over each "X" in the lane.

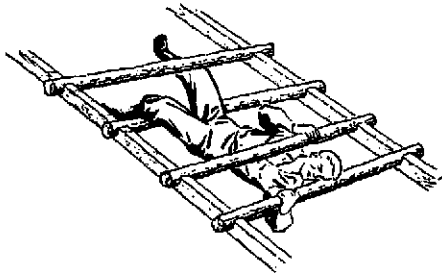
(2) *Slide for life.* Climb the tower, grasp the



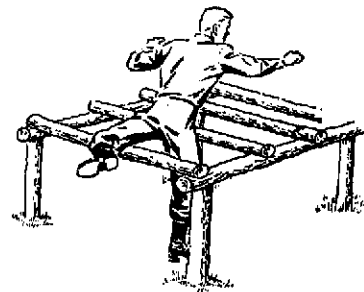
A. THE BELLY BUSTER



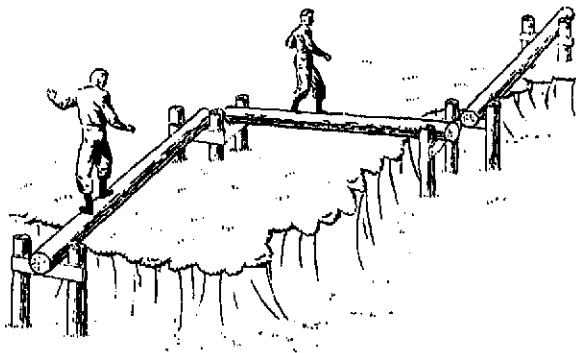
B. REVERSE CLIMB



C. THE WEAVER



D. HIP-HIP

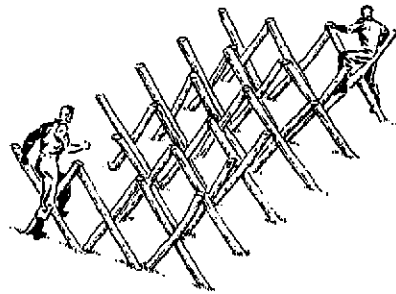


E. BALANCING LOGS

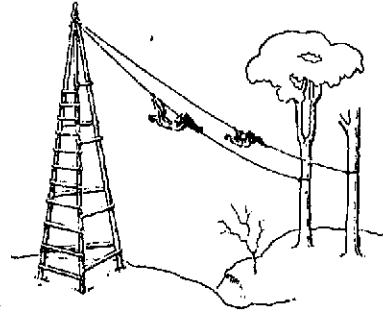


F. ISLAND HOPPER

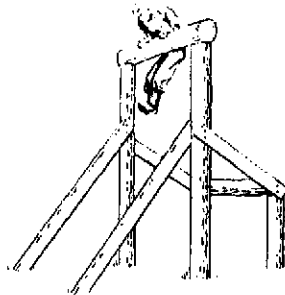
Figure 42. Red group.



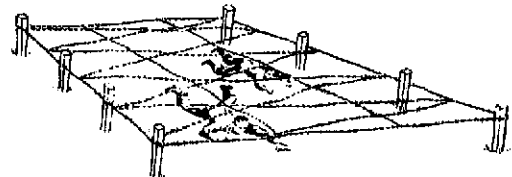
A. THE TOUGH NUT



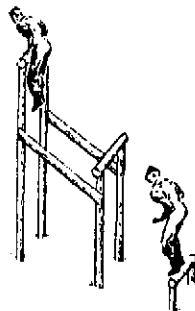
B. SLIDE FOR LIFE



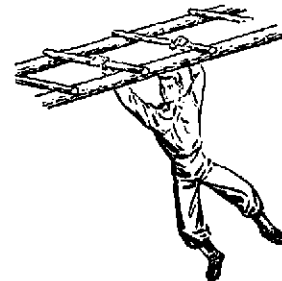
C. LOW BELLY OVER



D. BELLY CRAWL



E. THE DIRTY NAME



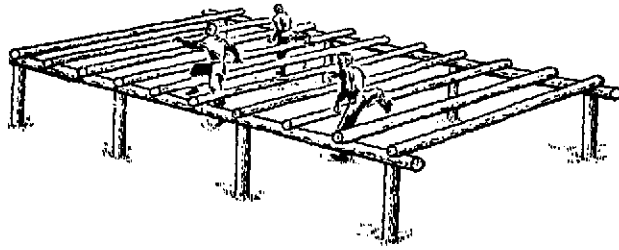
F. THE TARZAN

Figure 48. White group.

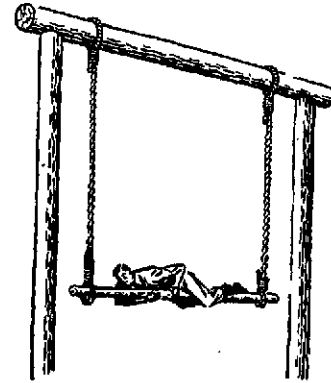
rope firmly and swing the legs upward. Hold the rope with the legs to distribute the weight between them and the arms. Braking the slide with the feet and legs, proceed down the rope. Warn the men that there is danger of getting rope burns on their hands. This can be a dangerous obstacle when the rope is slippery.

(3) *Low belly over.* Mount the low log and jump onto the high log, both arms grasping over the top of the log, the stomach area in contact with it. Swing the legs over the log and lower the body to the ground.

(4) *Belly crawl.* Move forward under the wire, belly down, to the end of the obstacle.



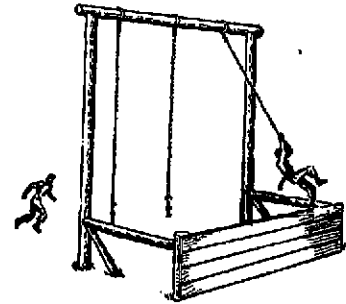
A. HIGH STEPOVER



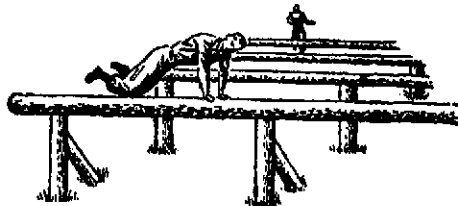
B. SWINGER



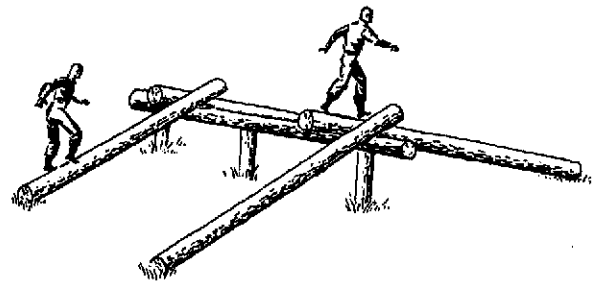
C. LOW WIRE



D. SWING, STOP AND JUMP



E. SIX VAULTS



F. EASY BALANCER

Figure 44. Blue group.

(5) *The dirty name.* Mount the low log and jump to or reach the higher logs in succession, then jump or drop to the ground. Warn the men about the height of the final log.

(6) *The tarzan.* Mount the lower log and walk the length of it and each successive, higher log until reaching the horizontal ladder. Grasp two rungs of the ladder and swing the body into the air. Negotiate the length of the ladder by releasing one hand at a time and swing forward, grasping a more distant rung.

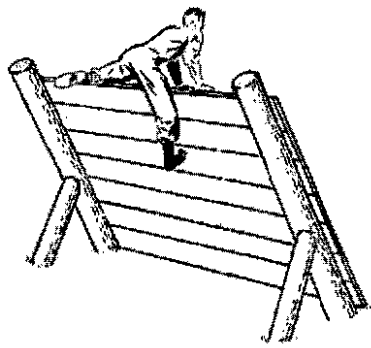
c. Blue Group. This group is formed by the third six obstacles, 13 to 18 (fig 44).

(1) *High stepladder.* Step over each log, alternating the lead foot or using the same lead foot.

(2) *Swinger.* Climb onto the swing log and over to the ground on the opposite side.

(3) *Low wire.* Move under the wire on the back, using the hands to raise the wire to clear the body.

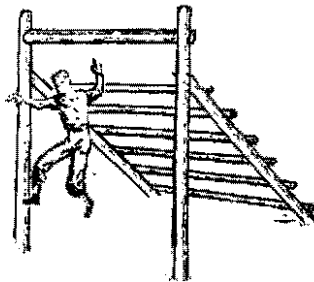
(4) *Swing, stop, and jump.* Gain momentum with a short run, grasp the rope, and swing the



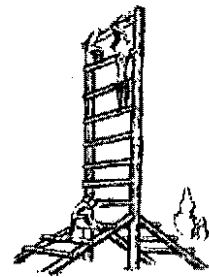
A. INCLINE WALL



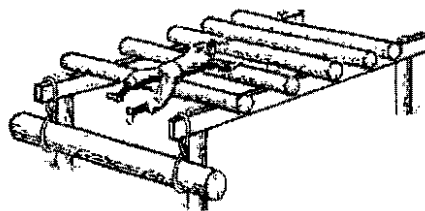
B. SKYSCRAPER



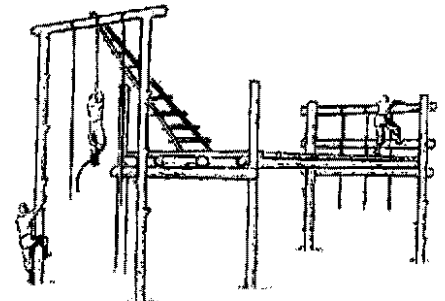
C. JUMP AND LAND



D. CONFIDENCE CLIMB



E. BELLY ROBBER



F. THE TOUGH ONE

Figure 45. Black group.

body forward to the top of the wall. Release the rope while standing on the wall and jump to the ground.

(5) *Six vaults.* Vault over the logs, using one or both hands.

(6) *Easy balancer.* Walk up one inclined log and down the one on the other side to the ground.

d. Black Group. The last group is formed by the final six obstacles, 19 to 24 (fig 45).

(1) *Inclining wall.* Approach the underside of the wall, jump up and grasp the top, and pull the body up and over. Slide or jump down the incline to the ground.

(2) *Skyscraper.* Jump or climb to the first

floor, climb up the corner posts or assist each other to any desired floor. Descend to the ground in any manner.

(3) *Jump and land.* Climb the ladder to the platform and jump to the ground.

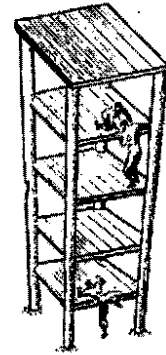
(4) *Confidence climb.* Climb the inclined ladder to the vertical ladder. Go to the top of the vertical ladder, then down the other side to the ground.

(5) *Belly robber.* Step on the lower log and assume the prone position on the horizontal logs. Crawl over the logs to the opposite end of the obstacle.

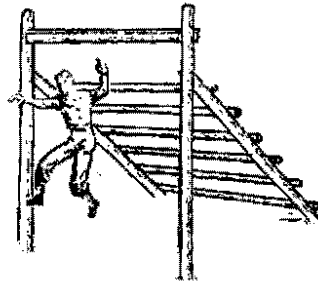
(6) *The tough one.* Climb the rope or pole on the higher end of the obstacle, then go down the ladder and across the log platform. Climb over or between the logs at the end and go down the rope or pole to the ground. Vault over the final log.



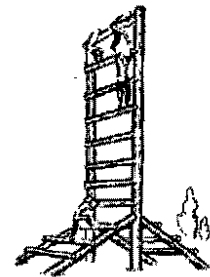
A. INCLINE WALL



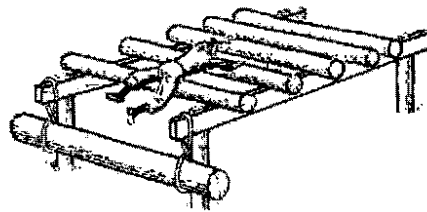
B. SKYSCRAPER



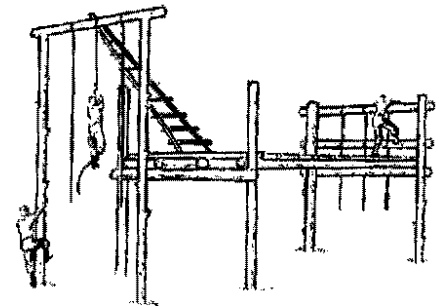
C. JUMP AND LAND



D. CONFIDENCE CLIMB



E. BELLY ROBBER



F. THE TOUGH ONE

Figure 45. Black group.

body forward to the top of the wall. Release the rope while standing on the wall and jump to the ground.

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d. Black Group. The last group is formed by the final six obstacles, 19 to 24 (fig 45).

(1) *Inclining wall.* Approach the underside of the wall, jump up and grasp the top, and pull the body up and over. Slide or jump down the incline to the ground.

(2) *Skyscraper.* Jump or climb to the first

floor, climb up the corner posts or assist each other to any desired floor. Descend to the ground in any manner.

(3) *Jump and land.* Climb the ladder to the platform and jump to the ground.

(4) *Confidence climb.* Climb the inclined ladder to the vertical ladder. Go to the top of the vertical ladder, then down the other side to the ground.

(5) *Belly robber.* Step on the lower log and assume the prone position on the horizontal logs. Crawl over the logs to the opposite end of the obstacle.

(6) *The tough one.* Climb the rope or pole on the higher end of the obstacle, then go down the ladder and across the log platform. Climb over or between the logs at the end and go down the rope or pole to the ground. Vault over the final log.

CHAPTER 17

WATER SURVIVAL TRAINING

Section I. INTRODUCTION

209. Combat Operations Training

a. If combat operations are highly coordinated and well executed, the engineer support troops will anticipate the water crossings and have boats and lifejackets at the site for all men of the combat units. In other independent actions units may be forced to overcome the water obstacle without such aid.

b. Confidence near water is essential. Roughly two-thirds of the earth's surface is covered by water and the soldier is expected to function successfully in and around water.

c. Streams, rivers, lakes, and oceans are part of the terrain. A trained combat soldier can breach these obstacles. With his ability to survive in this environment he makes the water a friend, not a foe, and an avenue, not an obstacle.

d. Soldiers should have the opportunity to secure an insight into their true capability when forced to survive in the water while wearing field equipment. A strong swimmer, under ideal conditions, is not necessarily a capable swimmer when equipment and clothing replace a bathing suit. This difference is something which the individual should understand and appreciate. Nonswimmers should be trained in order that they also may access their ability to survive in water. Such training will also increase their capability.

210. Water Survival Training Priorities

a. In an effort to better prepare soldiers for water hazards they may encounter throughout

their training and in combat, water survival training has been developed. Panic in water is the primary cause of drownings; water survival instruction attempts to make the individual aware of this danger. To eliminate panic is relatively impossible; to attempt to contain it is realistic.

b. Before going into the specifics of water survival training, it should be emphasized that this instruction in no way attempts to teach a soldier to swim as it is not necessary to swim to survive. This training can be administered to most combat units. The experiences the soldier undergoes will not readily be forgotten and will prove invaluable in combat or simulated combat situations.

c. The following priority, or order of training, is recommended.

(1) Drownproofing training (para 211-219). This is a process of training which conditions men to avoid panic and to survive in water. Both swimmers and nonswimmers can learn the techniques. The process is approximately 10 percent physical and 90 percent mental.

(2) Expedient floatation devices, removal of equipment, unexpected entry into the water, and review of artificial respiration (para 220-223).

(3) Military swimming to train swimmers in specific swimming techniques needed to accomplish military missions (para 224-229).

d. The majority of personnel will require the training as specified in paragraph 210c(1) and (2) above. The time required to accomplish that training is reasonable. Leave swimming, which is time consuming, for specialized situations.

Section II. DROWNPROOFING INSTRUCTION AND EVALUATION

211. Definition

Drownproofing is a method of water survival based upon a set of simple skills and attitudes using a minimum of movement. Conservation of energy and relaxation are primary objectives until help arrives or until the soldier can work his

way to safety. Fear, panic, and exhaustion are avoided by training the soldier to relax and learn to float just under the surface of the water, rather than expend energy to maintain part of the body afloat on top of the water. Normally, the body is maintained at rest just under the water with me-

mentary surfacing of the head for air. If forward movement is desired, the action takes place just under the water and movement is slow and deliberate. The skills involved to move or to rest are rather simple, yet to learn these skills and to develop the necessary mental attitude requires that some established patterns be overcome. Experience has proven this process of learning requires the soldier to develop about 10 percent skill and 90 percent mental discipline.

212. Ability to Survive in Water

a. Panic in the water usually involves a sudden situation of fright or terror caused by a realization in which the individual feels he cannot overcome the situation. For example, panic may occur from falling into deep water unexpectedly, caught in the water while under enemy fire, dragged under water by weight of a pack or heavy load, grasped by a nonswimmer and dragged under water, or by taking water into the throat or nose which results in coughing and strangulation. Under such circumstances logic or reasoning suddenly stops. Drownproofing is designed to provide training and experience in how to survive during a panic producing situation. The training provides a recall process of action which halts the instinctive fear of death and results in logical effort to overcome the panic situation.

b. At times the best of swimmers take in water through the nose or mouth. This interference with breathing is inevitable while mastering the techniques of drownproofing. Such action will usually result in choking or coughing. This is normal and is not cause for alarm.

(1) *Choking.* When water enters the airway and comes into contact with the larynx, it causes the spastic closure of the glottis usually lasting about 5 seconds, which causes choking. When practicing air exchanges some men may experience choking. To avoid this interference with proper breathing insure that the teeth are together and the lips are closed while the mouth is underwater. Remember to exhale through the nose by blowing out.

(2) *Coughing.* If a man should choke he must cough to clear the airway. The best technique is for him to place his face down into the water and cough downward. Once the throat is clear he can continue his air exchange. Have him think of when he gargles, he closes the throat by tilting his head downward to clear the throat and mouth. This is the same when coughing in the water.

c. All men can be taught to survive in water. The development of confidence within the individ-

ual is of great importance. Most swimmers are not taught how to avoid panic and survive; they are taught to swim. Approximately half of all drowning victims are swimmers. To remain on the surface of the water and swim requires the expenditure of large amounts of energy. If panic occurs additional strength is expended by the swimmer and either condition alone, or in combination, may result in drowning. Swimming is not the key to survival; drownproofing is the key, and can be mastered in less time than swimming.

d. It is estimated that only 1 percent of the total population in the United States cannot learn to float. Relaxation and proper air intake are keys to floating. Drownproof training is designed to overcome fear of the water, and teach proper air exchange.

213. Skills and Strokes

There are two basic skills in drownproofing to be learned by both swimmers as well as nonswimmers. These skills are air exchange, and the travel stroke. Two additional skills are learned by swimmers who are floaters. These skills are the hanging float and the vertical float.

a. *Air Exchange.* Most persons, with their lungs full of air, will float, and without their lungs full of air, will sink. The reason most people drown, over a prolonged period of time in the water, is because they try to support their head out of the water by using their arms. All this movement of the arms, not to mention the legs, will eventually exhaust the individual and he will drown.

(1) The air exchange is considered the most important part of survival. It enables the man to resupply his lungs with air. About 70 percent of the old air is exhaled under the surface of the water through the nose as the head is being raised out of the water. When the head clears the surface, the other 30 percent of air is exhaled. Once all of the air has been exhaled, the mouth is opened wide, and the lungs filled with air which is inhaled through the mouth (fig 46).

(2) The air space in the lungs provides buoyance like a pair of invisible water wings. The air is stored in the lungs, not the mouth. Some people have a tendency to just fill the mouth and part of the lungs with air; this is not sufficient. Every cubic inch of the lungs is used to store air.

b. *Travel Stroke.* The travel stroke was designed for people who cannot float, and may also be used by a floater for the purpose of traveling from one area to another. There are five steps in the travel stroke: one, prepare to breathe; two,

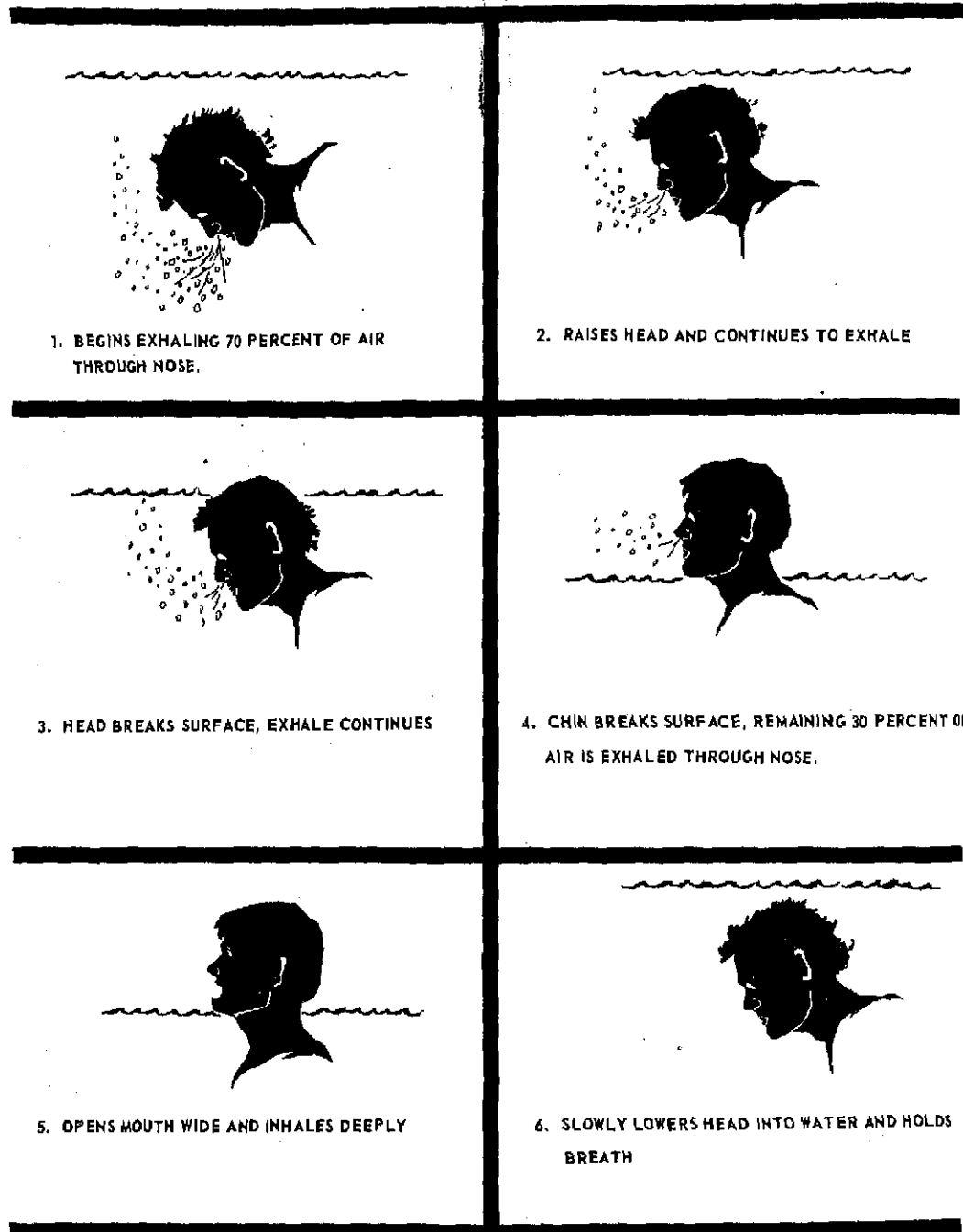


Figure 46. Air exchange.

kick and exhale; three, stroke and inhale; four, kick and level; five, stroke and glide. Remember that each step is completed in sequence without pause between the steps. In order to start the travel stroke, the man must be in the rest position. The rest position for the travel stroke is face down in the water, arms along the side of the

body, feet together, laying horizontal in the water (fig 46). Explanation of the stroke follows:

(1) *Step one—prepare to breathe.* To prepare to breathe, move the hands up along the sides of the body and across in front of the forehead palms down, and at the same time spread the legs scissor fashion in preparation for a kick.

(2) *Step two—kick and exhale.* To kick and exhale, kick the feet together and at the same time exhale through the nose, and rotate the head slowly out of the water.

(3) *Step three—stroke and inhale.* To stroke and inhale, stroke a heartshaped stroke with the hands bringing the hands back in front of the chest, and at the same time inhale through the mouth; rotate the head back in the water slowly and spread the legs for another kick.

(4) *Step four—kick and level.* To kick and level, you extend your hands out in front of your body and at the same time kick your feet together.

(5) *Step five—stroke and glide.* To stroke and glide, you pull your hands to your sides enabling you to propel your body in a glide through the water.

(6) *The glide.* During the glide the body is at rest. The man stays in this position until the feet drop under his body, or until another breath of air is required before starting the *prepare to breathe* stroke.

c. *Hanging Float.* The hanging float is used by natural floaters to survive in water. The hanging float has four steps. To start the hanging float the man must be in the rest position, which is hanging face-down in the water. The air exchange is the same as used in the travel stroke (fig 46).

(1) *Step one—prepare to breathe.* To prepare to breathe, move the hands up along the legs and across in front of the forehead, and at the same time spread the legs for a kick.

(2) *Step two—kick and exhale.* To kick and exhale, kick the feet together and at the same time exhale through the nose and rotate the head out of the water.

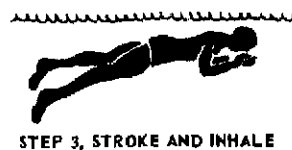
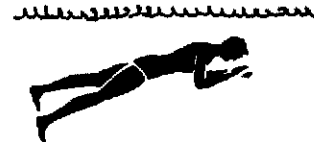
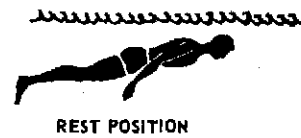
(3) *Step three—stroke and inhale.* To stroke and inhale, scull the hands from in front of the face out to the side and inhale at the same time.

(4) *Step four—second stroke.* To second stroke, having inhaled a breath of air, rotate the face down into the water and stroke by dropping the arms down in front of the body and clapping the hands together. Then relax and remain hanging until there is a feeling of need for another breath of air.

d. *Vertical Float.* The final technique of survival is the vertical float. Like the hanging float it is used by the natural floater to survive in the water. The rest position, for the vertical float, is a relaxed position standing in the water, head and eyes to the front. There are four steps to the vertical float (fig 46):

(1) *Step one—prepare to breathe.* To prepare to breathe, move the hands along the sides of the

IN WATER

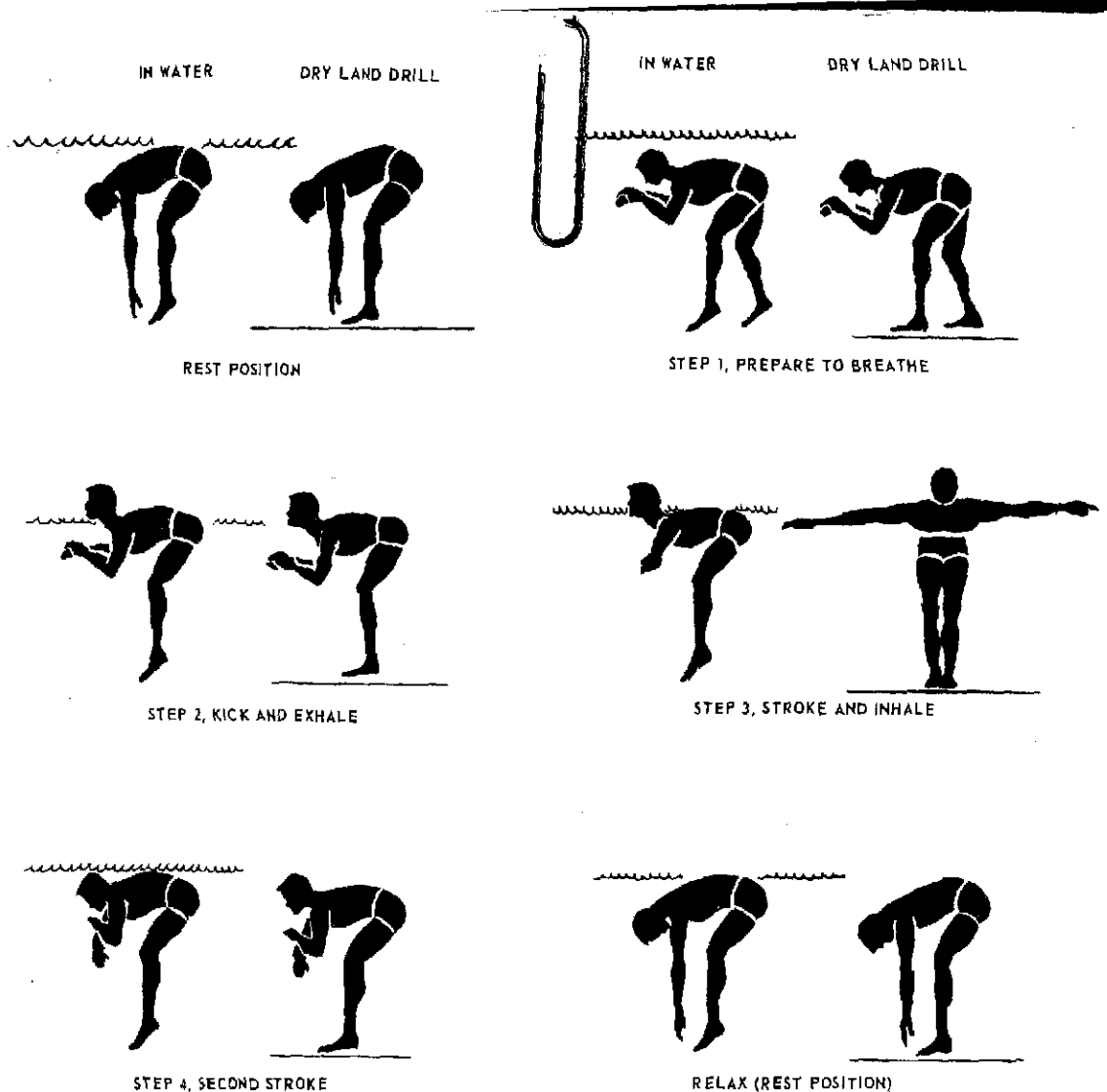


DRY LAND DRILL



Travel stroke

Figure 46—Continued.



Hanging Float
 Figure 46—Continued.

body to armpit height, and extend the arms straight out to the side, and at the same time spread the legs for a kick.

(2) *Step two—kick and exhale.* To kick and exhale, kick the legs together and at the same time exhale through the nose.

(8) *Step three—stroke and inhale.* To stroke and inhale, stroke the hands down to the sides of the body and at the same time inhale through the mouth.

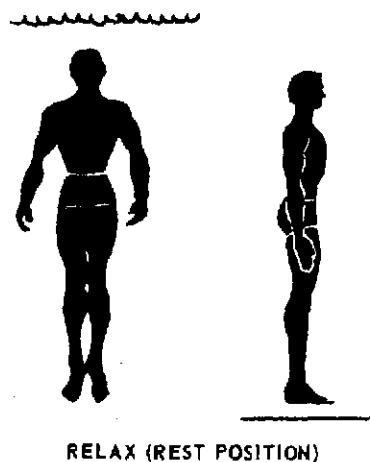
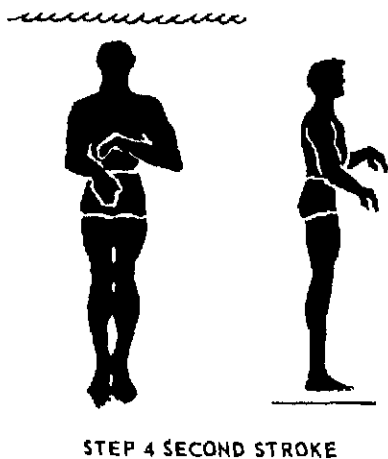
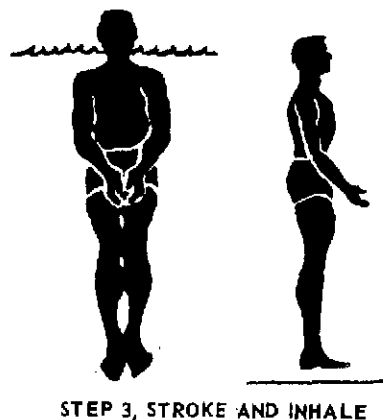
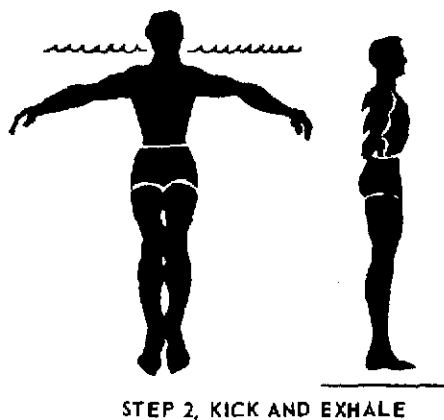
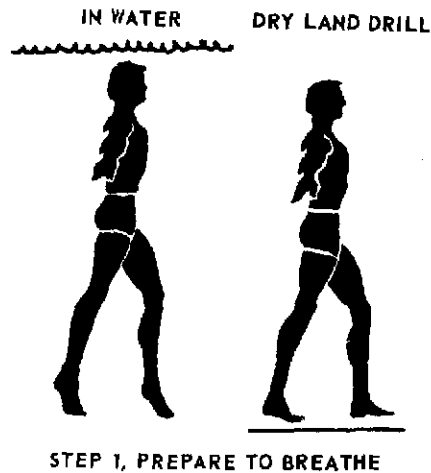
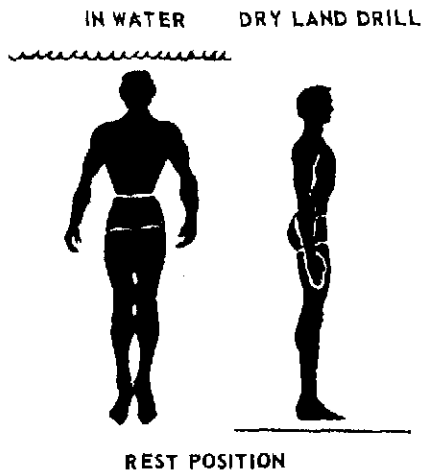
(4) *Step four—second stroke.* To second stroke bring the hands up in front of the chest, palms down, and then push down extending the arms out far enough to stop the downward move-

ment of the body. Then relax and return the hands to the sides, and remain in the rest position until there is need for another breath of air.

214. Scope of Training

a. Training Time. The minimum block of training should consist of 8 or 9 hours of instruction to include an end-of-block proficiency test. The training should include a classroom presentation, and four 2-hour periods in the pool.

b. Pool Organization. Three instructional stations are established at the pool (fig 46). Trainees are divided according to swimming ability and la-



Vertical Float
 Figure 46—Continued.

structured accordingly at these three stations. The stations are: station 1, located in the deep end of the pool, for swimmers who are floaters; station 2, located in the center section (intermediate depth) of the pool for swimmers who are non-

floaters or weak swimmers; and station 3, located in the shallow end of the pool, for nonswimmers.

(1) During three of the four pool periods, in periods 2, 3 and 4, only one-half of the training company personnel are instructed during these 2-

hour periods. For example, the first and second platoons are in the pool from 0800-1000 hours, and the third and fourth platoons follow from 1000-1200 hours. With this division, there are usually from 100-120 men in the pool at any one time. The other half of the company must be scheduled for other training.

(2) Experience indicates there will be approximately 50-60 percent of the trainees at station 1, 20-25 percent at station 2, and 20-25 percent at station 3. Of course, these percentages can and do fluctuate from company to company; however, these percentages may be used as a guide.

215. Summary of Training

Each of the five periods of training is summarized to provide an insight into the content, methods, and station organization utilized. A summary, by period, of the training follows:

a. First Period—1 Hour. Lecture, demonstration, and practical exercise in the classroom. The hour includes introduction and explanation to cover purpose and definition of drownproofing; a film is shown to illustrate the three drownproof techniques; air exchange (proper breathing) and two of the three techniques are explained, demonstrated, and followed by practical exercise in a dry-land situation; explanation of sanitary and pool safety rules; explanation of what to do in cases of coughing and choking; and the classification system as used to identify proficiency (advanced, beginner, and not qualified).

b. Second Period—2 Hours. Lecture, demonstration, and practical exercise at the pool. All trainees are assembled at the deep end of the pool to hear the introduction and see the demonstration where demonstrators with their hands and feet tied stay afloat using drownproofing techniques. Trainees are then divided into swimmers and nonswimmers.

(1) Swimmers are retained at the deep end of the pool (station 1) and nonswimmers go to the shallow end (station 3). Station 2 is not used until the start of the second hour of the period. The men at station 1 practice the air exchange and are administered the floater-sinker test during the first hour. Nonswimmers, who are at station 3, enter waist deep water and engage in a water confidence drill and air exchange practice.

(2) Swimmers at station 1 who proved to be "sinkers" or nonfloaters are assembled at the middle of the pool where station 2 comes into existence at the start of the second hour. During the second hour the men at station 1 practice the travel stroke and hanging float (the two tech-

niques introduced in the classroom during the first period). Nonfloaters at station 2 practice the travel stroke, and nonswimmers at station 3 learn to kick properly and practice the travel stroke.

c. Third Period—2 Hours. Lecture, demonstration, and practical exercise at the pool. Following a short introduction, the men are divided into station groups. The men go to the same station to which assigned at the end of period two. (During period two there is a certain degree of mobility as some men are shifted to the station which reflects their ability.)

(1) *Station 1.* Lecture, demonstration, and practical exercise of the third technique—vertical float; practice in use of the travel stroke, hanging float, and vertical float; orientation and demonstration of the requirements to earn drownproofing advanced classification. (Stay afloat dressed in fatigues for 30 minutes using any combination of the three techniques and travel stroke 75 yards in fatigues with rifle.)

(2) *Station 2.* Demonstration and practical exercises in learning to travel stroke during the first hour 75 yards (across the pool and back until the specified distance is covered).

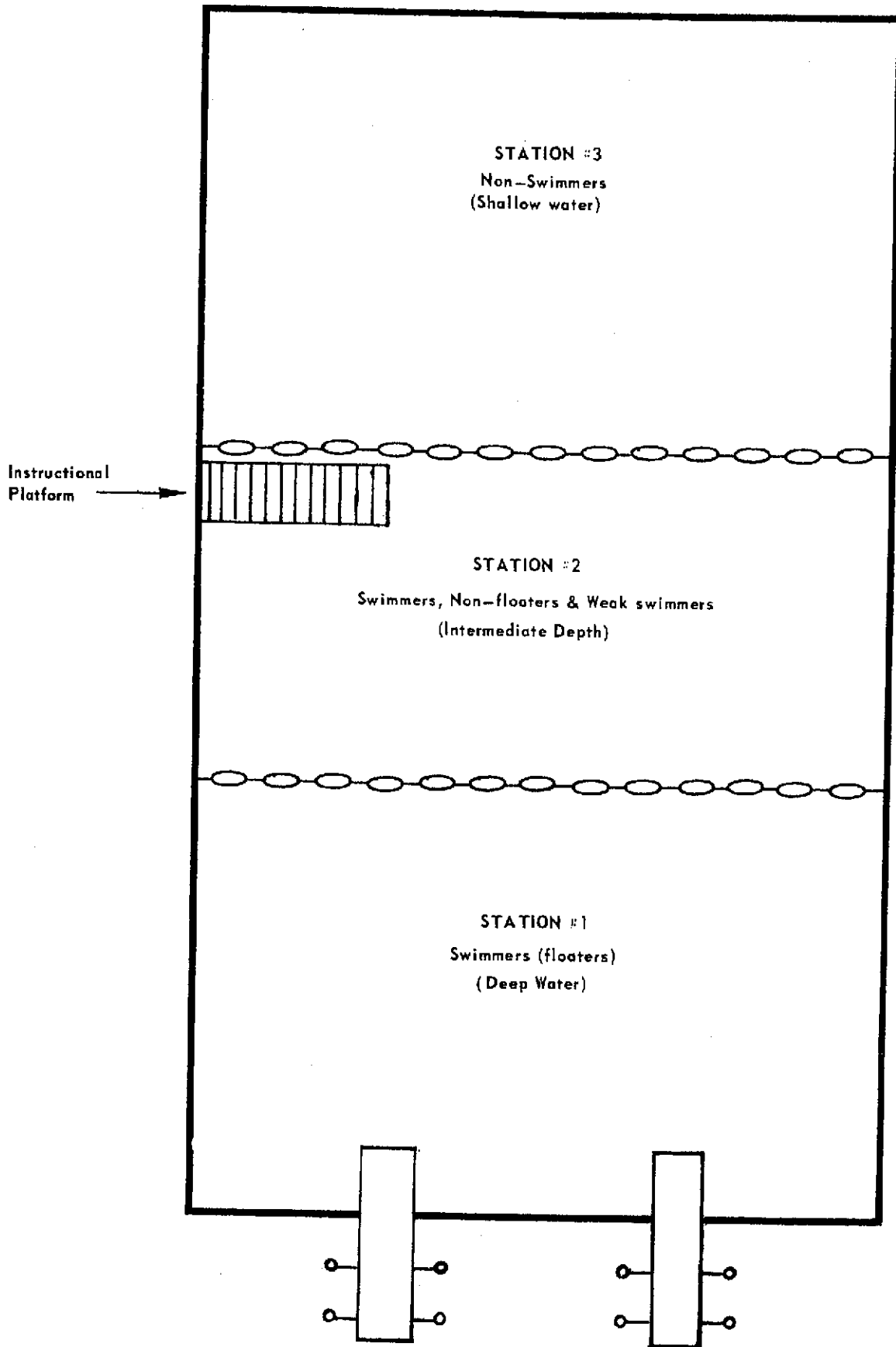
(3) *Station 3.* Demonstration and practical exercises in learning to travel stroke. Dry land drill alternated with practice in the water to coordinate stroke with proper air exchange. Individual instruction as required for the slower learner.

d. Fourth Period—2 Hours. Following a short introduction the men are divided into station groups. They go to the same station to which assigned at the end of period three.

(1) *Station 1.* Demonstration and practice in the hanging float, verticle float and travel stroke during the first hour. During the second hour practice staying afloat for 20 minutes, and practice removal of equipment.

(2) *Station 2.* Practice the travel stroke for distance during the first hour. During the second hour the 75-meter travel stroke test is administered to determine those men who are able to qualify. Such qualification results in a rating of drownproofing beginner. The men who fail to qualify continue to practice the remainder of the period. The latter part of the second hour is utilized to practice removal of equipment.

(3) *Station 3.* Practice the travel stroke during the first hour. Instructors during the first hour also identify those individuals who will be ready for the 75 meter travel stroke test during the second hour. During the second hour, those men who are ready for the test are moved to the Station 2 area (water just over the head). The men jump in, surface, and travel stroke to the



Instructional Station in Pool
 Figure 48—Continued.

opposite side of pool. If any man feels able to pass the beginner test he may continue to complete the 75 yards and pass the test. Men who have less ability remain under instruction in the shallow part of the pool. The latter part of the second hour is utilized to practice removal of equipment.

e. Fifth Period—2 Hours. This is the final test period and also the period for practice of inflating the fatigue trousers in the water as a floatation device. After a short orientation, the men are divided and sent to the three stations as assigned at the end of period 4.

(1) *Station 1.* Upon arrival at this station the men are divided into two groups. All men don fatigue jacket and trousers, but not boots. The first group begins the 30-minute stay afloat test, the other group practices the floatation device instruction. At the conclusion of the 30-minute test, the two groups switch and take the test or floatation device practice as appropriate. During the second hour the entire station strength is tested in the 75-yard rifle travel stroke. Trainees who successfully pass both tests are qualified as drownproofing advanced; men who fail one or both tests are qualified as drownproofing beginner.

(2) *Stations 2 and 3.* During the first hour the men at station 2 who did not qualify as a *beginner* during the fourth period are again tested as well as those from station 3 who are ready for the test. The station is maintained during the second hour to test men who failed during the first hour. Men at stations 2 and 3 are organized into orders and practice with the floatation device. Every attempt is made to qualify the men as beginners from stations 2 and 3 until the end of the period. Only the drownproofing beginner classification can be earned at these stations. Men capable of passing the advanced classification will have been moved to station 1 during prior periods.

216. Qualification Testing

Some men are tested in the fourth period and the remainder during the fifth period. Trainees at station 1 may qualify as—

a. Drownproof Advanced (DPA). To qualify in this category men must:

(1) Enter the water in fatigues (no boots) and stay afloat using any combination of the travel stroke, hanging float, or vertical float for a 30-minute period without touching the bottom or sides of the pool.

(2) Jump into water from the side of the pool in fatigues and with rifle, travel stroke 75 yards without touching the bottom or sides of the pool, towing the rifle suspended by the sling.

b. Drownproof Beginner (DPB). Men at station 2 and those at station 3 who progress to the skill level of this test may attempt to attain this qualification. To qualify the men must enter the water in swim trunks and travel stroke approximately 75 yards without touching the sides or bottom of the pool.

c. Unqualified (UNQ). All trainees who completed the three pool periods and who do not qualify as either DPA or DPB are considered as unqualified.

d. Not Tested. This category includes only those men who missed one or more pool periods and therefore did not have the opportunity to gain the skill to qualify. If a man misses one or more pool periods and still has the ability to qualify, he may be tested and if he qualifies, he is assigned DPA or DPB rating as earned.

e. Administration of Tests. Performance testing during part of the fourth period and throughout the fifth period is as follows:

(1) *Fourth period.* Men at station 2 can qualify only in their ability to travel stroke. This limitation is due to their inability to float. These men have only one of the three drownproofing strokes to learn, therefore some men are ready for testing during the second hour of period 4. As a result of passing the 75-meter travel stroke test, these men are qualified as drownproof beginners.

(2) *Fifth period.*

(a) Men at station 1 are tested during the fifth period on their ability to stay afloat for 30 minutes, without touching the sides or bottom of the pool, using any combination of the hanging float, vertical float, or travel stroke; and travel stroke 75 meters with rifle using only the travel stroke. Passage of these two tests results in an advanced drownproof rating.

(b) Men at station 2 who did not qualify during the fourth period are retested during the fifth period. Men from station 2 who were not tested, as well as men who are capable of passing the test from station 3, are also tested during this period. Men from these two stations take only the travel stroke test without the rifle carry. Qualification is as drownproof beginners.

217. Safety and Sanitation

Instruction in and around the water with large groups of personnel always presents a safety and sanitation problem. A high degree of discipline and control must be exercised at all times. Rules must be followed and trainees will be fully informed by instructors concerning the rule to be in effect at the pool.

a. Safety Rules. Men are informed of the safety regulations during the first period of instruction and are reminded of these rules prior to entry into the water during each pool period. The safety regulations follow:

(1) *No running.* "No Running" signs are posted on the pool building. Compliance is mandatory.

(2) *No talking or playing.* There will be no unnecessary talking by men in the pool building. Playing is not to be tolerated.

(3) *Water rescue.* Men who experience difficulty in the water are not to touch another man. If they are near a man having trouble they swim away from him. No one *WILL* attempt a rescue; that is a function of the water survival instructors.

(4) *Whistle.* At any time a whistle is heard in the pool area it is an immediate call to clear the pool—the men will move out of the water and face forward against the wall, then upon the instructor's command they make a right or left face and move single file into the dressing rooms. This whistle will only be heard when there is an emergency. Immediate response may help save the life of a swimmer in trouble.

(5) *Belts.* All swimmers will wear web belts around their waist at all times in the pool area as a safety precaution. In case of a requirement to

rescue, the lifeguard can grasp the belt as an assist.

(6) *Men will not wear—*

(a) Watches, rings, or chains around the neck.

(b) Dentures, either partial or full plate which are removeable.

(c) Glasses, conventional or contact lenses.

(7) *Instructors.* Instructors should be trained as lifeguards and know first aid procedures. Men in the water are under observation and supervision at all times. Company cadre who accompany the platoons should assist in the safety procedures as directed by the primary instructor.

b. Sanitary Regulations.

(1) No one will be allowed in the water while wearing bandages of any kind.

(2) Spitting or urination in the pool or on the floor is prohibited. (Nausea or water sickness is an exception to the foregoing.) If men have occasion to spit they do so in the side gutter which is along all four sides of the pool.

(3) Latrine breaks will be provided by instructors at the pool.

(4) Men on light duty, with sores, or evidence of skin disease, will not enter the pool.

(5) All men will take a shower prior to entering the pool area.

Section III. SUPPORT REQUIRED FOR DROWNPROOFING

218. Administration

a. Scheduling. Scheduling of drownproof periods of instruction is limited and restricted by two factors. These factors are a single training facility (pool), and one set of trained instructors. The weekly number of personnel to be trained will also influence scheduling.

(1) In addition, the following items must also be considered:

(a) The periods must occur in sequence.

(b) The entire company is instructed during the 1st, and 5th periods. During the 2d, 3d, and 4th periods only one-half the company (usually two platoons—100 to 110 men) receive instruction.

(c) A four-company fill is the maximum load with one pool utilizing normal duty time (0700—1700 hours).

(2) A four-company fill will occupy 4 hours, starting on Friday, and 8-hours for six additional days.

(3) Greater flexibility will occur with a lesser number of companies to be scheduled. To

schedule the 9-hour block of instruction for one company, eight periods must be scheduled (periods 2, 3, and 4 are scheduled twice). These eight periods will occupy a total of 15 hours of schedule time (14 hours in the pool and 1 in the classroom).

b. Classroom and Pool Procedure. The procedures to be followed in the classroom and in the pool are of interest to company cadre personnel in preparing for drownproofing instruction. These actions are as follows:

(1) *Unit supervision.* Platoon leaders or sergeants should accompany their platoons to all periods of instruction. This leader will assure promptness of attendance, supervise discipline, and assist instructors with control during the instruction. If these leaders enter the water they should participate in the instruction. If not they should remain in duty uniform. As a minimum one unit officer will be present at each period of training at the pool (1 officer for each two platoons). The unit noncommissioned officers will be under the command of the unit officer. This unit officer will serve as a coordinator and liaison with the chief instructor of the water survival team.

(2) *Platoon rosters.* Platoon sergeants will provide a platoon roster at the beginning of each classroom and pool period. These rosters are to be arranged alphabetically with names double spaced. Absentees are to be marked on the roster prior to submission to the chief instructor of the water survival team. On the final period two copies of each platoon roster will be submitted.

(3) *Uniform.* The men are to bring to pool periods a towel, issue P.T. shorts, athletic supporter, and issue web trousers belt with buckle. They will change into that uniform.

(4) *Valuables.* The safety of valuables usually cannot be guaranteed in the locker room. In preparation of pool periods company cadre should notify the men prior to movement from the company area, that personal items of value are to be secured in the company area. Such items as rings, wallets, watches, and similar valuables should not be brought to the pool.

(5) *Dressing and showers.* During pool periods platoons will report to their dressing areas, change clothing quickly, and remain in the dressing area. Instructors will meet the class in the dressing room and assume control at that time. Instructors will cover safety procedures and move the group through the showers and from there to the deck area of the pool where the men will be directed to the proper instructional stations.

(6) *Organization for instruction.*

(a) For instructional and test purposes, platoon organization will not be maintained in the pool. The men will be divided into three groups for pool training to include swimmers, intermediate swimmers, and nonswimmers. Each group will be instructed separately. Men who have had recent hospitalization, those with cuts or open sores, skin irritations, and physical profiles which preclude entry into the water will not enter the water. Men in these categories should be carefully screened to insure that the maximum number are available for instruction.

(b) Instruction in the classroom will follow a conventional pattern. Period 1 will be 50 minutes in duration. One platoon sergeant should be present with each platoon, and an accurate platoon roster submitted to the instructor for each platoon. The uniform of the day is adequate for the classroom period.

(7) *Dismissal.* The men will be released from the pool to company control approximately 15 minutes prior to the end of the period. Upon dismissal, the men will dress promptly under platoon control and clear the dressing rooms quickly, as the dressing area may be used by platoons scheduled for the following period.

c. Personnel Accounting and Records. The water survival team will maintain accurate records of attendance on platoon rosters as provided by platoon drill sergeants. Every effort must be made to prevent missed training due to absence, as make-up training is very difficult. Work details should be delayed or assigned to the two platoons not undergoing pool instruction.

(1) The administrative noncommissioned officer of the water survival team will maintain all records to include the following:

(a) *Platoon rosters with absentees marked.* One for each drownproofing period of instruction.

(b) *Missed instruction record.* This record accumulates the absentees from pool instruction on one sheet per each two platoons. This form records the number of the period, name, and cause of absence. There is a column on the form for each platoon (fig. 46). A second sheet is added, when necessary.

(c) *Daily report.* This report contains the total strength of personnel who reported to the pool, number of men who entered the water, number of men assigned to each station, names of instructors assigned to each station, and on test days a record by number of trainees who qualified. A report is maintained for each pool period (fig. 46).

(d) *Qualification record roster.* The roster as submitted for the fifth period is maintained as a record of qualification. One copy is retained by the water survival instructional team and the second copy is returned to the unit. Rubber stamps are recommended to stamp the qualification opposite the name. There should be four stamps containing letters one-quarter inch in height and they should read: DPA (Drownproof Advanced), DPB (Drownproof Beginner), UNQ (Unqualified), and NOT TESTED.

(c) *Company qualification form.* This form is completed in two copies at the conclusion of all testing. The information to compile this record is obtained from the qualification record roster. This certificate is attached to the platoon rosters, for each company and thus consolidates the company performance. The percentage qualified is based upon those men who were tested. Although the number *not tested* is reported, these men are not included in compiling the percentage qualified (fig. 46).

(2) The administrative noncommissioned officer will also be responsible for—

(a) Obtaining and safeguarding pool equipment and safeguarding personnel.

(b) Obtaining classroom equipment and turn-in after use.

MISSED INSTRUCTION - DROWNPROOFING

PLATOON NO.			CO.	PLATOON NO.			CO.
PD	NAME	CAUSE		PD	NAME	CAUSE	

Missed Instruction Record (Locally Reproduced)

Figure 46—Continued.

DAILY REPORT

WATER SURVIVAL TRAINING - DROWNPROOFING

Co. _____

Date _____

PLATOON AND STATION STRENGTH

PD.	PLATOON	DATE	TIME	TOTAL NUMBER MEN	TOTAL NO. IN WATER	TOTAL MEN		
						STA 1	STA 2	STA 3
	1							
	2							
	3							
	4							
TOTAL STRENGTH								
INSTRUCTOR ASSIGNMENTS								
STATION 1			STATION 2			STATION 3		
TEST QUALIFICATION RECORD								
TOTAL STRENGTH		NO. TESTED	NO. QUAL.	NO. DPAs	NO. DPBs	UN-NO. QUAL.		

PROBLEM AREAS:

(Check and briefly explain on rear of report).

- _____ EQUIPMENT
- _____ UNIFORMS
- _____ FATIGUES
- _____ HEAT, AIR
- _____ HEAT, WATER

- _____ CONTROL
- _____ RECORDS
- _____ DRESSING
- _____ SAFETY
- _____ ADMINISTRATION

- _____ TESTING
- _____ INSTRUCTION
- _____ SANITATION
- _____ POOL
- _____ MAINTENANCE

Daily Report (Locally Reproduced)

Figure 48—Continued.

(c) Obtaining fatigues and have them laundered daily.

(d) Obtaining rifles and safeguarding them during and after training.

d. Awards. The use of an award is recommended as a motivational device. Individuals will make an extra effort for the good of their unit. A company guidon streamer is recommended. Such

streamers should be locally produced and awarded. Considering the percentage of men who are nonswimmers or very weak swimmers at the outset of the instruction, and the short duration of the block of instruction, a company average qualification (a combination of DPAs and DPBs) totalling 72 percent should be established as the minimum percentage for earning the award. In

other military situations where this instruction has been conducted, the company qualification rate has varied from 65 to 95 percent. Conditions which affect this rate are the percentage of non-swimmers the quality of instruction, command emphasis, and company spirit.

219. Support Requirements

Various support is required in order to effectively conduct this training to include personnel, facilities, equipment, and training aids.

a. Personnel. The following personnel are required to support drownproofing training:

(1) Trainees—personnel of infantry advanced individual training companies or TOE combat or combat support units; full strength for periods 1 and 5; half strength for periods 2, 3 and 4.

(2) Instructors—officers and NOCs who are qualified as instructors and who are strong swimmers—12. (1-Team Chief to organize and supervise the training; 4-instructors at station 1; 3-instructors at station 2; 3-instructors at station 3; and 1-Administrative NCO to handle scheduling, supply, pool reservation, and other similar noninstructional duties.

(3) Pool operation personnel—special service personnel as required to maintain the pool under conditions of heavy usage; numbers as required.

(4) Projectionist—one for the classroom period.

(5) Work detail—two men to collect and deliver wet fatigues to the post laundry at end of each day for drying prior to the next day's training; pick up dry fatigues at the laundry and deliver to the pool site.

b. Facilities. Two facilities are required as follows:

(1) One classroom, 225–250-man capacity, with blackout capability.

(2) One pool, indoor; the water and air must be heated. The size of the pool should be 25 to 50 meters. If existing pools are not of that size, in all probability they can be used. If there is a choice, the larger pool should be selected. It is not recommended that training be held in outdoor facilities other than in the summer, and outdoor training other than in established swimming pools should not be attempted.

(a) If a pool is to be constructed it should be 25 by 50 meters in size.

(b) If no indoor pool is available and a large outdoor pool is available this pool can be covered with an air shelter (air inflatable building). If such a structure is utilized, heating of the water and the air must be provided.

(c) Dressing facilities are required where trainees can change clothes and take showers. Dressing rooms must accommodate 100–120 men. Security of personal valuables is not required as the men should be instructed to leave such items in the company area.

COMPANY DROWNPROOF QUALIFICATION

COMPANY _____	DATE _____
COMPANY STRENGTH	NUMBER _____ PERCENTAGE _____
PASSED DPA TEST	NUMBER _____ PERCENTAGE _____
PASSED DPB TEST	NUMBER _____ PERCENTAGE _____
UNQUALIFIED	NUMBER _____ PERCENTAGE _____
NOT TESTED	NUMBER _____ PERCENTAGE _____
QUALIFIED	NUMBER _____ PERCENTAGE _____
AWARD IS RECOMMENDED:	YES _____ NO _____ (72% must qualify for award)

SIGNED _____

GRADE & TITLE _____

Company Qualification Form (Locally Reproduced)

Figure 46—Continued.

c. Equipment. Equipment is necessary for the pool, classroom, and individual trainees.

(1) *Pool equipment.* Special service pools have some of the required equipment. Additional pool items must be available which are standard items; however, they are not used in the normal swimming program. Some of these items may be present but normally the quantity on hand is not adequate for drownproofing instruction. The following is a complete list of required pool items.

(a) Ring type buoys, with 20-yard nylon line—8.

(b) Poles, staff, 1½-inches in diameter by 12 feet in length—8.

(c) Flotation boards or ring buoys without lines—8.

(d) Marker buoys, assembled on a rope of sufficient length to reach across pool (to mark a lane across pool)—2.

(e) Whistles, on neck lanyards—6.

(f) Mechanical respiratory kit (lifesaving respiratory apparatus)—1.

(g) Platform, 4 feet by 15 feet, to be attached to side of pool and extend into the water—1 (fig 46.4).

(h) Fatigue jackets, salvage type, non-starched, no holes or tears—100.

(i) Fatigue trousers, salvage type, non-starched, no holes or tears—100.

(j) Truck, ¼ or ½-ton, to transport fatigues to laundry and return to pool—1.

(k) Rifles, M14 or M16 (nonfiring or salvage type) with slings—16.

(l) Table, field—1.

(m) Chairs, folding—2.

(2) *Classroom equipment.*

(a) Stand, instructors—1.

(b) Projector, 16-mm movie—1.

(c) Screen, movie—1.

(d) Fatigues, set, for demonstration—1.

(e) Projector, transparencies (overhead)—1.

(3) *Individual equipment.* Trainees must have these issue items:

(a) Shorts, P.T. tan—1 per man, FSN 8415904531.

(b) Supporter, Athletic, 8-inch waistband—1 per man, FSN 8415630891 and DSA 100-69-0-1824.

(c) Belt, web, trousers—1 per man (trainees have this item).

Note. Shorts and athletic supporters are in the supply inventory; however, they must be requisitioned; 30-45 days should be allowed for delivery.

d. Training Aids. Training aids are used in the 1st period, they are:

(1) Film, 16-mm: Basic Techniques of Drownproofing, 16-mm color/sound 12½ minutes—1.

(2) Slides, transparencies, 18 (travel stroke, 6; hanging float, 6; and vertical float, 6).

e. Pool Maintenance. Pools are under the jurisdiction of special service personnel. It will be necessary to coordinate the training requirement with special services.

(1) Support personnel are required to clean the pool, deck area, dressing and shower rooms; to test and maintain the cleanliness of the water; operate filtering equipment; and regulate the air and water temperatures. These duties are normally handled by special service personnel.

(2) Because of the increased time in the water for the drownproofing student over the recreation swimmer, it is advisable to maintain the temperature of the pool at 85 to 90 degrees F. This temperature range shows no increase in the bacteria count.

Section IV. WATER SURVIVAL TECHNIQUES

220. Introduction

Generally the 9-hour block of drownproof training should precede the training period on water survival techniques. In this instruction the objective is to teach the soldier immediate action to take when he is forced to enter the water unexpectedly, proper removal of his equipment and clothing, the utilization of clothing as expedient flotation devices, and a review of artificial respiration.

221. Unexpected Entry Into Water

There are many ways during combat operations

where the soldier may enter deep water unexpectedly. This dangerous situation may result from falling from a boat or the boat capsizing, stepping into water over one's head during a stream fording operation or during a beach landing, falling from a bridge or log crossing, and in many other ways. To counter the tendency to panic and to sink the soldier should be trained to take the following actions:

a. Remain Calm and Composed. Hold the breath, remain composed, open the eyes, conserve strength, assess the situation, and immediately begin to get out of equipment.

(1) Panic and improper breathing techniques are dominant causes of drowning. The swimmer must overcome a natural tendency to excite or panic when entering the water with equipment. A composed swimmer should have complete control of his faculties. His breathing should be done by taking a "bite" of air and developing a rhythm, thus breathing through the mouth and exhaling through the nose. The soldier learned this technique during his drownproof training.

(2) The soldier should be made aware that there are generally two types of panic. The first being the man who loses control, struggles, gasps, expends energy, and finally sinks. The second is the man who simply gives up and sinks without even shouting for help.

b. Removal of Equipment.

(1) Proper uniform when operating near water. The men are briefed on how to wear their clothing when operating in swamps or near any body of water. The accepted procedure is as follows:

(a) *Trousers unbloused.* Bloused trousers tend to fill with air and create difficulty for the swimmer in water movement, as the air caught in the trouser leg tends to keep the legs too high in the water.

(b) *Field jacket and/or fatigue shirt (buttoned up) outside of trousers.* These two articles of clothing are worn in this manner in order that they may catch and hold air. This trapped air will make floating much easier and help keep the man above the surface. A flotation demonstration will illustrate the air-catching ability of the clothing. The demonstration utilizes floating to include clothing and equipment, but without weapon.

(c) *Harness worn loosely.* The harness is not buckled at the waist for safety purposes. It is extremely difficult to remove a buckled harness in water. Thus, the soldier wears the harness in a loose manner in the event he should unexpectedly encounter a water hazard.

(2) In addition to his general clothing, fatigues, boots, and socks, the soldier would normally be wearing the standard Army harness with ammunition pouch and first aid pouch attached. The wearing of the field pack would normally add unwanted weight. Actually, the field pack may tend to be an asset to the swimmer since its added flotation would help keep him above the surface. The wearing of a helmet would make it necessary to unbuckle the chinstrap while in and around water in order to quickly dispose of it should there be unexpected entry into the water. To briefly restate, the equipment should be rigged as follows:

(a) Harness and chinstrap open.

(b) Top shirt button buttoned and shirt outside the trousers.

(c) Trousers unbloused.

(d) Weapon over shoulder, or held at high port when entering the water.

(8) For instructional purposes stations can be established where men may practice removal of their equipment.

(a) *Objective.* At this station the soldier's equipment is rigged for river crossing; that is, with harness open, top shirt button buttoned, shirt on the outside of the trousers, trousers unbloused, rifle attached to harness and over his shoulder. The weapon is attached to the harness by looping the harness strap (coming from the ammunition pouch) around the sling of the weapon, and fastening the strap to the metal ring at the shoulder junction of the harness. He must enter the water, come up, compose himself, submerge, remove his harness, and swim to the nearest shore. For the purpose of recovering the harness and weapon, a line with a snaplink at the end is attached to the harness and is held by the man next in line. After the man in the water has removed his harness, the man holding the line pulls in the equipment.

(b) *Method.* The instructor orients the group on what is expected of them. The first man in the group will enter the water, at the instructor's command, by jumping off the side of the pool backwards. His rifle is attached to his harness and over his shoulder with the recovery line attached. The next man in file holds the recovery line. After the swimmer has successfully removed the harness and swims to shore, the "recovery" man pulls in the equipment. He then becomes the examinee while the next man in the file holds the line. After being rated, the swimmer falls in at the end of his group.

(c) *Removal of Clothing.* Although clothing need not be a hinderance to remaining afloat or movement by use of the travel stroke, heavy clothing must be removed. Removal of excess clothing can best be accomplished by holding the breath, submerging and removing the unwanted item(s). Heavy footgear must also be removed. The proper method for removal is to assume the hanging float, and in such position untie and loosen the shoe laces, or other fasteners, and remove the footwear. During the removal process it may be necessary for the soldier to come up for air several times.

(d) *Training for Unexpected Entry Into Water.* To acquaint men with unexpected entrance into

water an instructional station can be established where men practice this situation.

(1) *Objective.* At this station the soldier enters the water blindfolded off a highboard. This gives him a surprise falling effect such as he would have at night falling off a riverbank, out of a boat, or in similar situations of sudden and unexpected entry into water. He must come up, compose himself, remove the blindfold, and swim to the edge of the pool. He must control his breathing under this type of surprise condition.

(2) *Method.* At this station there are two NCOs; one on the ground helping the man up the ladder and then rating him in the water, and one located on the stationary end of the diving board to guide the blindfolded man out along the board to guide the blindfolded man out along the board until he steps off into midair. The instructor on

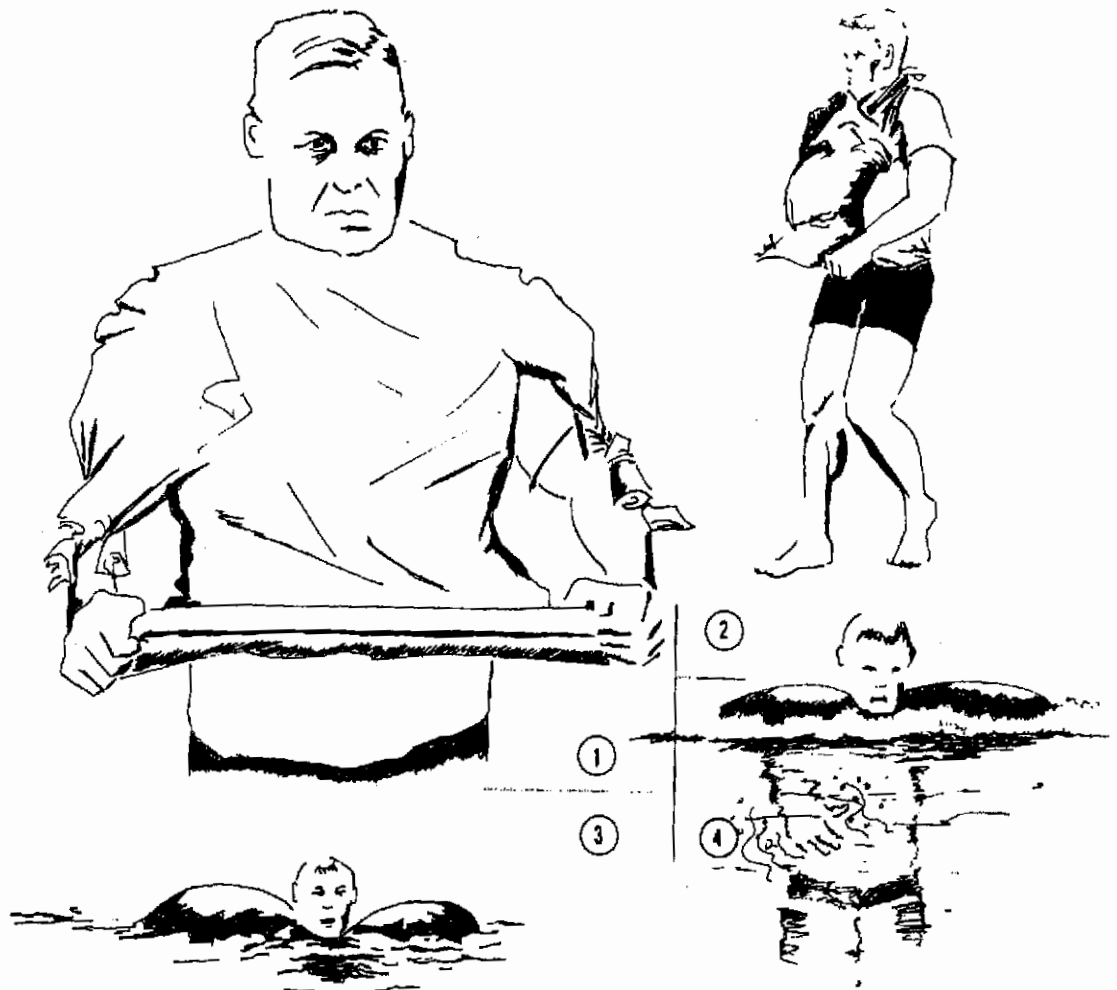
the ground issues the mask or blindfold and emphasizes to each man before he goes up the ladder the importance of keeping his weapon at port arms and well away from his body when making the jump. This reduces the possibility of the force of the water pushing the weapon into the man's face.

222. Expedient Floatation Devices

a. *Use of Fatigues as Floatation Device.* The fatigue shirt and trousers may be used to trap air and serve as a means of keeping the soldier afloat (fig 47).

(1) *Utility (fatigue) shirt.*

(a) *Soldier out of water.* The first step is to button the shirt except for the top button. Then



Shirt

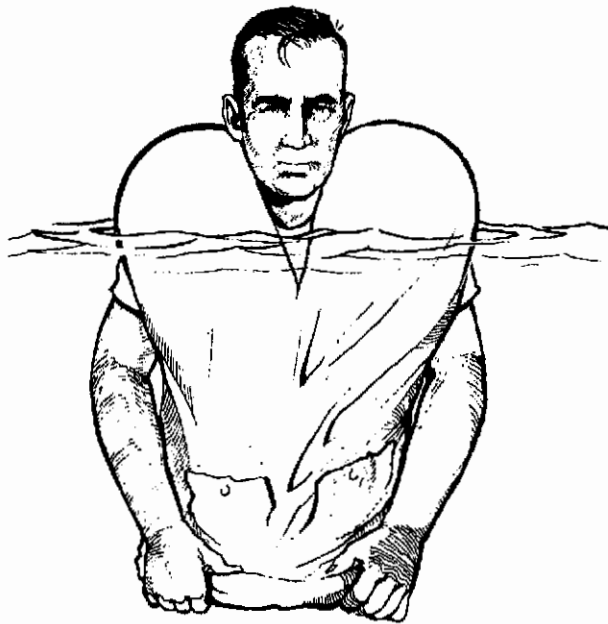
Figure 47. ① Expedient floatation devices.



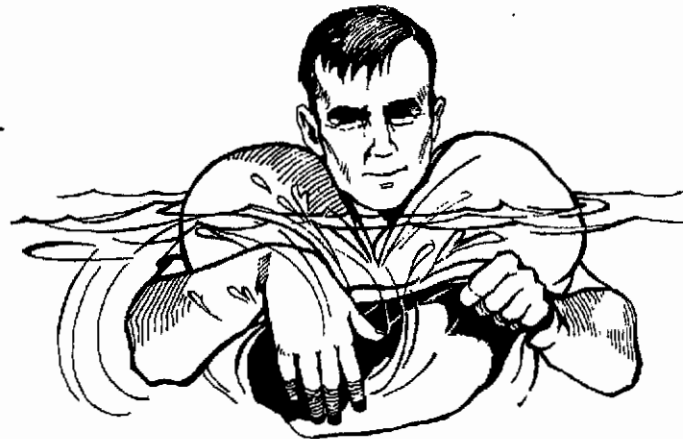
PREPARATION TO JUMP



JUMPING INTO WATER



TRAP AIR AND SURFACE



REPLACING AIR

Trousers

Figure 47(2)—Continued.

tie each sleeve in a knot. Place the shirt buttons against your chest, and button the top button around the neck, insuring to tuck the collar under. Grasp the shirt with the hands at each side, lock

the elbows, and jump into the water. Do not expect to remain above the surface of the water when jumping. Maintain a grasp on the bottom of the shirt and you will float back to the surface.

Once the surface is reached pull the bottom of the shirt across the thighs to seal off escape of the air, lay the head back, and float.

(b) *Soldier in water.* Another method of filling the shirt with air is used when in the water. Fill the shirt with air by hand scooping the air into the shirt. To use this method raise the bottom of the shirt straight away from the body about 3 inches under the surface of the water. Use the free hand, in a downward, scooping action into the water, to force air bubbles into the shirt. Once the shirt is again inflated, pull the bottom of the shirt across the thighs to seal off escape of the air, and relax.

(2) *Utility (fatigue) trouser (fig 47).*

(a) *Soldier out of water.* The first step is to tie the legs together in a knot, place the trousers knot over the head with the fly towards the body. See that the fly is closed; however, if it is broken the device will still float. As with the shirt, grasp the waistline of the trousers with the hands at each side, lock the elbows, and jump into the water. After floating back to the surface draw the waistband across the thighs to seal in the air.

(b) *Soldier in water.* Upon the presumption the soldier is in the water, there are three methods of filling the trousers with air.

1. The first method is to lay the trousers on the water, open the waistband, hold it beneath the surface, and use the hand-scoop technique as used with the shirt to scoop air into the trousers.

2. The second method is to hold the waistband open, put the knot over one shoulder and, grasping both sides of the waistband, flip the trousers into the air and back into the water. This traps the air by gathering the waist opening like a paper sack, while the knot is placed over the head. Then seal the opening against the thighs.

3. The third method is to hold the waist beneath the surface, inhale a large breath of air, submerge beneath the trousers, and exhale the air into the trousers. Do this several times and the trousers will be filled with air.

(3) *Clothes must be wet.* The shirt or trousers will only hold air if they are wet, therefore clothes should be wet prior to entering the water. While floating with the device the portion out of the water will dry. To counter this dryness splashing water on the clothes periodically is necessary to prevent loss of air.

b. *Inflation of Clothing.* For instructional purposes a station can be established where soldiers may practice inflation of either the shirt or the trousers, or both if time permits. This practice is conducted by soldiers placing the knotted fatigue trousers around their necks. They are formed into a column of three's and moved to the edge of the pool. The first group of three men is instructed to enter the water; they grasp the trousers, lock elbows, and jump into the water. Once they float to surface they receive instructions to inflate the fatigues using the hand-scoop method. Upon completion of the exercise the soldiers exit the water and standby. The next group is then instructed to enter the water and they follow the same procedure until all the soldiers have completed the exercise.

223. Artificial Respiration

Artificial respiration as it applies to drowning should be reviewed. Soldiers should have received instruction in this means of restoring breathing during first aid training. To insure that they are able to perform this skill, refresher training should be completed as part of water survival instruction.

Section V. MILITARY SWIMMING

224. Use of Swimming

Swimming, when compared to drownproofing, is time consuming. Only those men who must possess swimming skills as part of their duty position should be trained in swimming. If time is available for water training, drownproofing should be taught. If some men must be trained as swimmers the material in this section is applicable to include techniques for staying afloat, strokes, underwater swimming, treading water, entering the water, surface dives, and facilities.

225. Skills and Strokes

a. *Two Techniques for Staying Afloat are Finning and Sculling (fig 48).*

(1) *Finning.* This is an arm movement which is used primarily on the back or in floating (A, fig 48). First extend the arms along the sides then draw them up about a foot and thrust the hands out and downward towards the feet in a pushing movement, supplemented by a fishtail flip of the hands and wrists. This movement can be amplified into a sculling movement.

(2) *Sculling.* Lying on the back, start the sculling movement with the arms by pressing the hands outward with the wrist bent backward. The little finger is nearer the surface than the thumb. Then sweep the hands inward towards the thigh with the wrists still bent backward, but with the thumb closer to the surface. The movement is

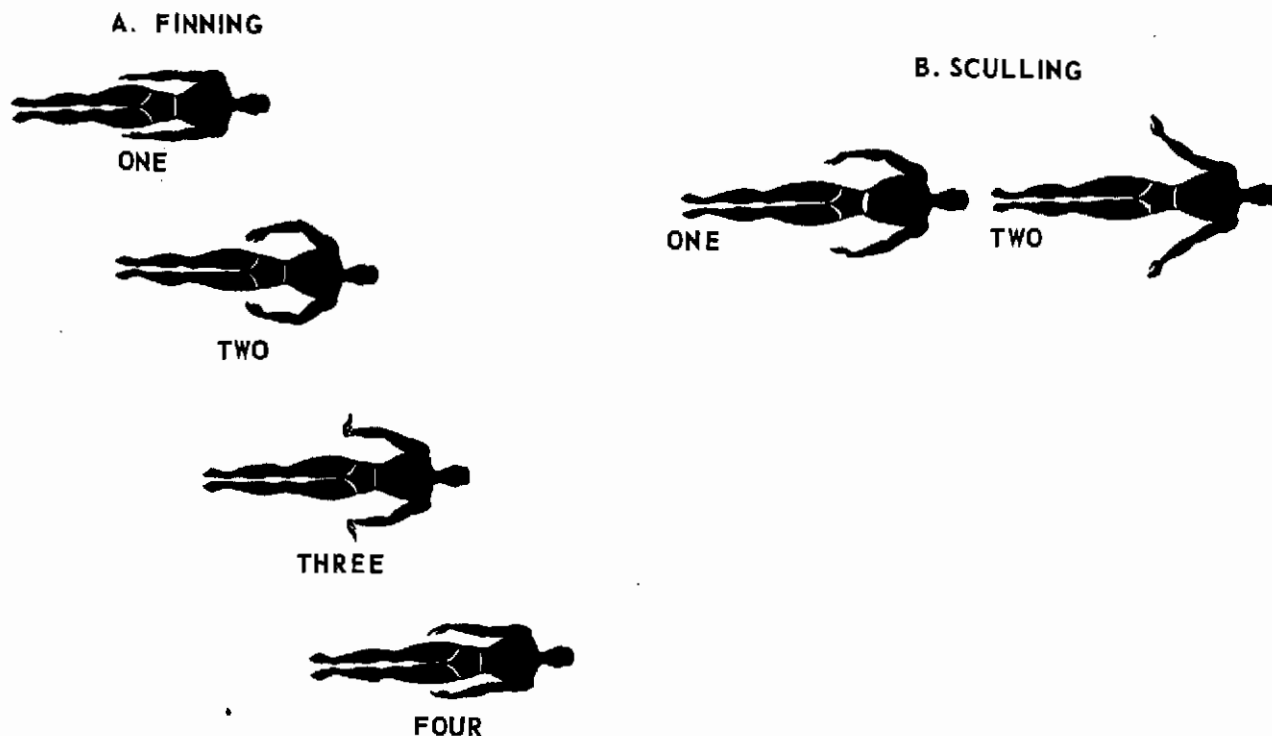


Figure 48. Techniques for staying afloat.

with the hand and wrist primarily (B, fig 48). The range of motion is from 14 to 20 inches. It is like sculling with an oar. There is little lost motion.

b. The Breast Stroke. This is one of the most useful strokes for military swimming (fig 49). It provides good visibility and is not too tiring. It is useful in swimming through debris and oil-covered waters, for swimming with clothing on or with a load, and for pushing a tired swimmer along with the "tired swimmer's carry." It is not an easy stroke to master, but it should be thoroughly learned.

(1) *Arm movement.* The starting position is full extension in the water in the prone position. The head is up and the arms are pushed out ahead. Turn the palms outward and pull the arms outward, sideward, and slightly downward until the hands are slightly below and opposite the shoulders. Then slice the hands to the front of the shoulders and bring the elbows against the sides. Thrust the arms forward with the palms down and slightly outward. The hands should be thrust straight forward from the shoulders.

(2) *The leg kick.* This is much like the frog kick on the back. Draw the knees up sideward, rather than forward. Let the heels trail until they reach the limit of the upward motion of the knees, which is near the limit of a thigh "split." Then flex the lower legs at the knees, lifting the heels

higher than the hips. Thrust the legs sideward and outward, then squeeze them together. The soles of the feet should be facing as much as possible during the thrust and the squeezing action.

(3) *Coordination of arm stroke and leg kick.* The whole movement is in three counts.

(a) Begin the arm pull and near the finish of the pull, draw the knees up. The arm pull keeps the resistance created by the knees from unduly slowing the swimmer's progress.

(b) As the arm pull is finished and the hands are thrust forward, kick out the legs and then pull them together.

(c) Glide through the water until the momentum begins to fall off, then begin the next stroke.

(4) *Breathing.* It is possible to breathe at any time in the breast stroke, but the usual way is to inhale through the mouth with the arm pull, and exhale through mouth and nose during the finish of the leg kick and the glide.

(5) *Body position.* In swimming for speed, the trunk and legs must be near the surface. This position, however, is tiring. Swimming with the trunk and legs projecting diagonally back and down at an angle of from 20 to 35° is much slower, but it is easier to sustain and not so tiring.

(6) *Land Drill.* In land practice, the arm movement can be practiced in a standing position,

BREAST STROKE

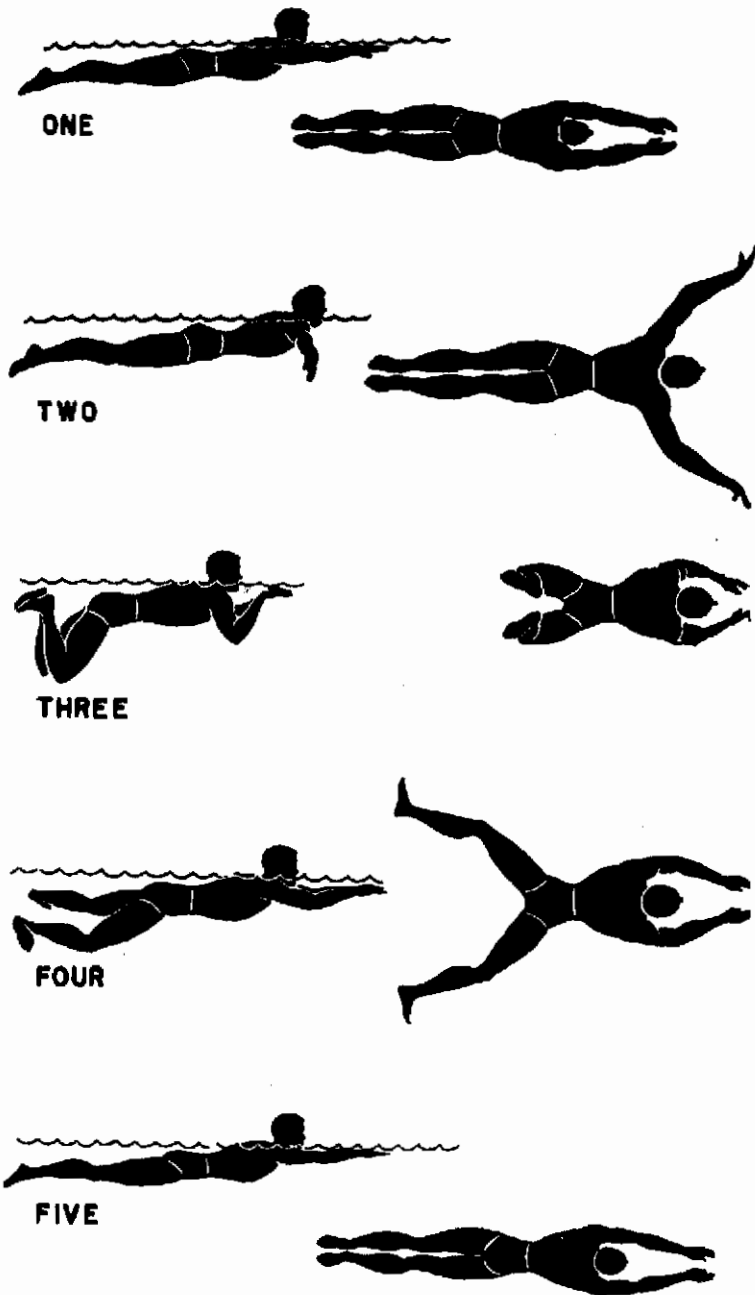


Figure 49. Breast stroke.

with the trunk bent forward 90° . If the men can lie on small benches, they can practice the leg and arm strokes together. The leg kick can be practiced with one leg at a time while standing and combined with the arm stroke.

c. *Side Stroke*. This stroke is easy to learn and to use. With slight modifications it can be used for carrying others or when one arm is injured, or to carry a rifle with the top hand out of the water. The swimmer swims on one side (fig 50). Usually

he begins on the side that feels most natural. After learning on that side, however, he should learn to swim on the other side as well. As described below, the stroke is executed on the left side. Those who swim on the right side will reverse direction

(1) *Arm Stroke.* The starting position is lying on the left side. The left arm is extended in line with the body and beyond the head. The palm is down. The right arm is extended backward by the right thigh. Pull the left arm downward with the elbow straight and continue until it is straight down from the shoulder. Then flex the elbow and pull into the side. At the same time turn the palm toward the face. Then thrust forward to the original extended position. Bend the right arm at the elbow. Thrust the right hand upward in front of the chest, then push forward and downward in front of the chin or face. Here the right hand catches the water and pulls backward to its original position by the right thigh. The right hand starts forward just in time to meet and pass the left hand at the neck or face. The coordination is as if the left hand were pulling a handful of water down and handing it to the right hand to carry it on to the end of its stroke.

(2) *The Leg Kick.* This is the "scissors kick." First draw the feet up, with the right foot in front about 12 inches, until the knees are bent to a right angle. Then straighten the right knee and thrust the right foot forward, downward, and backward in a semicircular sweeping motion. At the same time, straighten the left knee and thrust the left foot backward, downward, and forward in a sweeping motion, resembling a kick. This double leg stroke resembles the closing of a pair of scissors cutting through the water. The sole of the right foot is presented to the water during the thrust and the toes are pointed back during the backward sweep. The left foot is extended throughout the stroke. The legs come together at the end of the stroke and remain in line with toes pointed downward during the glide.

(3) *Coordination of arms and legs.* From the position of left arm extended forward, right arm by the right side, and legs straight and together, begin the stroke with the downward pull of the left arm. As this arm pulls downward, start to thrust the right arm forward, and draw up the knees to begin the kick. The catch and pull of the right arm and the kick of the legs coincide with the completion of the pull of the left arm and its thrust forward to the gliding position.

d. *Underwater Swimming.* Underwater swimming is particularly useful for escaping from strafing attacks by planes or rifle or machinegun fire from the shore. It is also used when swim-

ming beneath blazing oil. Two methods of underwater swimming are commonly used. These are identical with the breast stroke and the side stroke, except that the head is held straight forward.

(1) A variation of the side stroke is sometimes used. The pull of the right arm and the kick of the leg are identical, but the swimmer rolls somewhat on his face and performs a longer reaching stroke with his left arm.

(2) When swimming in water known to be clear of obstruction, a modification of the breast stroke can be used. In this stroke the arms pull clear through to the legs and the glide is with arms by the sides. Usually, however, the arms should be ahead for protection.

226. Treading Water

As soon as a man masters the frog and scissor kicks he learns the methods of treading water. Those most commonly used are as follows:

a. Stand erect in the water and use the frog kick (A, fig 51) exactly as in the elementary back stroke. If necessary, use the arms to fin or scull.

b. Stand erect and use the scissors kick (B, fig 51), either single or alternate (in the alternate kick, the left leg is forward in one kick and the right leg in the next kick). If necessary, use the arms to fin or scull at the same time.

c. To stay afloat without using the legs, assume the position of the balanced or vertical float and scull with the hands.

227. Entering Water

In military swimming, men usually enter the water either by walking or jumping in. They should dive only when some other entrance is impossible. However, a shallow dive may be needed at times and surface diving should be mastered.

a. *Jumping Into Water.*

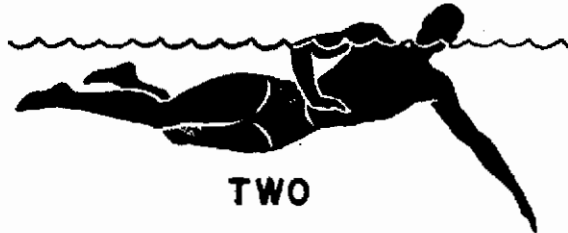
(1) *The stride jump.* Enter the water with one leg forward and the other backward, much like the position of the scissors kick. If jumping from a low height, spread the arms sideward to prevent the head from going below the water level.

(2) *Jumping from a height.* Jump feet first, holding the nose with the thumb and forefinger of the left hand, and covering the mouth with the palm. In jumping without a lifebelt, extend the right arm overhead to aid in balance. If jumping with a kapok lifejacket encircle the left arm with the right arm, and grasp the left shoulder, or the top of the lifejacket near that shoulder, to prevent

SIDE STROKE



ONE



TWO



THREE



FOUR

Figure 50. Side stroke.

the jacket from being forced upward and breaking the neck. If jumping through burning oil without a lifejacket, hold the right elbow in front of the eyes to protect them, and grasp the left shoulder with the right hand.

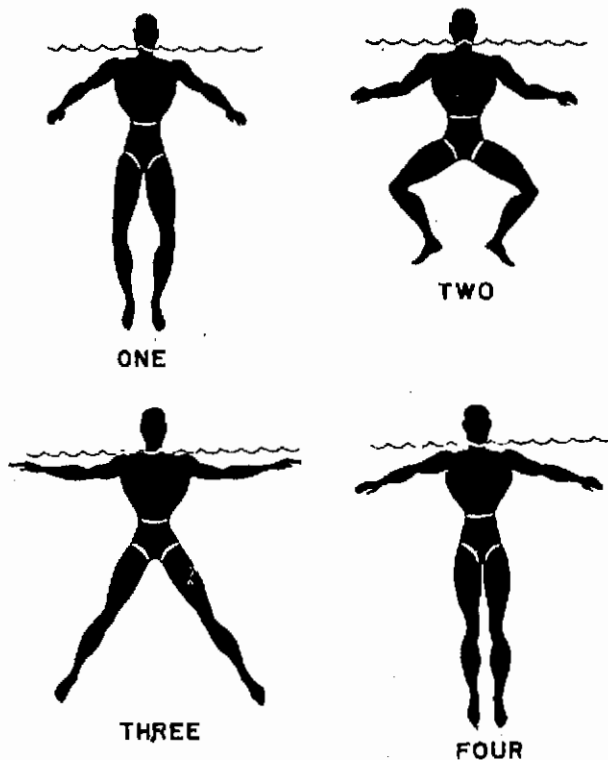
b. Shallow Dive. Occasionally it is necessary to enter water of unknown depth rapidly; for example, to escape sudden enemy firing. In such circumstances, it is advisable to dive very close to the surface. On reaching the edge of the water on the run, dive outward almost parallel to the surface and with the arms overhead, thumbs locked

together, fingers straight forward and palms down. Immediately upon entering, use the head and arms to control upward and downward direction. An upward tilt of the hands, arms, and head results in a sharp rise to the surface. A downward tilt results in a deeper submerging.

c. Surface Dive. When swimming on the surface, it is sometimes necessary to submerge quickly and swim under water. This may be done in two ways:

(1) *Jackknife surface dive.* Bend sharply at the hips, thrust the arms overhead towards the

1. TREADING WATER USING FROG KICK.



2. TREADING WATER USING SCISSORS KICK.

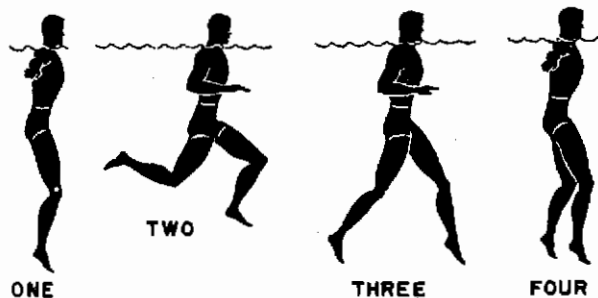


Figure 51. Treading water.

bottom and begin to swim with a breast stroke towards the bottom (A, fig 52). This method is quick, but the legs usually project above the water as the swimmer submerges, attracting attention.

(2) *Underwater surface dive.* Drop the legs to the vertical with the arms by the sides, and submerge with an upward double arm sweep (B, fig 52). Then, bend forward and start swimming forward. This method is practically noiseless.

228. Facilities

a. If a natural lake or stream is used, the water where beginners are to be instructed should be from 3½ to 4 feet deep. There should be no sudden drops into deep water. The water should be quiet, and there should be a vantage point from which the instructor can see all those in the group. Water for advanced swimmers and divers should be 8 to 12 feet deep, especially beneath the diving board. If an inside pool is used, water temperature should be about 5°F cooler than the air temperature but never over 85°F.

b. If a dock is to be built, it should be H-shaped. The water on one side should be shallow for beginners' instruction. With this type of dock, the instructor has numerous vantage points from which to teach.

229. Teaching Techniques

a. First, test all the men, classify them, and divide them into homogeneous groups for instruction.

b. Arrange the men in the appropriate part of the pool, shallow end for the beginners (4½ ft), and deep end (6 ft) for intermediate and advanced swimmers. If there are few men, all will be able to push off in one group. For large classes, have the men count off by 2's and 4's and let one group push off at a time (for example, all No. 1's push off first, then all No. 2's). For endurance swimming around the pool, arrange floats to mark the "tracks" around which the men swim. Arrange the class so that all may hear and see.

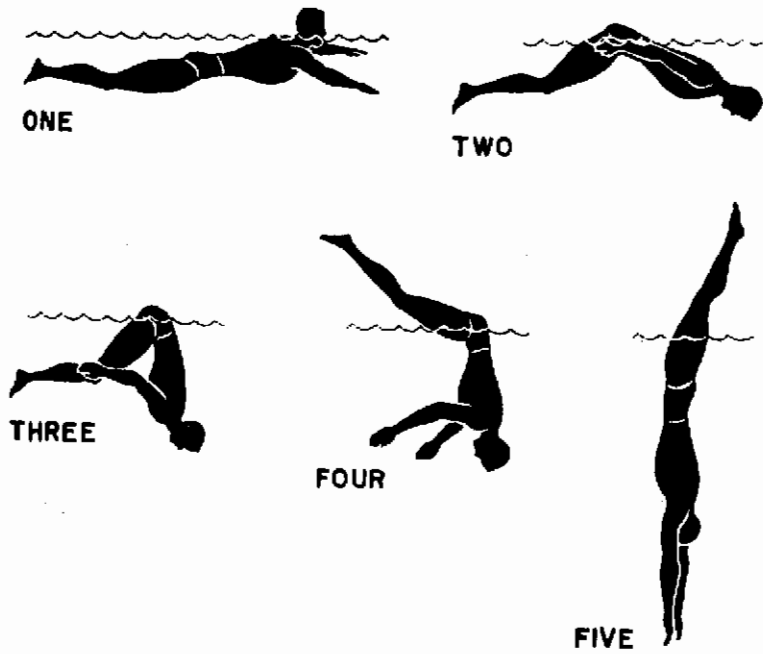
c. Outline the program for the period.

d. Present the material as simply, clearly, and concisely as possible; then have the men practice.

e. Pair the men for mutual assistance. If possible, have the same men work together during every practice period.

f. If there are not enough pools for adequate practice in the water, the instructor should give intensive practice in dry land swimming (practicing the form of the various strokes out of the water). Some dry land instructions precede water training in each stroke, even when the men are to get training in the water. The proper form for such instruction is explained in the discussion of each stroke.

A. JACK KNIFE SURFACE DIVE



B. UNDERWATER SURFACE DIVE

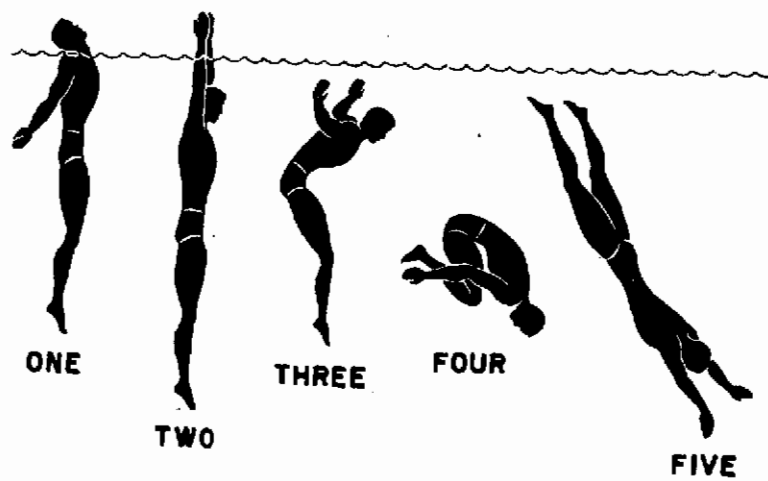


Figure 5B. Surface dives.

CHAPTER 18

INDIVIDUAL EXERCISE PROGRAMS

Section I. INTRODUCTION

230. Purpose and Scope

If you are responsible for your own physical fitness program, this chapter will assist you in understanding the need for exercise and will aid the planning and execution of your individual program. Exercise activities included are the Chairborne Conditioner, 6-12 Plan, Weight Training, and Isometric Contraction. Each of these activities can be completed in 15 minutes or less.

231. Need for Exercise

Keeping physically fit is a problem that faces every combat, combat support, and combat service support soldier. Even though we are frequently engaged in training that requires some physical effort, in many cases it is not enough to prepare us to meet the intense physical demands of combat.

a. Attaining a satisfactory level of physical readiness is not an insurmountable objective for anyone. Available time appears to be the most difficult obstacle to the development of physical readiness. In most cases, regular physical training programs are centralized, requiring the individual to temporarily leave his work area. The problems involved in setting an hour aside two or three times each week are numerous. However, most of us can devote 15 minutes each day to physical fitness with little, if any, impact on our daily work schedule—especially if it does not require us to leave our work area.

b. There are many good physical fitness programs available to the individual or group. Regardless of the type or duration, to be effective the program must contain exercises that are

strenuous and are challenging to the individual. Space will not permit the inclusion of all available means of individual exercise. The four programs selected for this chapter have met the requirement of minimum space and time.

c. These programs are quite strenuous and will develop a satisfactory level of physical readiness. However, if the individual desires additional development of endurance it is recommended that he supplement these programs with a 15-minute period of wind sprints and double timing on an alternating daily basis.

232. Progressive Training

If you are 40 years of age and over, or if you are under 40 and performing duties which require little or no physical activity, you must plan your physical conditioning program to assure a moderate beginning, moderate but steady progression, and sufficient "warmup" before starting your vigorous exercise. To avoid injury never rush into vigorous activity without adequate "warmup," and conduct your conditioning program on a daily basis over an extended period of time, NEVER ON AN ACCELERATED OR CRASH BASIS. For additional information concerning programs of physical fitness for individual personnel see chapter 8.

233. Evaluating Your Fitness

Periodically you may be required to undergo physical fitness testing, or you may desire to test yourself to determine the effectiveness of your personal program of exercise. Regardless of age do not participate in a test unless a pretest period of conditioning has taken place.

Section II. THE CHAIRBORNE CONDITIONER

234. Definition and Purpose

The Chairborne Conditioner is an apparatus that employs both isotonic (moving) and isometric

(stationary) exercises as the nucleus of the program. The exercises are designed to develop strength and endurance in all the major muscle

groups of the body. The principles of progression, overload, and balance are employed when the exercises are performed properly.

235. The Apparatus

The conditioning apparatus (fig 53) can be constructed in any unit motor pool with welding equipment. The only materials necessary are scrap metal and pipe, found in most salvage yards. The list of material follows:

a. Galvanized Pipe.

- (1) Two $1\frac{1}{4}$ -inch by 4-foot horizontal supports (rest on floor).
- (2) One $1\frac{1}{4}$ -inch by 3-foot horizontal cross support (rests on floor between vertical uprights).
- (3) Two $1\frac{1}{4}$ -inch by 5-foot vertical uprights.
- (4) Two 1-inch by 5-foot telescoping vertical uprights.
- (5) One $1\frac{1}{4}$ -inch by 8-foot, 3-inch top horizontal bar (pullup bar).
- (6) One $1\frac{1}{4}$ -inch by 2-foot, 10-inch bottom horizontal bar (isometric bar).
- (7) Two 1-inch by 9-inch foot braces (attached to vertical uprights).
- (8) Four 1-inch by 18-inch telescoping horizontal stabilizers (rest on floor and extend the horizontal supports).
- (9) Four 1-inch by 16-inch legs (for bench).

b. Scrap Metal.

- (1) Two $\frac{1}{4}$ -inch by 8-inch by 4-inch foot plates.
- (2) Two $\frac{1}{4}$ -inch by 8-inch by 3-inch horizontal bar supports (Detail A, fig 53).

c. Construction Details.

- (1) Isometric handles may be constructed of 1-inch rolled steel or 1-inch pipe. The handles and handgrips are shaped to form as indicated on the diagram (Detail A, fig 53).
- (2) The bench is constructed of $\frac{1}{4}$ -inch steel plate; however, the substitution of ammunition boxes is acceptable.
- (3) Holes, $\frac{1}{2}$ -inch in diameter, are drilled 4 inches apart in both inner and outer vertical uprights. The holes are drilled so that the height of the apparatus can be adjusted and locked by insertion of a $\frac{1}{8}$ -inch bolt.

236. The Program

The program consists of two tables, each with 10 exercises. Progression is controlled by required repetitions or, in some cases, by application of maximum effort. Each table can be completed within 15 minutes.

237. Progression

To start the program, begin with table 1, and execute each exercise for the required number of repetitions as indicated. Starting repetitions and maximum repetitions are controlled by the individual. When maximum repetitions for table 1 can be executed during a 15-minute exercise period, you may progress to table 2. To maintain your level of development, repeat your maximum attainable repetitions keeping within the 15-minute exercise period. Substitution of exercises should be kept to a minimum, but if a full 15 minutes of strenuous exercise is accomplished and all muscle groups are exercised, there should be no appreciable difference in the overall development.

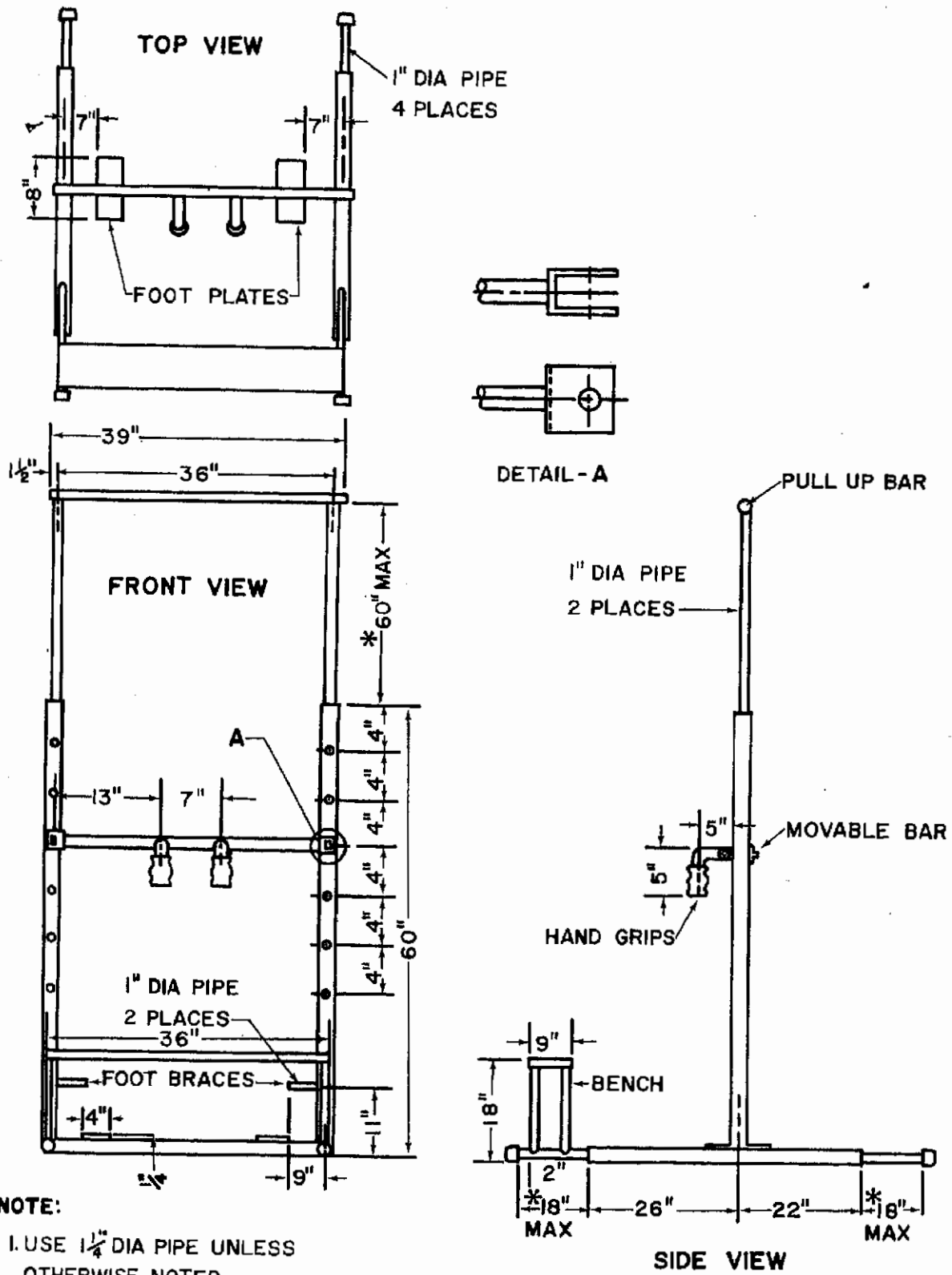
238. Table 1

a. *Exercise 1, Sidestraddle Hop.* This is a two-count warmup exercise done at moderate cadence. The starting position is the position of attention. On count *one* jump slightly into the air, swinging the arms out to the sides and up to a vertical position, hands touching (A, fig 54). At the same time spread the feet wider than shoulder-width apart. On count *two*, using a slight flexing of the knees and ankles, jump slightly into the air and return to the starting position by swinging the arms back down to the sides. Twenty is the standard number of repetitions throughout the program.

b. *Exercise 2, Hand Walk.* Remove the lower horizontal bar. Adjust the upper horizontal bar so that it is high enough to permit a dead hang with the feet off the ground (B, fig 54). From the dead hang, release one hand and drop the arm to the side of the body. Then raise that arm and regrasp the horizontal bar. Release the bar with the other hand and drop that arm to the side. Repeat this as many times as possible.

c. *Exercise 3, Bent Leg Sit-ups.* Lie down with the fingers interlocked behind the head. Hook the toes under the foot braces, keeping the thighs at a 45-degree angle. Raise the trunk to an upright sitting position, twisting to the left and then forward and downward until the right elbow touches the left knee (C, fig 54). Lower the body to the starting position. Sit up again but twist the body to the opposite direction as before, touching the left elbow to the right knee. Again lower the body to the starting position. The starting number is 20 sit-ups. Progression should be continued until 40 sit-ups are attained.

d. *Exercise 4, Double Step-up.* Starting at one end of the bench, step up onto the bench and walk



NOTE:
 1. USE 1 1/4" DIA PIPE UNLESS OTHERWISE NOTED.
 * 2. LENGTH ADJUSTABLE.

Figure 53. Chairborne conditioner apparatus.

across it. Step down from the other end; turn around and repeat the process to return to the starting point (D, fig 54). Each return to the starting point constitutes a repetition. The starting number is 20 repetitions. The maximum number is 35 repetitions. This exercise should be done at a rapid cadence.

e. Exercise 5, Isometric Bar Lift. Adjust the lower bar so that it is slightly higher than the beltline. Placing the feet on the footplates at the base of the frame, grasp the lower bar so that the hands are spread shoulder-width apart. Assume a crouched position and lift with maximum effort using the arms, back, and legs (E, fig 54). The starting number is four repetitions of a stress time of 5 seconds followed by a 5-second rest prior to the next repetition. Progression is obtained by lengthening stress periods to 6, and later 7 seconds. Do not increase the number of repetitions.

f. Exercise 6, Knee Lift. Adjust the upper bar to the same height used in Exercise 2. Adjust the lower bar so that it stops rearward movement of the hips when the dead hanging position is assumed (F, fig 54). Keeping the arms extended, flex the legs and raise the knees as high as possible. Hold this position for 5 seconds, then return to the starting position. After 2 seconds in the starting position, raise the knees again. Each return to the starting position constitutes one repetition. The starting number is five repetitions. Progression is obtained as in Exercise 5.

g. Exercise 7, Isometric Pull. Adjust the lower horizontal bar to a position where it is slightly higher than the beltline. Grasp the handles and pull outward (G, fig 54). Apply maximum effort and hold for approximately 5 seconds. Relax for 5 seconds between repetitions; perform four repetitions. Moving the body closer to or farther away from the bar will change the stress from the upper arms to the forearms. Progression is obtained as in Exercise 5.

h. Exercise 8, Isometric Compression. Maintain the position as in Exercise 7, (H, fig 54). Grasping the handles in the same manner, press in with maximum effort and hold for approximately 5 seconds. Relax for 5 seconds between repetitions; perform four repetitions. Progression is obtained as in Exercise 5.

i. Exercise 9, Isometric Press. Remove the lower horizontal bar. Adjust the upper horizontal bar until it is about 6 inches lower than the extended arms can reach. Stepping on the footplates at the bottom of the frame, grasp the bar with

both hands and push up (I, fig 54). Keep both the legs and arms slightly flexed and the back straight. Apply maximum effort for 5 seconds then relax for 5 seconds. Complete four repetitions. Progression is obtained as in Exercise 5.

j. Exercise 10, Pushups. Grasping the foot braces with both hands, assume the front leaning rest position (J, fig 54). Keeping the back and legs straight, lower the body until the chest is lower than the hands; then return to the starting position. The maximum possible number of repetitions should be completed.

239. Table 2

There is no limit on the maximum number of repetitions attainable in Exercises 3, 4, and 6 of table 2. The only limit imposed is that the entire program of 10 exercises outlined in either table should not exceed 15 minutes.

a. Exercise 1, Sidestraddle Hop. This is a two-count warmup exercise done at a moderate cadence. The starting position is the position of attention. On count *one* jump slightly into the air, swinging the arms out to the sides and up to a vertical position, hands touching (A, fig 55). At the same time spread the feet wider than shoulder-width apart. On count *two*, using a slight flexing of the knees and ankles, jump slightly into the air and return to the starting position by swinging the arms back down to the sides. Twenty repetitions of this exercise is the standard number throughout the program.

b. Exercise 2, Pullup. Adjust the horizontal bar so that it is high enough to permit a dead hang with the feet off the ground. Grasp the bar with both hands, palms facing forward. By flexing the arms, raise the body to a position where the chin is higher than the bar (B, fig 55), then lower the body to the dead hang position. Repeat as many times as possible.

c. Exercise 3, Bench Sit-ups. Sit on the bench and hook the feet under the foot braces. With the fingers interlocked behind the head, lean back until the head touches the floor (C, fig 55). Return to the starting position. Fifteen is the starting number of repetitions.

d. Exercise 4, Step-up. Face the bench and step up on it with one foot, bringing the trailing foot up next to the leading foot. Step back down again, leading with the same foot used first in stepping up (D, fig 55). Perform half of the total repetitions then change the sequence of moving the feet to use the other leg in stepping up and repeat the same amount of exercise. The starting number is

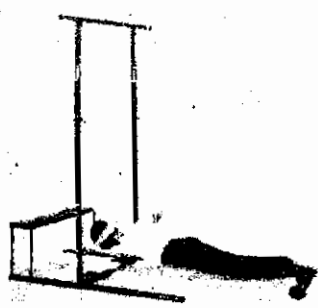
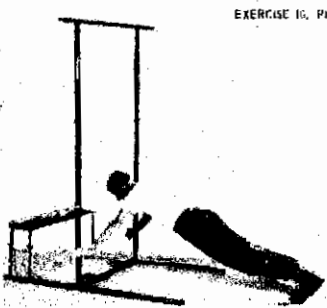
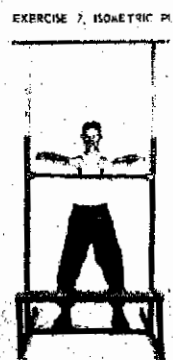
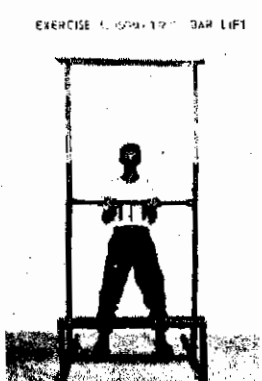
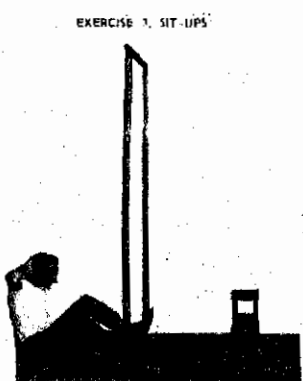
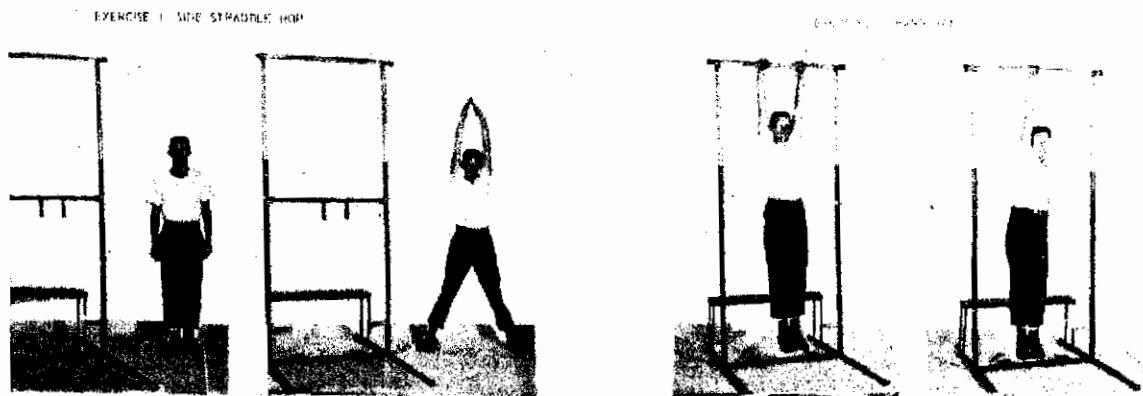


Figure 54. Chairborne conditioner exercise, table 1.

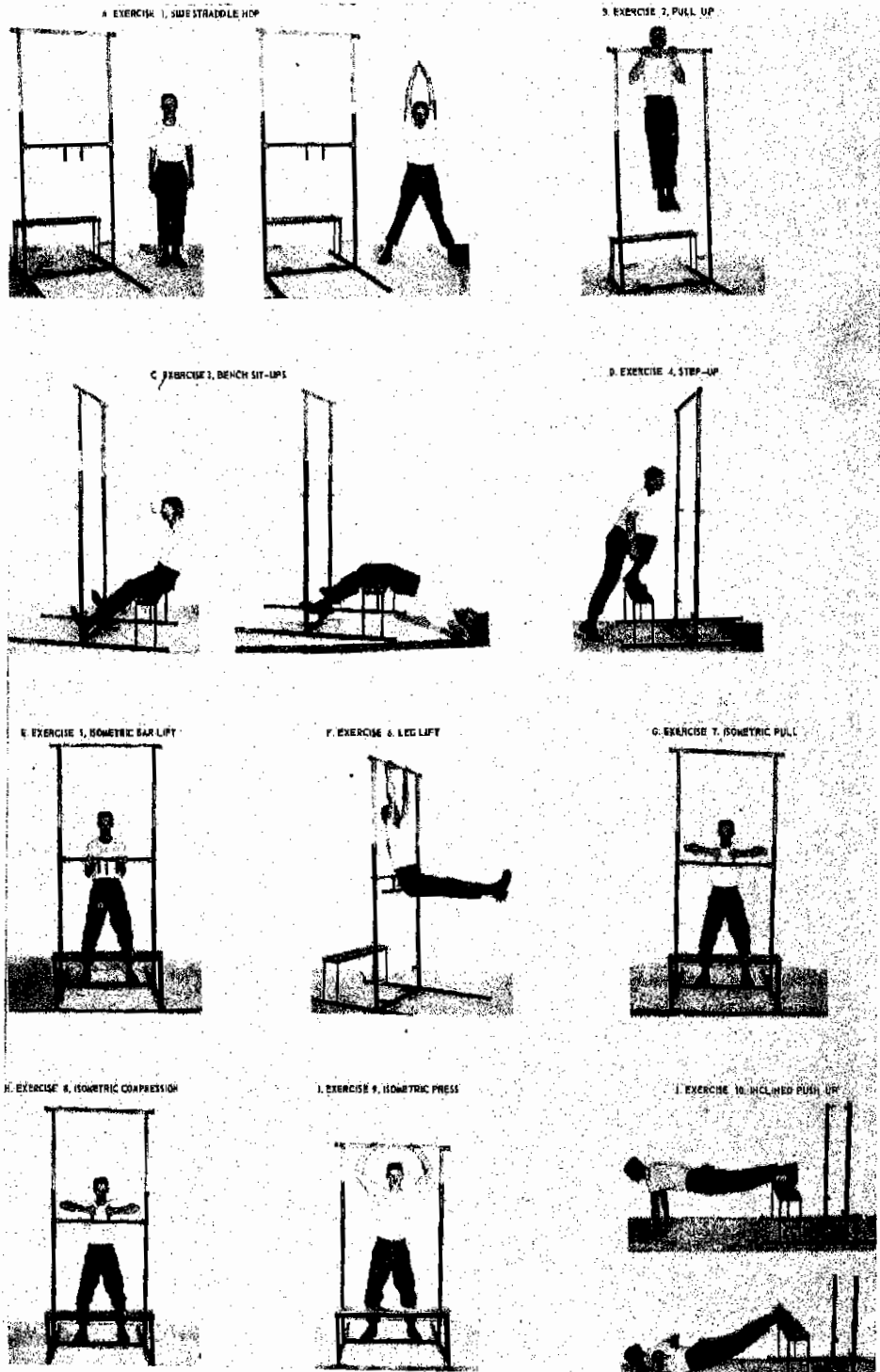


Figure 55. Chairborne conditioner exercise, table 2.

a total of 40 step-ups. This exercise should be done at a rapid cadence.

e. Exercise 5, Isometric Bar Lift. Adjust the lower bar so that it is slightly higher than the beltline. Placing the feet on the footplates at the base of the frame, grasp the lower bar so that the hands are spread shoulder-width apart. Assume a crouched position and lift with maximum effort using the arms, back, and legs (E, fig 55). The starting number is four repetitions with a stress time of 8 seconds followed by a 5-second rest between repetitions. Progression is obtained by lengthening the stress periods to 10 seconds. Do not increase the number of repetitions.

f. Exercise 6, Leg Lift. Adjust the bars and assume the starting position as shown in F, figure 55. Keeping arms and legs extended, raise the legs to a horizontal position and hold for 2 seconds. Then lower the legs slowly to the starting position. The starting number is five repetitions.

g. Exercise 7, Isometric Pull. Adjust the lower horizontal bar to a position where it is slightly higher than the beltline. Grasp the handles and pull outward (G, fig 55). Apply maximum effort and hold for approximately 8 seconds. Relax for 5 seconds between repetitions; perform four repetitions. Moving the body closer or farther away from the bar will change the stress from the upper arms to the forearms. Progression is ob-

tained by lengthening the stress period to 10 seconds.

h. Exercise 8, Isometric Compression (H, fig 55). Maintain the position as in Exercise 7. Grasping the handles in the same manner, press in with maximum effort and hold for approximately 8 seconds. Relax for 5 seconds between repetitions; perform four repetitions. Progression is obtained by lengthening the stress period to 10 seconds.

i. Exercise 9, Isometric Press. Remove the lower horizontal bar. Adjust the upper horizontal bar until it is about 6 inches lower than the extended arms can reach. Stepping on the footplates at the bottom of the frame, grasp the bar with both hands and push up (I, fig 55). Keep both the legs and arms slightly flexed and the back straight. Apply maximum effort for 8 seconds then relax for 5 seconds. Complete four repetitions. Progression is obtained by lengthening the stress period to 10 seconds.

j. Exercise 10, Inclined Pushup. Assume the front leaning rest position with the feet on the bench (J, fig 55). Keeping the back and legs straight, lower the body until the nose touches the ground. By extending the arms, raise the body to the starting position. Repeat as many times as possible.

Section III. THE 6-12 PLAN

240. Definition and Purpose

The 6-12 Plan of physical fitness has been developed to assist you in regulating dosage and progression to provide a convenient set of exercises. This is a basic program and will take 18 weeks to complete if you follow the moderate progression for the time prescribed for each level of achievement. The time can be shortened as explained below. This plan consists of six basic exercises a day which can be completed in 12 minutes. There are six tables of six exercises each, thus allowing you to progress from table to table. The plan is progressive, fits any age group, contains balance and variety, and applies the principle of overload in a safe and gradual manner. Begin with table 1 (fig 56) with the number of repetitions as indicated for your age.

241. Levels of Achievement

There are three levels of achievement for each age group. These levels are indicated as A, B, and C. Start at the C level for your age group. At the end

of a 1-week period, or when you can do all exercises at that level within 12 minutes, progress to the B level. At the end of the second week, or when you can accomplish that level within 12 minutes, progress to the A level. At the conclusion of the third week or when you are able to achieve the A level within the time limitation, move on to table 2 (fig 57).

242. Progression from Table to Table

As you progress to a new table, you will find a different and more challenging set of exercises. Find your age group, start at C level, and progress as on the previous tables. When you accomplish the C, B, and A levels for your age group, move on to the next table.

243. Maintenance Level

Attempt to work through all six tables (fig 56-61). If this proves to be too difficult, then maintain your exercise at the—

a. A-level on table 4 (fig 59) if you are in the 45 to 49, 50 to 59, or over 60 age group.

b. A-level on table 5 (fig 60) if you are in the 17 to 29, 30 to 39, or 40 to 44 age group.

244. Time Devoted to Each Level

If you are just starting an exercise program, do not rush through the first table. Remember, you should remain at each level for about a week before moving upward. The time allotment stated for each exercise at the bottom of the tables is a guide; some men may take more and some less time on the individual exercises. At the end of a 1-week period (or if you continued a particular level for a longer period), when you can comfortably perform the six exercises in 12 minutes, move on to the next level. To a certain degree you must be the judge of your ability to progress from level to level and table to table. If you have attained a certain degree of physical fitness before starting this program, some of the beginning tables may present little challenge to you. As a guide the following minimum time limit for remaining at each level may assist you.

Age group	Time
17 to 29	2 days
30 to 39	3 days
40 to 44	4 days
45 to 49	5 days
50 to 59	6 days
60 and over	7 days

245. Careful Performance

To achieve the maximum benefit, perform each exercise exactly as specified. Read the descriptions and study the illustrations. Do not slight the movements.

246. Use of a Sensible Approach

Follow these points as they apply before starting or during your exercise program.

a. If you have the slightest doubt about your ability to participate in this exercise program, consult a physician.

b. Stop immediately if you notice undue breathlessness or chest pain while taking part in these exercises. If these conditions persist, consult a physician.

c. Unless you have exercised regularly and know yourself to be in good physical condition, start at table 1 with the C level appropriate to your age.

d. If you are out of shape, admit that fact to yourself, hide your pride; after all, you are in the privacy of your own quarters. Set your goal for the longer, steadier pull toward fitness. Resist the urge to pass over the lower numbered tables to find a table that will test your fitness. You are not trying to test, but rather to develop.

PROGRESSION GUIDE

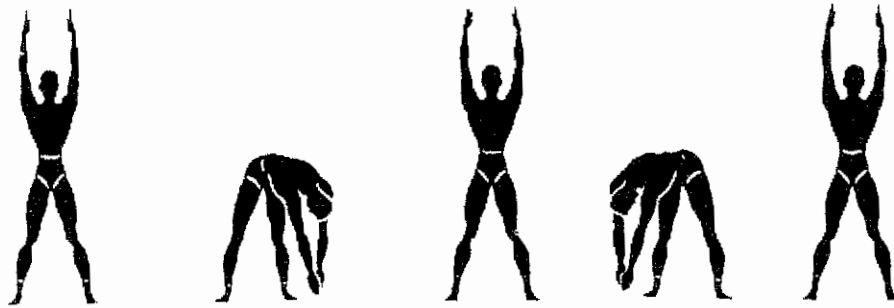
AGE GROUP	LEVEL	EXERCISES					
		1	2	3	4	5	6
17 to 29	A	15	18	14	15	15	250
	B	13	16	13	13	13	235
	C	11	14	12	11	11	215
30 to 39	A	13	14	12	13	13	200
	B	11	13	11	11	11	185
	C	9	12	10	9	9	165
40 to 44	A	11	11	10	11	11	150
	B	9	10	9	9	9	135
	C	7	9	8	7	7	120
45 to 49	A	9	8	8	9	9	100
	B	7	7	7	7	7	90
	C	5	6	6	5	5	80
50 to 59	A	7	6	6	7	7	75
	B	5	5	5	5	5	70
	C	3	4	4	3	3	60
60 and over	A	4	5	4	4	4	50
	B	3	4	3	3	3	40
	C	2	3	2	2	2	30
Minutes for each exercise		2	1	1	1	2	5

TABLE 1

1. Side straddle, arms overhead and straight, palms facing.
 - Turn trunk to the left and bend forward over the left thigh, attempt to touch the fingertips to the floor outside the left foot, keep the knees straight. Alternate the movement to the opposite side.
 - Down and up to one side is one repetition.
2. Kneeling front rest, hands shoulder width apart. The weight is supported on the knees and by the arms.
 - Bend elbows and lower body until chest touches the floor. Keeping knees on the floor, raise body by straightening the arms.
 - Down and up is one repetition.
3. Supine position, fingers interlaced and placed behind the head.
 - Maintaining the heels on the floor, raise the head and shoulders until the heels come into view. Lower the head and shoulders until fingers contact the floor and head rests on the hands.
 - Up and down is one repetition.
4. Body erect, feet slightly spread, fingers interlaced and placed on rear of neck at base of the head.
 - Bend the upper trunk backward, raise the chest high, pull the elbows back, and look upward. Keep the knees straight. Recover the erect position, eyes to the front.
 - Bending backward and recovery is one repetition.
5. Body erect, feet spread less than shoulder width, hands on hips, elbows back.
 - Do a half knee bend, trunk inclined slightly forward and arms outside the legs touch the boot tops with the extended fingers.
 - Down into the touch position and return to the starting position is one repetition.
 - Run in place, lift feet 4 to 6 inches off floor. Repeat sequence until the required number of steps is completed.
6. Count a step each time left foot touches the floor.

Figure 56.① 6-12 plan exercises, table 1.

TABLE 1, CONTINUED



EXERCISE 1



EXERCISE 2



EXERCISE 3



EXERCISE 4



EXERCISE 5



EXERCISE 6

Figure 56-2—Continued.

TABLE 2

PROGRESSION GUIDE

AGE GROUP	LEVEL	EXERCISES					
		1	2	3	4	5	6
17 to 29	A	17	17	17	9	19	300
	B	15	15	15	8	17	270
	C	13	13	13	7	15	245
30 to 39	A	15	15	15	8	17	235
	B	13	13	13	7	15	210
	C	11	11	11	6	13	190
40 to 44	A	13	13	13	7	15	175
	B	11	11	11	6	13	155
	C	9	10	9	5	11	135
45 to 49	A	11	11	11	6	13	125
	B	9	9	9	5	11	110
	C	7	7	7	4	9	100
50 to 59	A	9	9	9	5	11	95
	B	7	7	7	4	9	85
	C	5	5	5	3	7	75
60 and over	A	6	7	7	4	9	70
	B	5	5	5	3	7	60
	C	4	4	4	2	5	50
Minutes for each exercise		1	1	1	1 1/2	1 1/2	6

1. Wide side straddle, arms overhead and straight, palms facing.
 - Bend at the knees and the waist, swing the arms down, and reach between the legs as far as possible. Look at the hands. The thighs are parallel to the floor during the bend. Recover to the starting position with a sharp movement.
 - Down and up is one repetition.
2. Front leaning rest position with body straight from head to heels.
 - Bending at the waist and keeping the knees locked, jump forward to a jack-knife position bringing the feet as close to the hands as possible. With the weight on the hands, thrust the legs to the rear resuming the front leaning rest position.
3. Supine position with arms straight overhead, palms facing.
 - With a sharp movement sit up, bringing the heels as close to the buttocks as possible and the knees to the chest. Swing the arms in an arc overhead to a position outside the knees and parallel to the floor. To recover swing the arms overhead keeping them straight. At the same time move the legs forward until they are straight.
 - Sitting up and returning to the supine position is one repetition.
4. Feet spread more than shoulder width apart, fingers laced behind the neck and elbows are back.
 - Bend forward at the waist vigorously, then twist the trunk to the left, then to the right and return to the erect position.
 - Keep the knees laced and back straight.
 - Bend forward, twist left, twist right, and return to the erect position is one repetition.
5. Bend forward at the waist, grasping the right toes with right hand, left toes with left hand, knees are slightly bent.
 - Walk forward retaining this position.
 - Count a repetition each time a foot contacts the floor.
6. Run in place, lift feet 4 to 6 inches off floor. Repeat sequence until the required number of steps is completed.
 - Count a step each time left foot touches the floor

Figure 57.① 6-12 plan exercises, table 2.

TABLE 2 CONTINUED



EXERCISE 1



EXERCISE 2



EXERCISE 3



EXERCISE 4



EXERCISE 5



EXERCISE 6

Figure 57.2—Continued.

TABLE 3

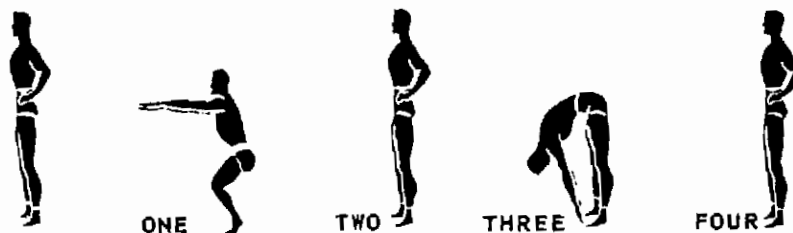
PROGRESSION GUIDE

AGE GROUP	LEVEL	EXERCISES					
		1	2	3	4	5	6
17 to 29	A	10	19	19	16	10	350
	B	9	17	17	15	9	315
	C	8	15	15	14	8	280
30 to 39	A	9	17	17	14	9	270
	B	8	15	15	13	8	240
	C	7	13	13	12	7	210
40 to 44	A	8	15	15	12	8	200
	B	7	13	13	11	7	180
	C	6	11	11	10	6	160
45 to 49	A	7	13	13	10	7	150
	B	6	11	11	9	6	135
	C	5	9	9	8	5	120
50 to 59	A	6	11	11	8	6	115
	B	5	9	9	7	5	105
	C	4	7	7	6	4	95
60 and over	A	5	9	9	7	5	90
	B	4	7	7	6	4	80
	C	3	5	5	4	3	70
Minutes for each exercise		11/2	1	1	11/2	1	6

- 1 Feet spread less than shoulder width apart, hands on hips, elbows back.
 - Do a half knee band, trunk inclined slightly forward and thrust the arms forward, palms down. Recover to the erect position, and with knees locked, bend forward at the waist and touch the toes and recover to the erect position.
 - Down into the knee band, recover, touch toes and recover is one repetition.
- 2 Front leaning rest position with body straight from head to heels.
 - Lower the body until the chest touches the floor, keep body straight. Recover by straightening the arms and raising the body.
 - Down and touch the floor and recovery to the front leaning rest position is one repetition.
- 3 Supine position, hands interlaced and placed under head, knees bent with feet flat on the floor. Sit up bending the trunk forward.
 - Recover to the supine position without moving feet.
 - Sit up, and recovery to the supine position is one repetition.
- 4 Supine position, arms overhead, palms upward.
 - Raise the legs and swing them backward over the head until toes touch the floor. Recover by returning legs to the starting position.
 - Touch toes overhead and recover to supine position is one repetition.
- 5 Erect position, feet together.
 - Bend knees and place hands on floor, shoulder width apart. Thrust legs to the rear, body straight from head to heels. Move legs forward assuming squat position, elbows inside of knees. Assume erect position.
 - Down into full squat, legs to the rear, back to full squat and return to the erect position is one repetition.
- 6 Run in place, lift feet 4 to 6 inches off floor. Repeat sequence until the required number of steps is completed.
 - Count a step each time left foot touches the floor.

Figure 58.① 6-12 plan exercises, table 3.

TABLE 3 CONTINUED



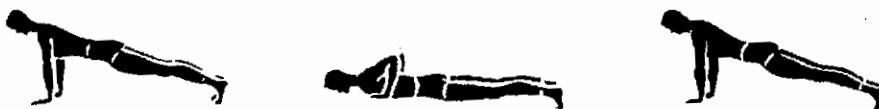
ONE

TWO

THREE

FOUR

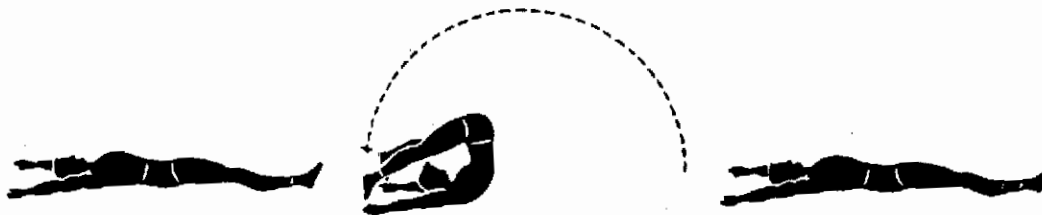
EXERCISE 1



EXERCISE 2



EXERCISE 3



EXERCISE 4



EXERCISE 5



EXERCISE 6

Figure 58.②—Continued.

TABLE 4

PROGRESSION GUIDE

AGE GROUP	LEVEL	EXERCISES					
		1	2	3	4	5	6
17	A	12	9	12	24	25	400
to	B	11	8	11	22	23	380
29	C	10	7	10	21	21	360
30	A	11	8	11	23	23	305
to	B	10	7	10	21	21	290
39	C	9	6	9	20	20	275
40	A	10	7	10	20	21	225
to	B	9	6	9	18	18	215
44	C	8	5	8	16	16	205
45	A	8	6	8	16	16	175
to	B	7	5	7	14	14	165
49	C	6	4	6	12	12	155
50	A	6	5	6	13	13	135
to	B	5	4	5	11	11	130
59	C	4	3	4	10	10	120
60	A	5	4	5	10	10	100
and	B	4	3	4	9	9	95
over	C	3	2	3	8	8	90
Minutes for each exercise		1	2	1	1	1	6

1. Erect position, hands at sides, feet spread slightly.
 - Bend knees, incline trunk forward, and place hands on floor between legs. Straighten knees, keeping feet in place and fingers touching floor. Again bend knees and resume the first position. Recover to the erect position.
 - The above sequence is one repetition.
2. Erect position, hands at sides, feet together.
 - Bend knees, place hands on floor between legs. Thrust legs to the rear. Execute two complete push-ups and then thrust the legs forward bending the knees with arms between the knees. Recover to the erect position.
 - The completion of all eight counts is one repetition.
3. Back position with arms out to sides and legs raised to the vertical.
 - Lower legs to the left, raise legs to the vertical, lower to the right, again raise to the vertical.
 - Keep legs together and the head and hands in contact with the floor throughout the exercise.
 - The above sequence is one repetition.
4. From back position, raise legs with heels 10 to 12 inches from the floor.
 - Spread legs as far as possible, close them together. Continue to open and close legs until required repetitions have been completed.
 - Opening and closing legs is one repetition.
5. Front leaning rest position, body straight from head to heels.
 - Bend the left knee and bring the left foot as far forward as possible, return left leg to original position. Repeat movement with the right leg. Continue exercise alternating left and right legs.
 - A leg thrust forward and returned to the rear is one repetition.
6. Run in place, lift feet 4 to 6 inches off floor. At the completion of every 50 steps do 10 "Side Straddle Hops". Repeat sequence until the required number of steps are completed.
 - Count a step each time left foot touches the floor.

Side Straddle Hops - From the erect position take a slight jump into the air, moving the legs sideward (more than shoulder width apart), at the same time swing the arms overhead clapping the palms together. Again take a slight jump into the air and swing the arms sideward and downward, returning to the starting position.

Figure 58. (1) 6-12 plan exercises, table 4.

TABLE 4 CONTINUED

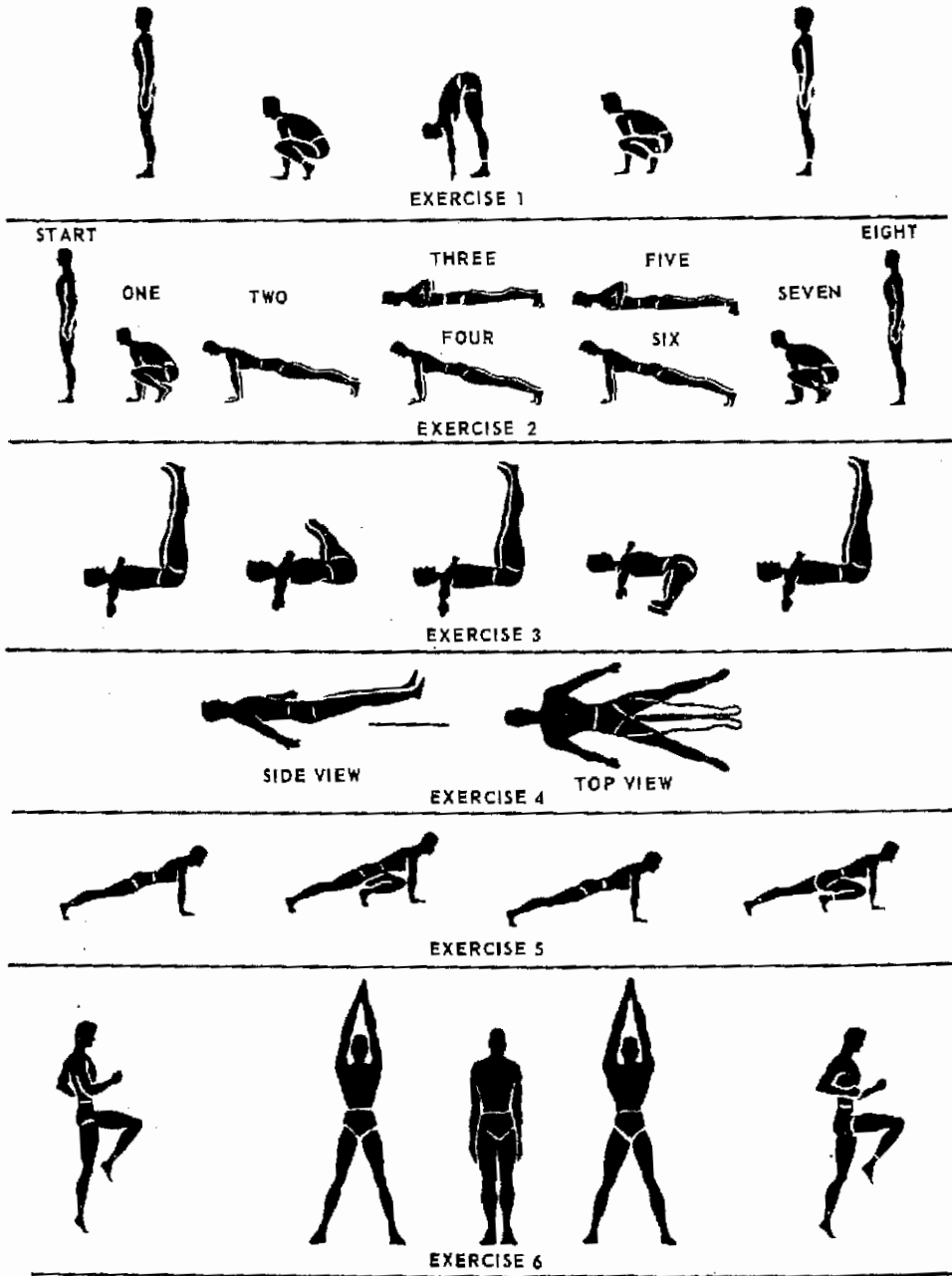


Figure 50. (2) —Continued.

TABLE 5

PROGRESSION GUIDE

AGE GROUP	LEVEL	EXERCISES					
		1	2	3	4	5	6
17 to 29	A	14	13	28	14	120	450
	B	13	12	27	13	105	430
	C	12	11	26	12	90	410
30 to 39	A	12	12	25	12	89	350
	B	11	11	24	11	80	330
	C	10	10	23	10	70	310
40 to 44	A	11	11	23	11	69	250
	B	10	10	21	10	60	240
	C	9	9	19	9	50	230
45 to 49	A	9	9	20	9	49	200
	B	8	8	18	8	45	190
	C	7	7	16	7	40	180
50 to 59	A	7	7	16	7	39	170
	B	6	6	14	6	35	155
	C	5	5	12	5	30	140
60 and over	A	6	6	12	6	29	115
	B	5	5	11	5	25	110
	C	4	4	9	4	20	105
Minutes for each exercise		2	1	1	2	1	5

1. Feet spread more than shoulder width, arms sideward at shoulder level, palms up.
 - Turn trunk to the left as far as possible then recover slightly, repeat to the left and recover slightly. Turn trunk to the right as far as possible, recover slightly, repeat to the right and recover slightly.
 - The head and hips remain to the front throughout the exercise.
 - The above sequence is one repetition.
2. Front leaning rest position, body straight from head to heels.
 - Bend the elbows slightly and push with the hands and toes bouncing the body upward and completely off the floor. In contact with the floor resume the front leaning rest position.
 - Propelling the body upward and the return to the floor is one repetition.
3. Back position, hands interlaced and placed under head, knees bent with feet flat on the floor.
 - Sit up banding the trunk forward. Recover to the back position without moving the feet.
 - Sit up and recovery to the back position is one repetition.
4. On back, arms sideward, feet raised 12 inches from the floor, knees straight.
 - Keeping the legs together, swing legs as far to the left as possible, swing legs overhead, then to the right as far as possible and recover by swinging legs to the front.
 - Legs stop momentarily at each position and do not contact floor until all repetitions are complete.
 - One repetition is completed when legs make the complete circle.
5. From a position on the back:
 - Raise the legs and hips by extending the legs overhead. Keep the elbows on the ground and support hips with the hands.
 - Move the legs vigorously as if peddling a bicycle.
 - One repetition is counted each time the left foot makes a complete revolution.
6. Run in place, lift feet 4 to 6 inches off floor. At the completion of every 50 steps do 20 "Hand Kicks". Repeat sequence until required number of steps is completed.

Hand Kicks— Stand in place and kick left leg upward, at the same time extend the right arm touching the toe and hand. Repeat with right leg extending left arm.

Figure 60.① 6-12 plan exercises, table 5.

TABLE 5 CONTINUED



EXERCISE 1



EXERCISE 2



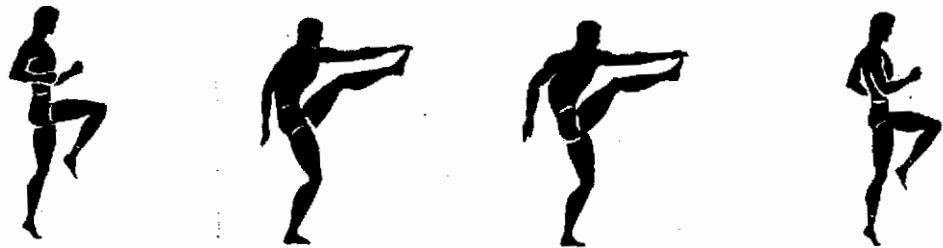
EXERCISE 3



EXERCISE 4



EXERCISE 5



EXERCISE 6

Figure 60.2—Continued.

PROGRESSION GUIDE

AGE GROUP	LEVEL	EXERCISES					
		1	2	3	4	5	6
17 to 29	A	17	15	32	32	35	500
	B	16	14	30	30	33	480
	C	15	13	28	28	31	460
30 to 39	A	15	13	30	30	31	400
	B	14	12	28	28	29	380
	C	13	11	26	26	27	360
40 to 44	A	13	10	27	27	27	310
	B	12	9	25	25	25	285
	C	11	8	23	23	23	265
45 to 49	A	11	9	23	23	23	250
	B	10	8	21	21	21	230
	C	9	7	19	19	19	210
50 to 59	A	9	8	19	19	19	200
	B	8	7	17	17	17	190
	C	7	6	15	15	15	175
60 and over	A	8	7	15	15	17	140
	B	7	6	13	13	15	130
	C	5	5	10	10	12	120
Minutes for each exercise		2	1	1	1	1	6

TABLE 6

1. Feet spread shoulder width apart, left fist clenched and overhead, right fist clenched at waistline in rear of body.
 - Simultaneously thrust the left fist as far to the right as possible and the right fist as far to the left as possible. Recover and repeat. Reverse the hands with the right fist above the head and the left in rear at the waistline. Repeat the movement to the opposite side by thrusting the upper body to the left with the arm motion.
 - The above sequence is one repetition.
2. Front leaning rest position.
 - Bend elbows slightly and push with the hands and toes bouncing the body upward and completely off the floor. At the height of the bounce, clasp the hands and quickly return them to a position directly under the shoulder to catch the body weight.
 - Push off the floor, clap hands, and return to the front leaning rest position is one repetition.
3. Back position, arms extended to the side at 45 degrees.
 - Raise the legs and the trunk into a V position bringing the trunk and legs as close as possible. Return to back position.
 - Raising the legs and trunk and recovery to the back position is one repetition.
4. Prone position with hands clasped in small of the back.
 - Arch the body, holding the head back and rock forward, relax and repeat the movement.
 - Arch the body, rock forward, and relax is one repetition.
5. From a sitting position lift the hips supporting the body with the hands and feet.
 - By moving the arms and legs walk on all fours either forward or backward.
 - A repetition occurs each time the left hand contacts the floor.
6. Run in place, lift feet 4 to 6 inches off floor. At the completion of every 50 steps do 10 "Pike Jumps". Repeat sequence until required number of steps is completed.

Pike Jumps - Jump forward and upward from both feet, keeping the knees straight. Swing the legs forward and touch the toes with the hands at the top of each jump.

Figure 61.① 6-12 plan exercises, table 6.

TABLE 6 CONTINUED



EXERCISE 1



EXERCISE 2



EXERCISE 3



EXERCISE 4



EXERCISE 5



EXERCISE 6

Figure 61.8—Continued.

Section IV. WEIGHT TRAINING

247. Definition and Purpose

a. Weight or barbell training should not be confused with the more common type of weight lifting used as a competitive sport. Weight lifting is designed to develop specific muscle groups so that the individual is capable of lifting a large amount during a single lift. In contrast, weight training is the systematic development of all the major muscle groups by the use of calisthenics reinforced with weight to provide resistance.

b. This exercise table (fig 62) is designed to develop strength and muscular endurance, and muscle tone of the five major muscle groups: legs, arms, back, trunk, and shoulder girdle. The exercises of the table can be completed within 15 minutes and the program is progressive and applies the principle of overload in a safe, gradual manner. Care should be taken in the completion of these exercises. Insure that the back is straight during the lifting phase of all exercises. When exercises require assuming the standing position with the weight, always grasp the weight while in a squatting position and then rise to a standing position.

248. Progression

A starting number of repetitions and pounds of weight will be specified for each exercise; after each fourth or fifth day of exercise, the repetitions should be increased by one until the maximum of 10 has been reached. At this time, the weight should be increased by 5 pounds and the process repeated starting with the initial number of repetitions.

249. Warmup

A warmup exercise is important to prepare the body for the more vigorous exercises that are to follow. Ten repetitions of the High Jumper exercise are excellent for a warmup period.

250. Circulo-Respiratory/Cardio-Vascular Activity

Muscle endurance is controlled chiefly by the amount of blood that passes through the blood vessels of the muscles. To increase this flow of blood, exercises which cause the heart to increase its pumping volume are essential. Therefore, an exercise which will require fast body movement is needed in all physical fitness programs. To provide such exercise, 3 to 5 minutes of rope skipping is recommended to increase the individual's developmental potential.

251. Table for Weight Training

a. *Exercise 1, Half Knee Bend* (1, fig 62). The starting number and weight is—6 repetitions and 50 pounds. Place the bar upon the shoulders. Stand with the feet about 18 inches apart. Keeping the feet flat, lower the body into the half knee bend position. Stand and repeat. Exhale as you lower into the half knee bend position and inhale as you come up. This constitutes one repetition.

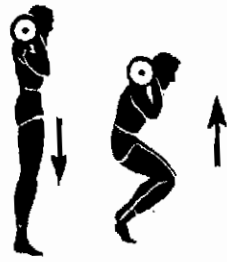
b. *Exercise 2, Waist Bender* (2, fig 62). The starting number and weight is—6 repetitions and 40 pounds. Assume the standing position with the bar across the shoulders, feet shoulder-width apart. Bend forward at the waist until the upper body is parallel to the ground; return to the starting position. Each time you return to the upright position constitutes one repetition.

c. *Exercise 3, Curl* (3, fig 62). The starting number and weight is—6 repetitions and 40 pounds. Grasp the barbell with the palms facing to the rear and assume the standing position, feet shoulder-width apart. With the barbell held in front of the hips, flex the elbows and lift the weight until the bar touches the upper chest. Lower the barbell back to the hip level position. Inhale deeply with the upward movement and exhale on the downward movement. Each time the bar touches the chest constitutes one repetition.

d. *Exercise 4, Side Bender* (4, fig 62). The starting number and weight is—6 repetitions per side and 40 pounds. Assume the standing position, feet shoulder-width apart, with the bar across the shoulders. Bend to the left as far as possible and return to the starting position. Repeat six times and then execute the same procedure to the right for six repetitions.

e. *Exercise 5, Standing Press* (5, fig 62). The starting number and weight is—6 repetitions and 45 pounds. Grasp the bar with the palms facing forward and assume the starting position. Curl the weight to the upper chest position. Inhale deeply and press the bar upward to an overhead position. Exhale as you lower the bar to the chest position. Each time the bar is pressed upward constitutes one repetition.

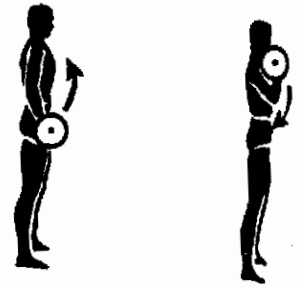
f. *Exercise 6, Upward Row* (6, fig 62). The starting number and weight is—6 repetitions and 40 pounds. Grasp the bar, hands close together, palms to the rear, and assume the standing position. Starting with the bar held in front of the hips, flexing the elbows and the shoulder girdle muscles, and lift the bar straight up to an over-



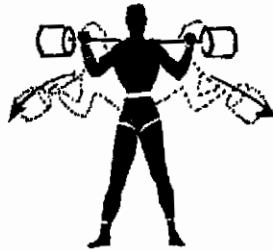
EXERCISE 1, 1/2 KNEE BEND



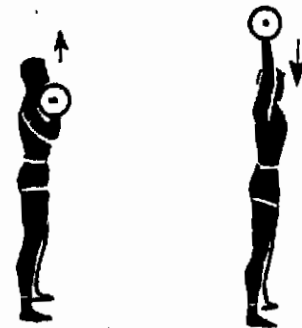
EXERCISE 2, WAIST BENDER



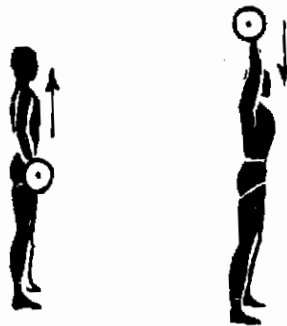
EXERCISE 3, CURL



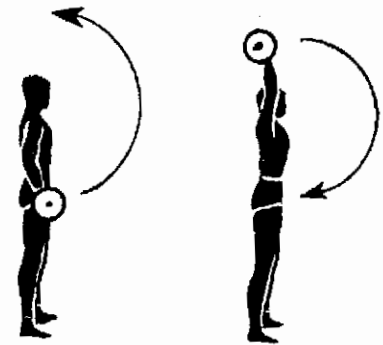
EXERCISE 4, SIDE BENDER



EXERCISE 5, STANDING PRESS



EXERCISE 6, UPWARD ROW



EXERCISE 7, SHOULDER CURL

Figure 62. Table for weight training.

head position. Inhale deeply as you lift the bar. Exhale as you lower the bar to the hip position. Each time the bar returns to the hips will constitute one repetition.

g. *Exercise 7, Shoulder Curl* (7, fig 62). The starting number and weight is 6 repetitions and 25 pounds. Grasp the bar, palms down, and as-

sume the standing position. Keeping the elbows locked, curl the bar, pivoting the arms at the shoulders until the bar is in an overhead position and as far to the rear as possible. Return the bar in the same manner to the hip position. Each time the bar returns to the hip position will constitute one repetition.

Section V. ISOMETRIC EXERCISING

252. Definition and Purpose

Isometric exercises are founded on the principle that a muscle will develop according to the type or duration of the exercise that it performs. The principle of *overload*, that the muscles develop commensurate with demand, merely reinforces this fact. Isometric exercising is simply the application of maximum effort during an exercise period. It is one of the fastest means of creating muscle growth; however, it will not develop circulo-respiratory or muscular endurance.

253. Isometric Principle and Progression

The isometric principle is to apply force gradually over a 5- to 10-second period until the maximum application is applied. Relaxation follows for approximately 5 seconds and then force is again applied. This process continues until the prescribed repetitions, as indicated for each exercise are complete. In addition to the exercises contained in this section, the application of isometric force is utilized in some of the exercises which are part of section II.

254. Place in Your Program

Isometric exercises may be designed to be performed with or without equipment. The three tables of isometric exercises presented in this section will provide a variety from which to choose and apply to your particular situation. Each table requires 15 minutes or less to complete.

255. Table 1: Doorframe Exercises

The following exercises are designed for use with a standard doorframe found in all offices or barracks (fig 63).

a. Exercise 1, Arm Press. Stand in the doorway with the legs straight, knees locked. Using your arm muscles, press hard upward against the top of the doorframe. Repeat for three repetitions applying gradual effort to maximum contraction.

b. Exercise 2, Leg Press. Stand in the doorway with the hands on the top of the doorframe, elbows locked. With your knees bent, press hard with your leg muscles. Repeat for three repetitions beginning with a gradual effort and increasing to maximum contraction. A low platform may be necessary to reach the top of the doorframe and still maintain a bent knee position.

c. Exercise 3, Side Press. Extend both arms to the side of the doorway. Palms are shoulder high,

facing outward. With both arms, press hard against the sides of the doorframe. Repeat for three repetitions. Begin gradually and increase to maximum contraction.

d. Exercise 4, Lateral Raise. Extend both arms to the sides of the doorway, arms down, palms facing inward. With the back of the hands, press hard against the sides of the doorframe. Repeat for three repetitions. Begins with a gradual effort and increase to maximum contraction.

e. Exercise 5, Neck Press. Place your forehead against the doorframe, hands clasped behind the back. Using your neck muscles, press hard against the doorframe. Repeat for three repetitions, then reverse your position so that the back of the head is resting on the doorframe. Again do three repetitions. Begin gradually with both exercises and increase to maximum contraction.

f. Exercise 6, Door Pull. Stand facing the edge of the open door and grasp the doorknobs. Pull outward with both arms (if doorknobs are not available grasp the edge of the door). As you apply outward pressure, move the body toward and away from the door. Repeat for three repetitions. Begin with gradual effort and increase to maximum contraction.

256. Table 2: Chairborne Conditioner Isometric Exercises

The following exercises are designed for use with the Chairborne Conditioner (fig 64).

a. Exercise 1, Shoulder Press. Place the telescoping bar at a height just above the head. Grasp the bar (overhand grip) so that the forearms are vertical. Keep the feet directly under the bar with your back and knees straight. Push up on the bar with graduated effort to maximum contraction. Perform three repetitions.

b. Exercise 2, Arm Curl. Set the movable bar about waist high. Place hands about shoulder width apart (underhand grip). Keep the elbows close to the body. Keep the knees and back straight. Try to pull up on the bar with graduated effort to maximum contraction. Perform three repetitions. Reverse direction of pressure (press down) for three repetitions.

c. Exercise 3, Squat Rise. Set movable bar at height so that your thighs are parallel with the floor when squatting under the bar. Keep the back straight with bar on shoulders (overhand grip). Try to straighten to a standing position. Perform three repetitions.



A. EXERCISE 1, ARM PRESS



B. EXERCISE 2, LEG PRESS



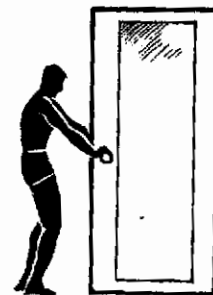
C. EXERCISE 3, SIDE PRESS



D. EXERCISE 4, LATERAL RAISE



E. EXERCISE 5, NECK PRESS



F. EXERCISE 6, DOOR PULL

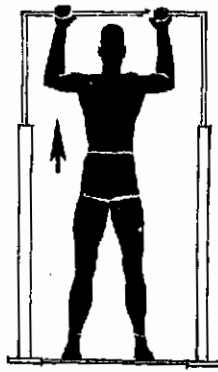
Figure 68. Doorframe isometric exercises, table 1.

d. Exercise 4, Back Rise. Standing with feet directly under movable bar, bend over so that back is parallel with floor with bar across shoulders (overhand grip). Try to straighten up to an upright position with graduated effort to maximum contraction. Perform three repetitions.

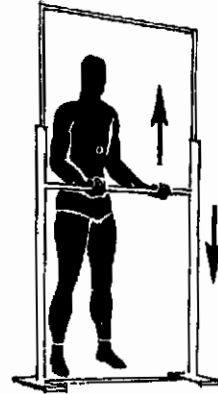
e. Exercise 5, Outward/Inward Press. Grasp the movable bar isometric handles. Pull outward using the shoulder and arm muscles. Repeat for

three repetitions with gradual effort to maximum contraction. Press inward using the shoulder and arm muscles. Repeat for three repetitions with gradual effort to maximum contraction.

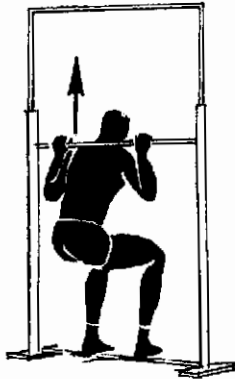
f. Exercise 6, Leg Press. Place the telescoping bar at a height just above the head. Grasp the bar (overhand grip) so that the elbows are locked (the knees are bent). Using the leg muscles, apply gradual effort to maximum contraction, attempt-



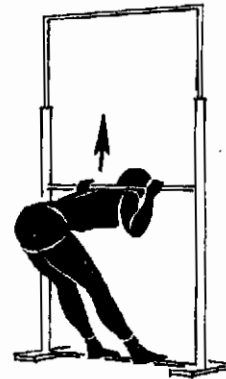
A. EXERCISE 1, SHOULDER PRESS



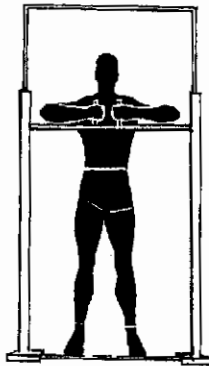
B. EXERCISE 2, ARM CURL



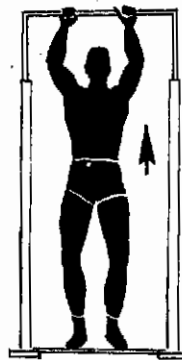
C. EXERCISE 3, SQUAT RISE



D. EXERCISE 4, BACK RISE



E. EXERCISE 5, OUTWARD INWARD PRESS



F. EXERCISE 6, LEG PRESS

Figure 64. Chairborne conditioner isometric exercises, table 2.

ing to straighten legs. Repeat for three repetitions.

257. Table 3: Isometrics at the Desk

The following exercises are designed for use while sitting at a desk or table (fig 65).

a. Exercise 1, Arm Press. Place the arms on top of the desk, palms down. Press downward with

the arm muscles. Begin gradually and increase to your maximum effort. Repeat for three repetitions.

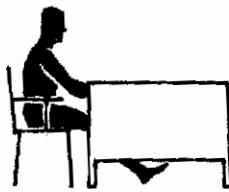
b. Exercise 2, Chair Lift. Grasp the bottom of the chair seat with both hands. Pull upward with the arm muscles. Begin gradually and increase to your maximum effort. Repeat for three repetitions.



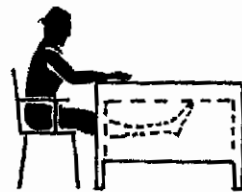
A. EXERCISE 1, ARM PRESS



B. EXERCISE 2, CHAIR LIFT



C. EXERCISE 3, DESK LIFT



D. EXERCISE 4, LEG RAISER



E. EXERCISE 5, ABDOMINAL CONTRACTIONS



F. EXERCISE 6, NECK CONTRACTIONS

Figure 65. Desk isometric exercises, table 3.

c. Exercise 3, Desk Lift. Place the hands under the desk, palms up. Lift upward with the arm muscles. Begin gradually and increase to your maximum effort. Repeat for three repetitions.

d. Exercise 4, Leg Raiser. Lift the legs until the toes touch the inside top of the desk. Using the leg muscles, press upward with the toes. Begin gradually and increase to your maximum effort. Repeat for three repetitions.

e. Exercise 5, Abdominal Contractions. Con-

tract the stomach muscles and hold at maximum effort for 10 seconds. Relax for 5 seconds, then repeat for three repetitions. Repeat this procedure for both inward and outward contractions.

f. Exercise 6, Neck Contractions. Fold the arms, lean forward and place them on the desk top. Bow the head, placing the forehead on your arms. Using the neck muscles, apply downward pressure. Begin gradually and increase to maximum effort.

PART FOUR
COMPETITIVE CONDITIONING ACTIVITIES
CHAPTER 19
LEADERSHIP OF COMPETITIVE ACTIVITIES

Section I. INTRODUCTION

258. Description and Function

Competitive conditioning activities consist of dual combatives, relays, team contests, and team sports in which individuals or teams are competing against an opponent. These activities contribute to the development of circulo-respiratory and muscular endurance, strength, and coordination. Also, benefits of competition are the development of aggressiveness, teamwork, and the will to win.

259. Place in the Program

Usually the proper place for competitive activity is after men have entered the slow improvement stage of conditioning. Muscles and joints should be strengthened by preconditioning to withstand the strain placed upon them by sudden stops and turns, body contact, bearing of weight, and falls. Competition is satisfying to most men. The inclusion of such activity provides variety and interest to physical readiness training. For specific scheduling suggestions see chapters 5, 7, and 8.

260. Time Required

Time required to complete these activities varies with the type of competition scheduled. For example, a dual combative table, a relay table, or a single team contest can be completed within 15 minutes. In contrast, team sports will take a minimum of 45 to 60 minutes to complete.

261. Area and Equipment

Some of the competitive activities included in the following chapters require specific types of areas and equipment; others do not require special areas and have no equipment requirement. The area requirements can usually be satisfied on available training fields. When items of equipment are required, or specific courts or field layouts are

to be marked off, such information will be included in the applicable chapters.

262. Progression

The scheduling of competitive activities in an orderly and progressive manner is desirable providing there is adequate time within the training program to include all types of competition. If time is available, the progression should be from relays to dual combatives, to team contests, and finally to team athletics. If time is limited, there is no reason why any of these activities should not be conducted, providing basic conditioning has been developed prior to their use.

263. Leadership

a. The principal factor for success as a leader of competitive activity is a dynamic, enthusiastic approach. The leader's attitude is reflected by the group, so he must carry on the activity in a snappy and vigorous manner.

b. Confidence is another essential element which insures success. The lack of confidence on the part of the leader creates an impression of indecision and uncertainty in the men. Confidence grows out of experience and a thorough knowledge of the activity. Mastery of subject matter is the first step in developing confidence and poise.

c. Do not allow the men to take advantage of the informality of the situation and thus waste time. Maintain control and organization through the leader or captain of each competitive element.

d. The following suggestions are offered for the leaders of combatives, competitive contests, and sports:

(1) Get the activity underway quickly by selecting and teaching only the essentials.

(2) Rules should add to the enjoyment of the activity and not interfere with the spirit of competition.

(3) Stop the activity before interest begins to lag.

(4) Train competitors to "stop, look, and listen" instantly upon hearing the whistle.

(5) In team contests, clearly distinguish sides.

(6) Always insist on fair play; enforce the rules impartially.

a. The following technique is recommended for presenting competitive activity.

(1) Name the activity.

(2) Briefly explain the objective of the activity and give only the pertinent rules.

(3) Have a demonstration at "slow speed," and answer questions.

(4) Organize groups into teams and appoint captains.

(5) Arrange teams in the proper starting positions.

(6) Conduct the activity.

264. Competitive Units

Units for competition should be those organizations that make up the soldier's training, TOE, or TD organization. In the majority of situations, the unit will be the squad.

265. Provisions for Instruction

One of the most effective methods of increasing interest and participation in competitive activities is to provide instruction in those activities with which most men are unacquainted. Such instruction can be conducted during the regular physical training periods. Careful planning is required to keep all men continuously engaged in vigorous

activity. The materials in the following chapters of this part should be used as a guide for instructional purposes.

266. Officiating

a. Every effort should be made to provide good officiating for all competitive activities. Nothing causes dissatisfaction among participants in team activities more quickly than poor officiating. If good officials are not available, provision should be made to develop them.

b. The unit commander should designate interested personnel from each company to attend clinics and coaching schools that may be conducted by civilian agencies such as high school and college officials' associations. In addition to this type of clinic, Special Services may hold rules clinics and teach the mechanics of officiating. Each company should have several competent and qualified officials available for games on company and platoon level.

c. The official should be issued a uniform or marking that will make him clearly distinguishable from the members of either team. A regulation official's shirt is not necessary. A distinctively marked or colored T-shirt is adequate. The official should also be supplied with all equipment necessary for the officiating of the particular competition.

267. Organized Competition

Competition is one of the best ways of maintaining interest in the physical training program during the sustaining stage. Organized competition provides vigorous physical activity that is one of the best supplements to conditioning drill activities.

Section II. TOURNAMENTS

268. Intra-Unit Tournaments

Intra-unit tournaments in various competitive activities may be conducted during physical training periods. The unit is divided into teams and the various teams report to the area designated for the activity. The only problem presented is that the contest must be terminated within the time allotted for physical training.

a. If facilities are available, competition in three or four activities may be carried on simultaneously. In this case, as a company or platoon forms for physical training, the team members

for one activity are directed to one area, the team members of another activity to a second area, and so on.

b. The lower levels of competition are sometimes conducted during the regular physical training hours. The higher levels, involving better teams and a strong spectator interest, are arranged during off-duty time. This practice often helps develop solidarity and loyalty within units represented by the competing teams.

c. The following sports can be carried on during the regular training program:

Spring	Summer	Fall	Winter
Pushball	Softball	Touch football	Basketball
Flickerball	Speedball	Basketball	Soccer
Volleyball	Military fieldmeet	Soccer	Volleyball
Soccer	Swimming	Flickerball	Team Handball
Team Handball		Cross-country running	

d. Competition in horseshoes, tennis, table tennis, badminton, bowling, and other individual or dual sports should be conducted in the recreational sports program which is carried on during off-duty hours.

269. Selection of Activities

Several factors must be taken into consideration in the selection of an activity for tournament play.

a. *Popularity of the Sport.* The men should want to participate in the activity. When possible, seasonal sports should be used at the appropriate time of the year.

b. *Knowledge of the Sport.* The selection of an activity should be influenced by the unit's general knowledge of the conduct and rules of the various activities under consideration. Unfamiliar activities require additional time for instruction and familiarization. Competent officials are also difficult to locate for such activities.

c. *Available Facilities and Equipment.* The facilities and equipment available must be inventoried prior to the selection of an activity. There must be adequate playing area. The number of contests that can be scheduled at one time may be limited by both the facilities and equipment.

d. *Adaptability of the Activity to a Competitive Program.* The activity selected should be one that provides an opportunity for the largest number of players to participate.

e. *Time Available to Conduct a Competitive Program.* This includes the amount of time that facilities will be available and also the amount of time the unit can devote to the competitive physical training program.

270. Types of Tournaments

Two types of tournaments are suggested for consideration. (For further information see DA Pam 28-6.)

a. *Single Elimination.* This type of tournament is best suited for a short duration in which exten-

sive participation is not practical. It is the method of determining a winner with the fewest number of contests. The single elimination tournament, however, is the least desirable tournament to use with respect to the goal of maximum participation.

b. *Round Robin Tournament.* The round robin tournament does not eliminate a team from competition and it allows every team to play every other team. The winning team is that team with the best won-lost record. The disadvantage of this type of tournament is that it requires many more contests than the single elimination tournament to determine the winner. However, it is strongly advised to conduct a round robin tournament if practical.

271. Suggestions for Scheduling

a. Allow for inclement weather in scheduling outdoor events. Do not schedule contests for every available date. Leave an open date at regular intervals so that any contest postponed may be conducted without disrupting the tournament schedule.

b. Make advance arrangements for facilities. It is desirable to plan a tournament far enough in advance so that playing areas and equipment may be reserved through the officer in charge of the facilities, thus eliminating last minute conflicts.

c. Post schedules and contest rules. When schedules have been approved and cleared, they should be posted in a conspicuous place in the unit area. It is also suggested that a copy of the tournament and contest rules be posted.

272. Facilities and Equipment

In the organization of a tournament, several necessities that must not be overlooked are—

a. *The Condition of the Playing Areas.* Prior to using an area check it for any deficiencies in the markings or condition of the playing area; deficiencies should be remedied before a scheduled contest.

b. *Uniforms.* Whenever possible the unit should supply a means of distinguishing the members of the competing teams. It is suggested that each unit have available four sets of twelve T-shirts, each set being a different color. Prior to a contest these shirts are issued to the competing teams (each team receives a different color). At the completion of the contest, the shirts are returned to the issuing agency.

c. *Game Equipment.* Insure that the equipment

necessary for the conduct of the particular event is at the proper place at the scheduled time. All equipment should be checked before each contest, so that deficiencies may be noted before causing complications during the conduct of the game.

273. Point System

a. Advantages. The point system determines an overall winner for a designated period of time; for example, a training cycle. It is a means to retain interest in all activities conducted throughout the program, since the team standings in each sport contribute points toward the overall championship. It also helps to maintain unit solidarity in that each team should be a natural element of the larger unit, for example, squads in a company. The point system offers an incentive to the members of a competing unit to work together for a common goal.

b. Disadvantages. The most obvious disadvantage to the point system is that if one team is successful early in the cycle and accumulates a point total that virtually assures it of the championship, interest on the part of other teams may wane.

274. Awards

It is desirable that some recognition be given to the winning team or individual. Verbal recognition in the form of a command announcement or even the submission of a photograph of the winning team to a local publication is considered adequate recognition. In most instances it is not practical for a unit to present trophies or medals to winners of unit competition in various activities. However, if trophies and medals are desired and money is available for their purchase, the preceding statement should not be construed as a definite statement of policy.

Section III. ATHLETIC CARNIVAL

275. General

When men reach the latter part of the slow-improvement and sustaining stage of training, interest in the program may lag if there is no change in course content to arouse the desire to participate. An event which does not require a high degree of skill yet demands strenuous activity is the *athletic carnival*. This is a series of team contests conducted on a station-to-station basis during a 2-hour period. All contests are carried on simultaneously by all teams, two teams at each station, providing vigorous exercise and stimulating competition. Because of the healthy rivalry that it arouses, it is an excellent form of intersquad or interplatoon competition.

276. Purpose and Advantages

The objective of the athletic carnival is to provide activity for everyone in the participating units. Activities are chosen that will develop aggressiveness, teamwork, a will to win, competitive spirit, and stimulate interest and build esprit de corps. The athletic carnival can be included as part of the physical training program or as part of the off-duty recreational program. It is a form of contest that can be conducted in nearly all circumstances because it can be easily modified, requires a minimum amount of equipment, and can be readily organized.

277. Level of Competition

The athletic carnival is flexible. It can be adjusted

to large or small groups. A company size unit is the most desirable but it may also be administered within a larger unit. If it is conducted within a company, the participating units will be the squads, and if it is held within a larger unit, the platoons comprise the teams. The larger size unit requires more extensive organization and administration.

278. Selection of Events

In organizing an athletic carnival, it is important that the events selected be simple and easy to administer (chap 21-22). All rules and regulations should be clearly understood by everyone, and the technique of performing any event should not require previous practice. In selecting the events, the interest and capabilities of the men, available equipment, and facilities must be considered.

279. Equipment and Facilities

The site at which the contest is to be conducted must be large enough to permit the events to be grouped about a central control point. If there are facilities available such as volleyball courts, softball fields, or basketball courts, they should be utilized. A public address system is desirable at the control point for the initial orientation of the teams, and for subsequent announcements of the time lapses, cumulative scores, and final standings.

280. Personnel

Efficient administration of the athletic carnival is dependent upon the personnel who act as referees, judges, and scorers. Individuals within the units who have had athletic or officiating experience should be utilized. Prior to the day of the event, all administrative personnel should be briefed and assigned a specific task in order that they may become familiar with the rules and organization of the contests which they are to conduct. The following personnel should be available:

a. A primary instructor or supervisor who is in charge of the control center and who is responsible for the successful operation of the athletic carnival. He must have an assistant to act as a timer and scorer.

b. One assistant instructor in charge of each event. He should be—

(1) Familiar with the rules of the game which he is to conduct.

(2) A good leader to insure proper supervision and control over the teams which are participating in his event.

(3) Enthusiastic to provide proper motivation.

(4) Confident in himself and in his ability to judge infractions of the rules. He must be fair in his judgment and penalize without hesitation when infractions occur.

c. Several men to serve as runners between event stations and the control point. These men collect and deliver scores.

281. Team Organization for Competition

The size of the teams is determined by the level on which the carnival is organized. Maintaining the integrity of the unit promotes esprit de corps. But this does not preclude grouping two squads into one team.

a. By using the smaller unit as the competing element, selection of contests is made easier. There should be twice as many teams as there are events so that all teams have the opportunity to play each game and still not have to play any other team more than once (fig 66 and 67). Each team is numbered, and during the orientation the team leaders are given a schedule for their team's rotation.

b. After the orientation, teams are dispersed to their starting stations. Upon the completion of an

FOUR EVENTS – EIGHT TEAM ROTATION

EVENTS	ROUNDS			
	I	II	III	IV
KEEP AWAY	1 – 5*	2 – 6	3 – 7	4 – 8
SIDELINE SOCCER	2 – 8	3 – 5	4 – 6	1 – 7
AMERICAN BALL	3 – 6	4 – 7	1 – 8	2 – 5
KICK BALL	4 – 7	1 – 8	2 – 5	3 – 6

* TEAM NUMBERS

Figure 66. Four events; eight team rotation.

SIX EVENTS - TWELVE TEAM ROTATION

EVENTS	ROUNDS					
	I	II	III	IV	V	VI
KEEP AWAY	1 - 7*	2 - 8	3 - 9	4 - 10	5 - 11	6 - 12
SIDELINE SOCCER	2 - 12	8 - 7	4 - 8	5 - 9	6 - 10	1 - 11
AMERICAN BALL	3 - 11	4 - 12	5 - 7	6 - 8	1 - 9	2 - 10
KICK BALL	4 - 9	5 - 10	6 - 11	1 - 12	2 - 7	3 - 8
PUNCH BASEBALL	5 - 8	6 - 9	1 - 10	2 - 11	3 - 12	4 - 7
GOAL-HI	6 - 10	1 - 11	2 - 12	3 - 7	4 - 8	5 - 9

*TEAM NUMBERS

Figure 87. Six events; 12 team rotation.

ROUNDS	SQUAD 1		SQUAD 2		SQUAD 3		SQUAD 4		SQUAD 5		SQUAD 6		SQUAD 7		SQUAD 8	
	SQUAD 1	OPPONENTS	SQUAD 2	OPPONENTS	SQUAD 3	OPPONENTS	SQUAD 4	OPPONENTS	SQUAD 5	OPPONENTS	SQUAD 6	OPPONENTS	SQUAD 7	OPPONENTS	SQUAD 8	OPPONENTS
ROUND 1																
ROUND 2																
ROUND 3																
ROUND 4																
TOTAL																
SQUAD SCORE MINUS OPPONENTS' SCORE																
STANDING																

Figure 88. Sample scoring chart (locally reproduced); four events, eight teams.

event, each team proceeds to its next station. A blackboard should be at the central point, listing the teams, rounds, events, and point totals. After the second round of play, the team standings are announced frequently. At the conclusion of the athletic carnival, final scores and team standings are announced.

282. Conduct of Events

a. The assistant instructor at each station takes charge of his group and gives a brief explanation of the major rules of the event for which he is responsible. He is in a position to be seen and heard by all when he is presenting his explanation. He speaks clearly and distinctly to avoid confusion and misinterpretation of the rules. A short demonstration is desirable if it will help clarify the event.

b. The assistant instructor should make certain that the teams can be clearly distinguished; for example, T-shirts versus fatigue jackets, caps versus capless, or by the use of colored jerseys. He should teach a whistle response (teams stop play immediately upon hearing whistle), get the event started as quickly as possible, and make any necessary corrections as the contest progresses. The rule of good officiating is to use a minimum of calls, yet maintain control of the contest. Penalize when necessary, but refrain from disqualifying contestants or teams.

c. Keep the activity moving as rapidly as possi-

ble and when the central control point sounds the whistle to stop play, all competition ends immediately. The assistant instructor then assembles the group, forwards the team scores to the central point, and upon the signal from the central control point, rotates the teams to their next station. It is essential that the rotation and orientation of the teams be carried on in a quick and orderly fashion, because of the minimum time allotted between contests.

d. Upon completion of the final event, the assistant instructors move their teams to the central control point for the announcement of team winners, presentation of awards (if any), and final critique.

283. The Scoring System

The system for determining the winner of the athletic carnival is simple and efficient (fig 68). At the completion of competition, the scorer totals the points that each team has scored in all contests. The scorer then subtracts the number of points scored against a team from the number of points the team has scored. The resulting scores are placed in a column with the highest score at the top and the lowest at the bottom (some teams will have a minus total; that is, a team may have more points scored against them than they have scored). The team with the highest total is the winner. This type of scoring system encourages a team to prevent the opposing team from scoring.

CHAPTER 20

COMBATIVES

Section I. INTRODUCTION

284. Description and Function

Combatives are strenuous, short, competitive contests in which two men attempt to overcome each other in a bout of skill and strength. These contests help to develop the soldier's resourcefulness, confidence, strength, agility, coordination, and the will to win. There are three tables of combatives each of which can be completed in 15 minutes.

285. Area and Equipment

Any level area can be used. Extremely hard surfaces should be avoided as some of the combatives require extensive ground contact. A whistle is needed to control the bouts since voice commands may go unheeded during the competition.

286. Formation

The extended rectangular formation is used in dual combatives. From this formation, each man is paired off with an opponent by the following commands:

- a. EVEN NUMBERS TO THE RIGHT, RECOVER.
- b. EVEN NUMBERS ONE PACE FORWARD, MARCH.
- c. ODD NUMBERS ABOUT, FACE.
- d. YOU ARE NOW FACING YOUR OPPONENT.
- e. ODD MEN IN THE REAR, PAIR UP.

287. Intensity and Progression

The tables increase in difficulty, therefore, pro-

gression from the lower numbered to the higher numbered tables should be followed.

288. Place in the Program

The possibility of close contact with an enemy faces the soldier at all times. He must be trained to react aggressively and violently in such instances. Combatives may be used as an introduction to such hand-to-hand contact and should be followed by hand-to-hand combat training (FM 21-150). In addition, men enjoy competition, and this type of activity is a welcome change from the formal type of conditioning activity.

289. Leadership

a. Combatives are conducted on an informal basis with the men allowed to remain at ease between activities.

b. The instructor informs the men that all combatives begin and end on his whistle signal. He then explains and demonstrates each activity before having the men perform it.

c. When he stops one activity, he gets the men in place for the next bout by commanding, REFORM.

d. To gain the most benefit from combatives, the men must be urged to overcome their opponents as quickly as possible.

e. The instructor must closely supervise combatives to insure that contestants do not use unfair or unsportsmanlike tactics. To avoid injury, instructors must insure that the bouts are closely controlled and opponents equally paired. Adjustments should be made in cases of mismatched abilities.

Section II. COMBATIVE TABLES

290. Combatives Table I

a. *Open Hand Slap Boxing.* The men assume a boxer's stance, palms open, fingers extended and

joined (A, fig 69). Each contestant attempts to slap his opponent about the head and upper body with the open hand. This is a good warmup activity.

A. OPEN HAND SLAP BOXING



B. WRIST TUG O'WAR



C. ARM LOCK WRESTLING



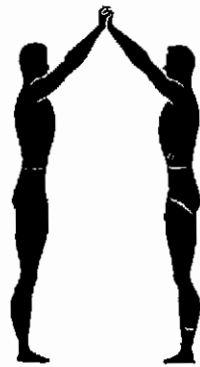
D. BULLING



E. INDIAN WRESTLING



Figure 69. Combatives table 1.



A. WRIST BENDING

B. BACK-TO-BACK PUSH



C. HOP AND PULL HANDS



D. WESTMORELAND WRESTLING



E. CRAB FIGHT



Figure 70. Combatives table 2.

b. Wrist Tug O'War. Two men sit on the ground with the soles of their feet in contact. Each man grasps his opponent's wrist so that their hands are positioned over their feet (B, fig 69). On the instructor's signal, each man attempts to pull his opponent forward. The man who successfully pulls his opponent to the standing position wins.

c. Arm Lock Wrestle. Two men sit back to back

on the ground with their legs spread and their arms interlocked. Each man places his right arm to the inside of his opponent's left arm (C, fig 69). On the instructor's signal, each man leans to the right and attempts to force his opponent's left shoulder to the ground. The first man to succeed wins the bout.

d. Bulling. Two men assume the Westmoreland wrestling hold as shown in D, figure 69. Each man



A. HAND-WRESTLING

B. BACK-TO-BACK TUG



C. WRESTLING TO LIFT OFF FEET



D. ARM PULL BETWEEN LEGS



E. ROOSTER FIGHT



Figure 71. Combatives table 3.

uses his right hand to grasp the back of his opponent's neck and his left hand to grasp the opponent's right elbow. On the instructor's signal, each man attempts to push or pull his opponent off balance. The first man who forces his opponent to move either foot wins the bout.

e. Indian Wrestling. Two men lie side by side with their heads in opposite directions and their right elbows interlocked (E, fig 69). On the instructor's signal, each man raises his right leg far enough to engage his opponent's heel. This movement is repeated three times and during the third

contact each man engages his opponent's heel and attempts to roll him over. The first man to succeed wins the bout. For variation, the contestants may use their left legs by simply reversing the direction in which they are lying.

291. Combatives Table 2

a. Wrist Bending. Two opponents face each other with their arms raised, palms forward, and fingers interlocked (A, fig 70). On the instructor's signal, each man attempts to bend his opponent's wrists. The first man to do so wins the event.

During this event the contestants are not allowed to swing their arms down or to the side at any time.

b. Back-to-Back Push. Two men stand back to back with their elbows interlocked. Each man places his right arm inside of his opponent's left arm (B, fig 70). On the instructor's signal, each contestant pushes backward, attempting to move his opponent. Only pushing is permitted. The contestants are not allowed to lift or carry each other. The man who pushes his opponent the farthest, wins the bout.

c. Hop and Pull Hand. Each man grasps his opponent's right hand. On the instructor's signal, the men attempt to pull their opponents off balance while hopping only on their right legs (C, fig 70). Either contestant automatically loses if his left hand or foot touches the ground. For successive bouts, the contestants alternate hands and feet.

d. Westmoreland Wrestling. Each contestant uses his right hand to grasp the back of his opponent's neck and his left hand to grasp his opponent's right elbow (D, fig 70). From this position, each man attempts to force his opponent to touch the ground with any portion of the body—other than the feet. The first man to do so wins the bout.

e. Crab Fight. Two men sit on the ground, facing in opposite directions, with their hands positioned behind them (E, fig 70). On the instructor's signal, they raise their hips and begin pushing with their bodies, each trying to force his opponent's hips to the ground. The first man to force his opponent to touch the ground with his hips wins the bout.

292. Combatives Table 3

a. Hand Wrestling. Two opponents stand facing each other, each man with his right foot forward and braced against his opponent's foot (A, fig 71). They grasp right hands and on the instructor's

signal, each man pulls, pushes, and makes side-ward movements to force his opponent to move either foot from its original position. The first man to force his opponent to move his foot wins the event. For succeeding bouts, the opponents alternate hands and feet.

b. Back-to-Back Tug. Two men stand back to back with both arms interlocked at the elbows, (B, fig 71). Each man has his right arm on the inside of his opponent's left arm. On the instructor's signal, each man attempts to pull his opponent. Lifting and carrying are permitted. The contestants must maintain their original direction and keep their arms interlocked at all times. After a predetermined time, the contestant who has pulled or carried his opponent the farthest is the winner.

c. Wrestling to Lift Off Feet. The contestants face each other. Each man places his right arm under the left arm of his opponent and around his opponent's body (C, fig 71). The left arm is placed over the opponent's right shoulder. On the instructor's signal, each man attempts to lift his opponent off the ground. The first man who succeeds in doing so wins the bout.

d. Arm Pull Between Legs. Two opponents are positioned back to back. Each bends forward and by extending his right arm between his legs, grasps his opponent's right wrist (D, fig 71). At the instructor's signal, each man attempts to pull his opponent. After a predetermined time the contestant who has pulled his opponent the farthest is the winner. For succeeding bouts, repeat with left hands, then both hands.

e. Rooster Fight. Each contestant grasps his left foot with his right hand and his right shoulder with his left hand, (E, fig 71). On the instructor's signal, each man attempts to force his opponent off balance by butting with his shoulder or by sudden evasive movements. The first man who forces his opponent off balance or causes him to release his arm or foot wins the bout.

CHAPTER 21

RELAYS

Section I. INTRODUCTION

293. Description and Function

Relays are races between two or more teams, each member of which runs a certain part of the total prescribed distance. Relays provide stimulating competition and contribute to the conditioning of personnel. They also develop aggressiveness, team spirit, and the will to win.

294. Place in the Program

Relays should be dispersed throughout the program for short periods of time to provide variety in physical readiness training. Each relay table can be completed in 15 minutes and this enables relays to be used as a single activity, or as a part of a longer period.

295. Team Organization

a. Relays are conducted most efficiently in platoon-size groups. Teams of equal size must be organized. Competitive spirit is encouraged and team organization accomplished faster by basing team composition on unit organization such as squads, crews, or sections. Team captains should be designated. Extra men may be used as officials.

b. The number of men on a relay team should be limited to not more than ten. If larger teams are used the men will spend too much time awaiting their turns and too little time actually participating. Two to six teams are ideal for relay competition. It is difficult to keep track of winners when a greater number of teams compete.

296. Administration of Relays

a. The time spent on any one relay should be relatively short. If one team achieves a substantial lead in a long relay, the competitive spirit and enthusiastic participation of the other teams may decrease. Several short relays are generally better than one long relay.

b. To maintain competitive spirit throughout a number of relays, determine the teams that place

first, second, and third in each relay and maintain a record of their points for all relays. This can be done by awarding points to all teams on the basis of position at the finish of each relay. The team with the greatest number of points is the winner of the entire set of relays.

c. Difficulties commonly encountered in conducting relays may be avoided by the following procedures:

(1) The last player in a relay race should be conspicuously identified; for example: by a handkerchief around his head or arm.

(2) Another way to keep track of the progress of the race is to have each player sit or squat as soon as he is finished.

(3) Judges at the starting line can keep the runners from starting too soon.

(4) To prevent contestants from turning before they run the full distance, they should be required to run around a peg, pole, or assistant instructor.

(5) Batons, handkerchiefs, tent pegs, or other objects should be passed from one runner to the next when relays are run on a circular track.

d. During a unit's first participation in a relay, they must be informed of the rules and scoring system. Violation of the rules should not result in disqualification. Instead, point penalties may be imposed by subtracting a one-point penalty from the team total at the conclusion of the relay.

e. Careful administration will prevent most violations. For efficient conduct of relays follow this procedure:

(1) Announce the name of the relay.

(2) Form the men in relay position.

(3) Briefly explain the relay and the rules for running it.

(4) Demonstrate.

(5) Have a definite finish line, and insure that the men know where it is.

(6) Answer questions and conduct the relay.

(7) Determine winner and award points.

Section II. RELAY TABLES

297. Events

The following relays are grouped into a table of activities. Each table is planned for a platoon-size group (30-60 men), and requires 15 minutes for completion. Adequate warmup for participants is provided by conducting several repetitions of exercises 1 and 2 of a Conditioning Drill prior to conducting the relays. The recommended relay tables require an area 40 × 60 meters in size. Each table provides a variety of activity. The tables are progressive in the overload applied and should be scheduled in numerical order, although not necessarily on successive days.

298. Relay Table 1

a. 60-Meter Lane Relay (a, fig 72). Each team is assembled in single file on the starting line. On a signal the first man of each team runs to the turn-around-line 30 meters away, then runs back and touches the next man in line waiting at the starting line. The winning team is the first team to get its last man across the finish line. If a man starts before being touched by the preceding runner, the team may be penalized.

b. Wheelbarrow Race (b, fig 72). The players of each team pair off and line up with their partners in a single file. The first man walks on his hands, his partner grasping his ankles. They advance to the distance line (25 meters) behind which they exchange positions and return to the starting line. After the first two men return and cross the starting line, the next pair starts. The rear man must always hold his partner's ankles.

c. Squad Front Relay (c, fig 72). The teams form in a line along the starting line with a 10-foot interval between them. The members of each team lock elbows so that they are linked together. At the starting signal, the teams run to the distance line (20 meters) where the left flank man acts as a pivot. The team swings around on the pivot man and returns to the base line. If a team "breaks" it must re-form before continuing. The first team to completely cross the base line intact is the winner.

d. Crab Walk Race (d, fig 72). The players of each team line up in a single file. The first man of each team assumes the crab walk position with his feet forward on the starting line. At the starting signal he moves forward to the distance line (10 meters). He touches the line with his feet and then returns to the starting line in the reverse position with the head and hands leading. The

second man may not start until the first man touches the finish line.

299. Relay Table 2

a. 100-Meter Lane Relay (a, fig 73). This relay provides progression in sprinting, and is conducted exactly as the first relay of table 1 except that the start and turn-around-line are 50 meters apart.

b. Frog-Jump Relay (b, fig 73). Each team lines up in a single file. The first man assumes a squatting position on the starting line. At the starting signal he progresses to the distance line (15 meters) and back by leaping forward, catching his weight on his hands, and bringing up his legs to the squat position.

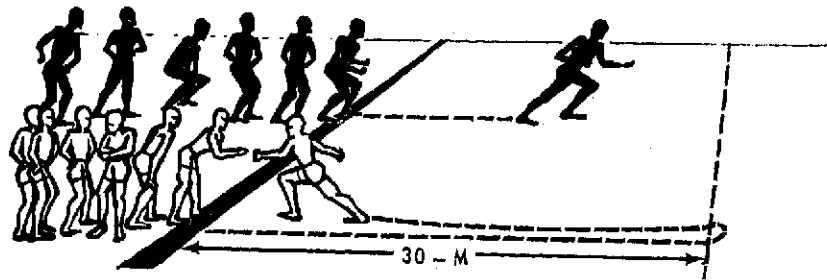
c. Simple Relay (c, fig 73). Each team lines up in a single file. Place a marker on the distance line (20 meters) in front of each team. Each team member grasps the belt of the man ahead of him. At the starting signal, each team runs as a unit to the marker, circles it, and returns to the starting line. The first team to completely cross the starting line intact is the winner.

d. Fireman's Carry Relay (d, fig 73). The players of each team line up in pairs one behind the other. One man in each pair carries his partner to the distance line (30 meters) using the fireman's carry. At the distance line the men exchange places and return to the starting line. As a variation, the man to be carried lies on the ground and his partner picks him up to the proper position. This relay may be performed with the other carries described in guerrilla exercises.

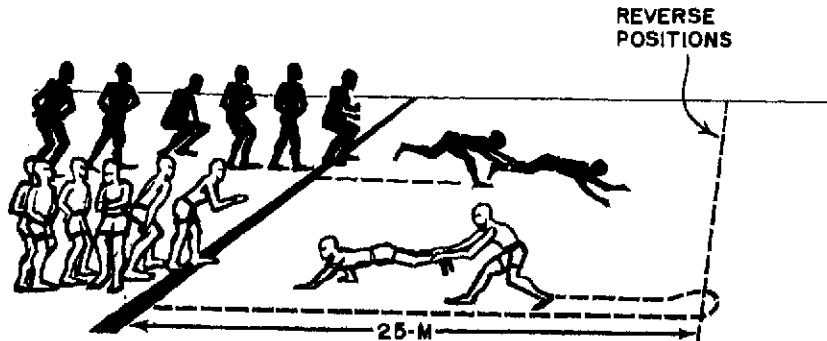
300. Relay Table 3

a. 200-Meter Circle Relay (a, fig 74). A course is laid out in either a circular or oval pattern that is 200 meters around. Each team provides one runner on the starting line. On a signal the runners race around the 200-meter course and touch their next teammate, waiting at the starting line, who runs the same course. The winning team is the first team to have all its members complete the required lap.

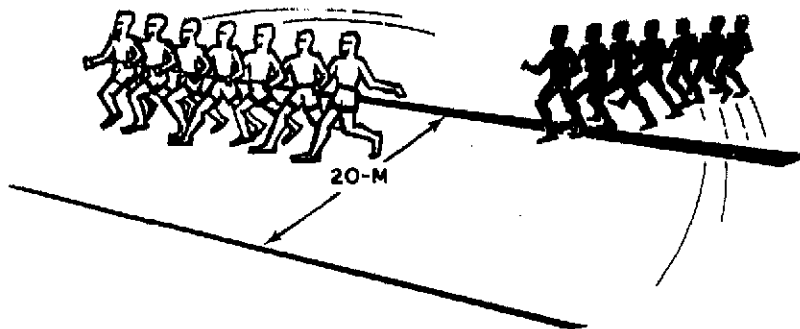
b. Bear and Crab Race (b, fig 74). Each team lines up in a single file. At the signal to start, the first man in each column assumes the bear walk position and walks to the distance line (15 meters) and then runs back to the starting line where he touches the second man and goes to the



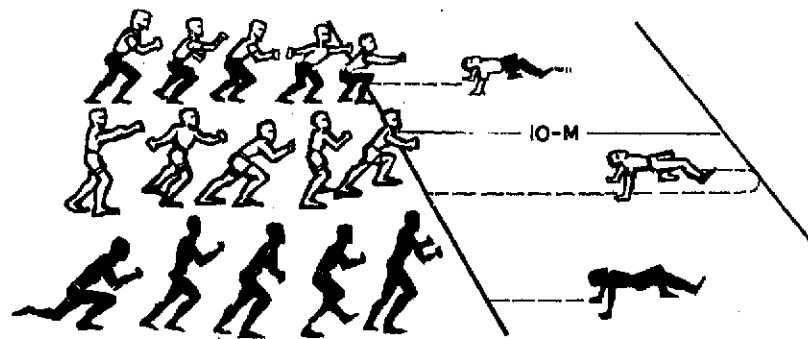
a. 30 - METER LANE RELAY



b. WHEELBARROW RACE

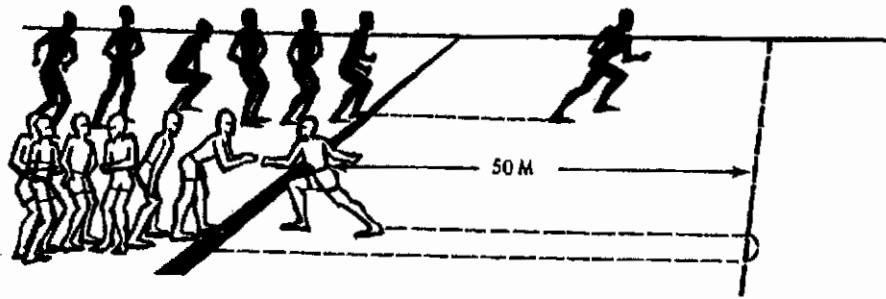


c. SQUAD FRONT RELAY

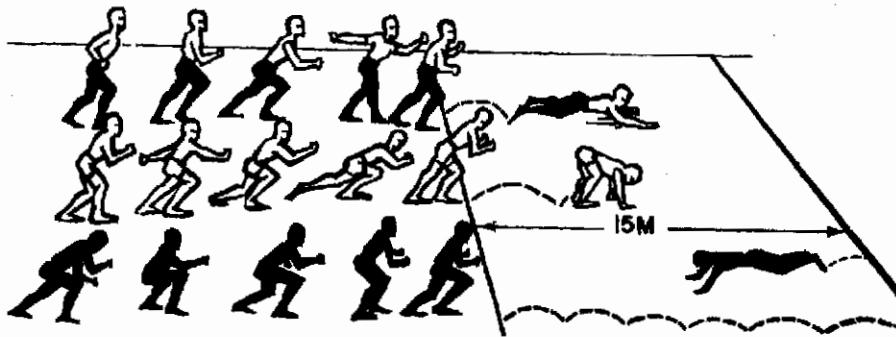


d. CRAB WALK RACE

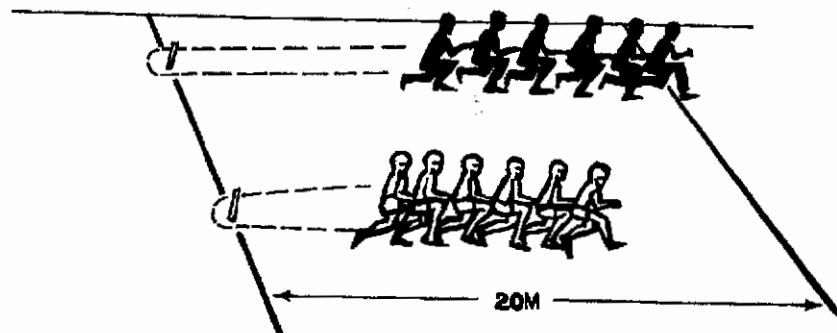
Figure 72. Relay table 1.



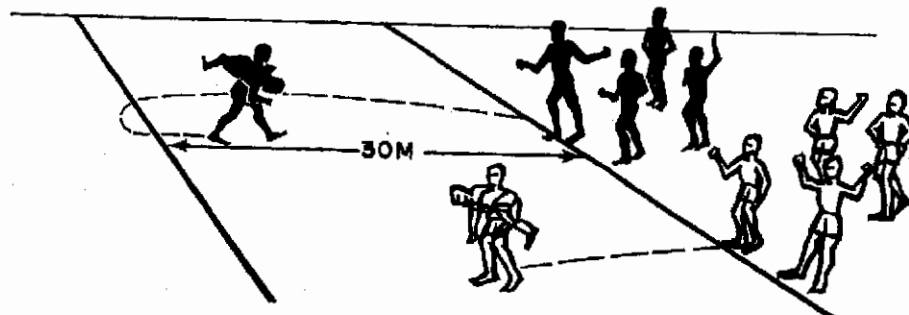
a. 50 - METER LANE RELAY



b. FROG-JUMP RELAY.



c. SIMPLE RELAY.



d. FIREMAN'S CARRY RELAY.

Figure 78. Relay table 2.

rear of the line. The second man assumes the crab walk position and crab walks, with his feet leading, to the distance line. He runs back to the starting line and touches the next man, who walks bear fashion. The rest of the members of each team alternate in this manner. The relay ends when the last runner crosses the finish line.

c. Pilot Relay (c, fig 74). The players are grouped in three's, arms interlocked at the elbows, and end men with their backs to the starting line. The middle man runs forward; the two outside men run backward. They run to the turning point (15 meters), where they start back, this time with the middle man running backward and the two outside men running forward. The next set of three players starts when the first set crosses the starting line. The relay ends when the last set crosses the finish line.

d. Saddle Back Relay (d, fig 74). Mark two parallel lines 15 meters apart. Each team selects a rider. The remaining members of each team count off. The even-numbered players from each team form in single files behind one line and the odd-numbered players from each team form in single files behind the other line directly across from their teammates. At the starting signal, the rider mounts the back of the No. 1 player of his team who carries him across to the other line where the rider changes mounts to the No. 2 man without touching the ground. The No. 2 man carries the rider to the No. 3 man. The relay continues until all of the mounts have carried the rider. If a rider falls off, he must mount again at the point of the fall. If he falls in changing mounts, he must get back on his original mount before making the change.

301. Relay Table 4

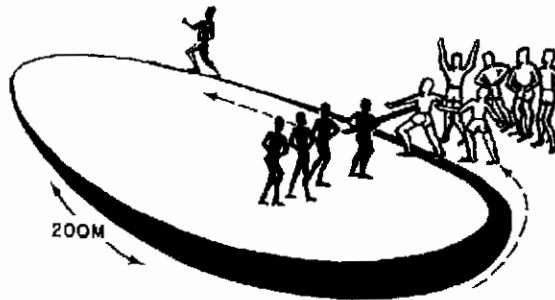
a. 100-Meter Circle Relay (a, fig 75). A course is laid out in either a circular or oval pattern that is 200 meters around. Each team is divided in half with each half positioned at starting lines on op-

posite sides of the track. Each runner races half-way around the track and touches a teammate who completes the lap. Each runner then waits in file at his first finish line and in turn completes the second half of the lap when touched by the preceding runner. The first team to return all runners to their original starting line is the winner.

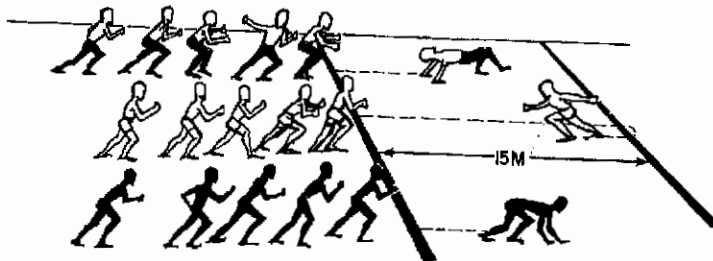
b. In-and-Out Relay (b, fig 75). Each team lines up in a file with players 2 meters apart. At the starting signal, the first player runs back through the column in a zigzag fashion. He alternates going to the right of one teammate and to the left of the next. Upon completing the run he lines up 2 meters behind the last man. As soon as the first runner has passed the second man, the latter starts to run. This continues until all the players have realigned their original order. The team that finishes first is the winner. It may be desirable to have this relay continue until all men have run through their entire team two or three times in succession.

c. Circle Race (c, fig 75). Each team forms a circle and hold hands with all men facing out except one who faces in and is the "driver." At the starting signal, the teams race to the distance line (20 meters) and back, keeping the circle intact. All the men in the circle must cross the distance line completely. The "driver" gives directions and orders. When the circle breaks, it must be re-formed before it can continue. The first team completely over the finish line is the winner.

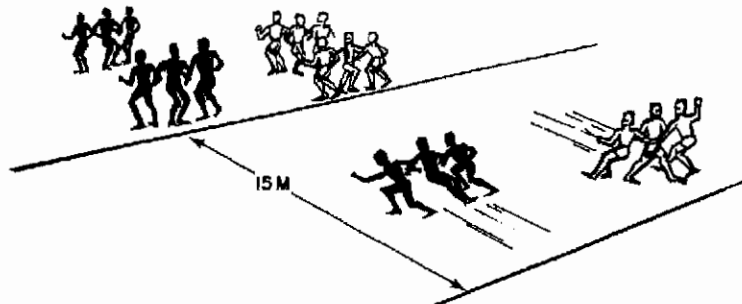
d. Horse and Rider Relay (d, fig 75). Each team lines up in a single file. At the signal to start, the second man in each column leaps upon the back of the first man who carries him across the distance line (30 meters). At the distance line, the rider dismounts and runs back to the starting line. There he picks up the third man in the column, and carries him to the distance line where the first player has remained. The winner will be the first team to get all men across the distance line.



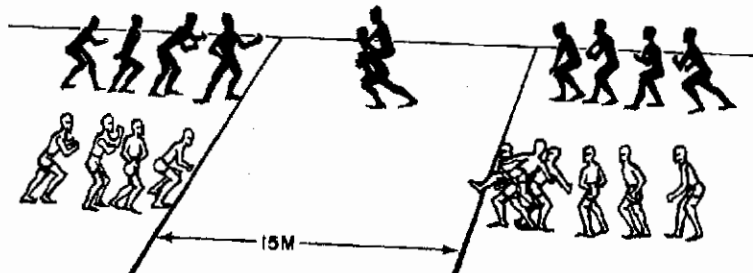
a. 200-METER CIRCLE RELAY



b. BEAR AND CRAB RACE

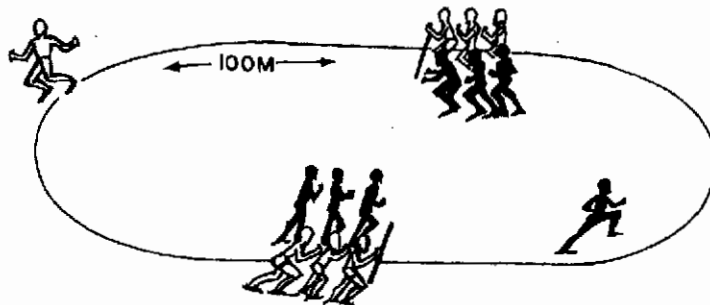


c. PILOT RELAY



d. SADDLE BACK RELAY

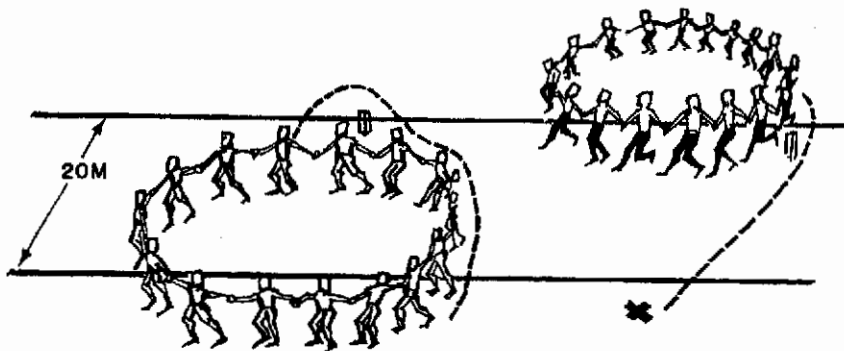
Figure 74. Relay table 3.



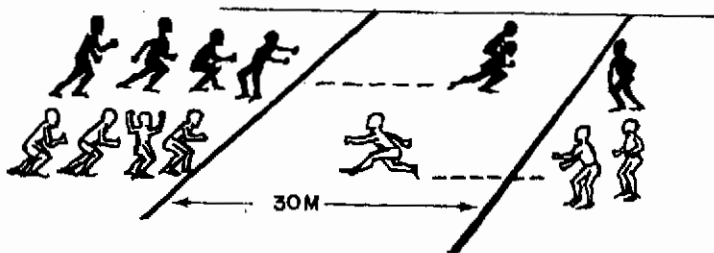
a. 100-METER CIRCLE RELAY.



b. IN-AND-OUT RELAY



c. CIRCLE RACE.



d. HORSE AND RIDER RELAY.

Figure 75. Relay table 4.

CHAPTER 22

TEAM CONTESTS

Section I. INTRODUCTION

302. Description and Function

Team contests are guided by simple rules and organization. Their function is to provide competition, opportunity for body contact, and to contribute to the development of physical readiness. In competing and working together as a team, men develop aggressiveness, the will to win, and teamwork.

303. Area and Equipment

A level training field is sometimes the only area required. Many contests have no equipment requirement. In contests requiring equipment the need is for standard items such as logs, balls, nets, and goals. Specific area and equipment requirements are listed with each contest description.

304. Progression

Team contests of a strenuous nature should be introduced after a basic period of conditioning has been completed and men are in the slow improvement stage of conditioning. Progression can take place from the less active to the more vigorous contests, and then from the non-contact to the contact or combative-type contests.

305. Time Requirement

Once men learn the skills and rules involved, all team contests can be completed within 15 minutes. Some contests require less time, and in such instances two or more contests can be combined into a 15-minute block. This combination will make scheduling more convenient as blocks of time which are less than 15 minutes in duration are difficult to include in the training schedule.

Section II. TEAM CONTEST DESCRIPTIONS

306. Introduction

Various team contests are included to provide the opportunity for men to develop and use their skills. Those contests related to a team sport serve as good lead-up activity toward learning the skills of that sport. Most of the contests require running, several emphasize strength, some are related to a team sport (chap 23), several are combative and feature body contact, and still others are contests with the team using a log. Team contests provide opportunity to develop confidence, aggressiveness, and teamwork.

307. Punch Baseball

a. Players. 8 to 12 men on each side (fig 76).

b. Equipment. Volleyball, three bases, and homeplate.

c. Area. A baseball diamond. The distance between bases is 30 feet. The pitcher's box is 20 feet in front of homeplate.

d. The Game. The players in this game assume the same position as in softball. The team at bat hits in the order of catcher, pitcher, first baseman, and so on. The batter hits the ball with his forearm or closed fist. The pitcher must use an easy underhand pitch and must adhere to softball rules for pitching. Base runners may advance only on hits. Outs are made as follows:

- (1) Catching a fly ball.
- (2) Getting the ball to the first baseman before the batter reaches the base.
- (3) The batter hitting three fouls.
- (4) Forcing a base runner at any base.
- (5) Tagging a base runner with the ball.

e. Scoring. A run is scored each time a base runner crosses the home base. Three outs retire a side and nine innings constitute a game. With the exceptions noted above, the game is played as softball.

f. Variation. The ball is rolled on the ground to

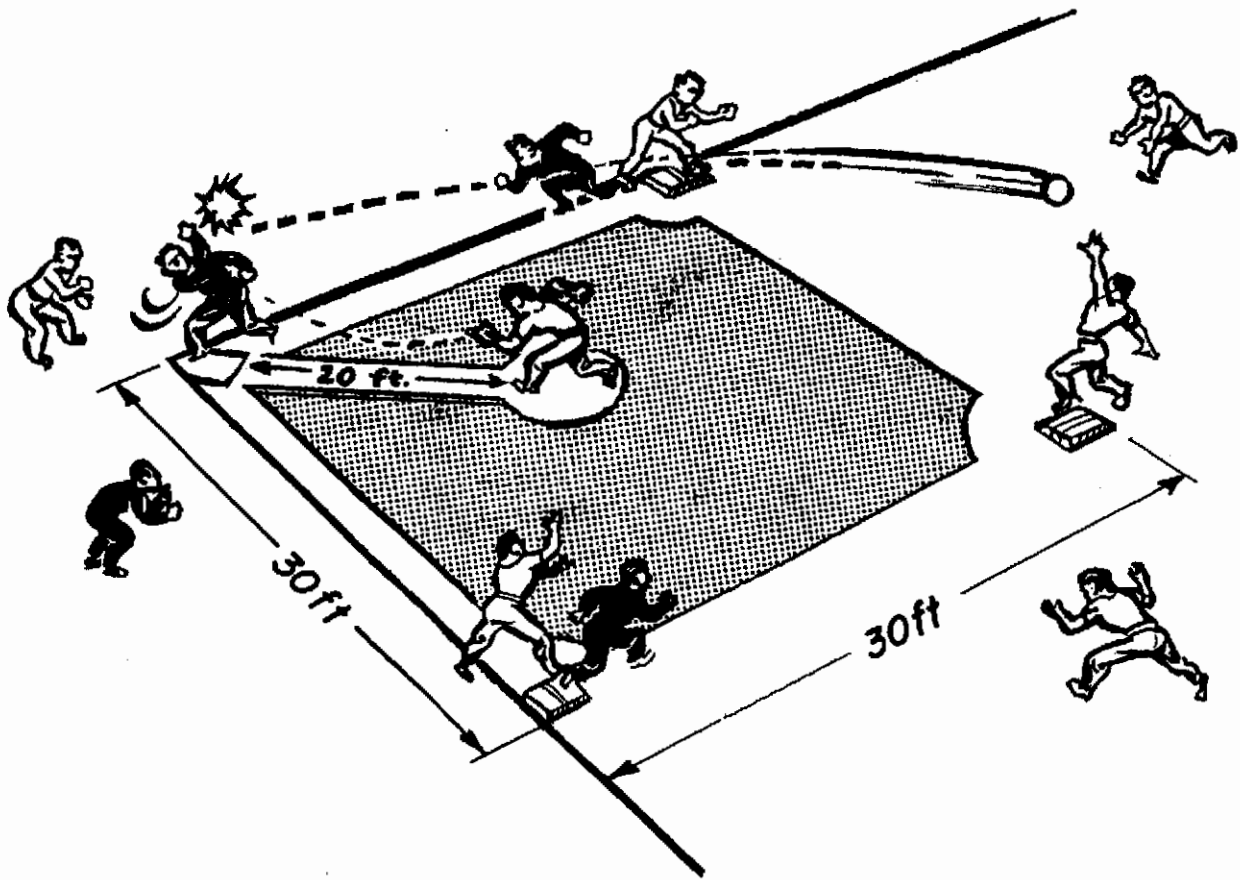


Figure 76. Punch baseball.

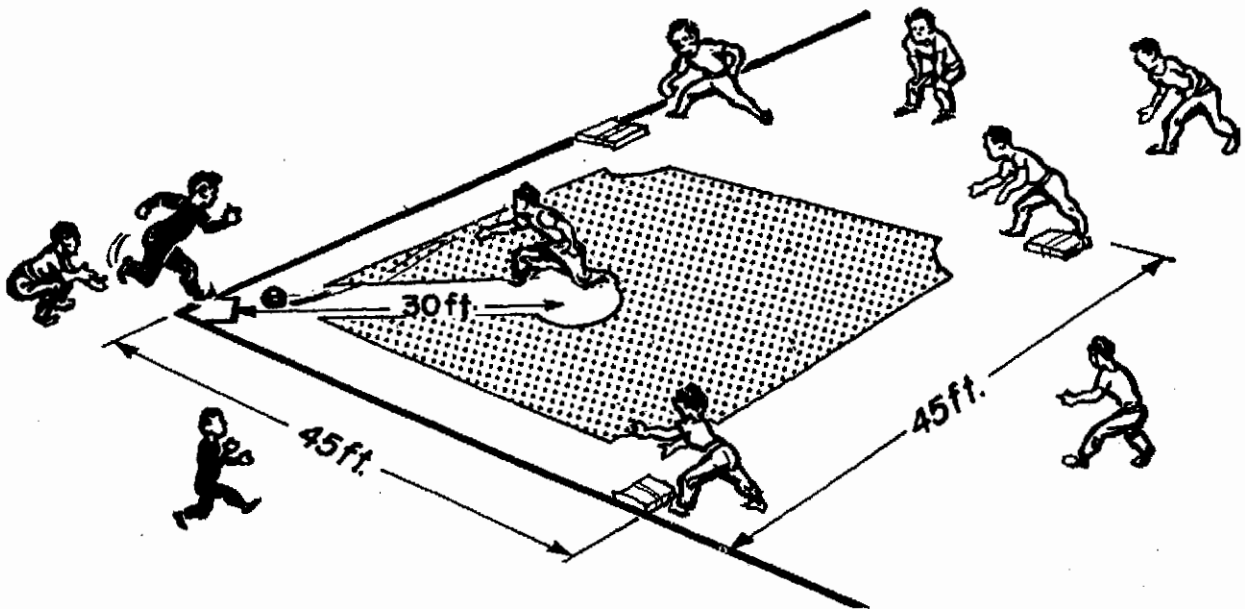


Figure 77. Kick ball.

the batter who kicks it. Otherwise, the game is played as above.

308. Kick Ball

a. *Players.* 9 to 12 men on a side (fig 77).

b. *Equipment.* Soccer ball and bases.

c. *Area.* The distance between bases is 45 feet. The pitcher's box is 30 feet in front of home base.

d. *The Game.* The pitcher rolls the ball to the

batter who kicks it. After kicking the ball, the batter circles the bases. He must make a home run. On a fair ball, not caught on the fly, the fielder throws the ball to the pitcher who throws to either the first or third baseman. The ball then must reach home base via the first, second, and third baseman in that order, or via the third, second, and first baseman. The basemen must be standing on their base when they relay the ball to the next base. Three outs constitute an inning and nine innings a game. Putouts are made by the—

- (1) Batter kicking three fouls.
- (2) Fielder catching any fly ball.
- (3) Ball beating the runner around the bases to home plate.

e. Scoring. If the batter succeeds in beating the ball around the bases, he scores a run for his team.

f. Variation. The game may be played in an identical manner except that the ball is put into play by the pitcher tossing a volleyball to the batter who hits it with his fist or forearm. The pitcher must use an underhand throw.

g. Variation. The game may be played by placing the ball on home base and letting the batter kick it from that point. The above rules apply.

h. Variation. Do not count a caught fly ball as an out; play it as any fair hit ball.

309. Kick Pin Baseball

a. Players. 10 to 12 on each side; a pitcher,

catcher, three basemen, and the remainder outfielders (fig 78).

b. Equipment. One soccer ball, four tenpins. Tin cans may be substituted for the tenpins.

c. Area. Baseball diamond with 45 feet between bases. Pitcher's box is 20 feet in front of home plate.

d. The Game. The tenpins are placed on the outside corner of each base and in the middle of home plate. The pitcher rolls the ball at home plate pin. The batter must stand beside the pin until the ball is pitched. The batter kicks the ball and circles the bases on the outside of the pins and finally touches home plate. The batter is out when—

(1) A pitched ball knocks over the home plate pin.

(2) The ball is caught on the fly by an opponent.

(3) The batter knocks over the home pin or any other base pin during his turn at bat.

(4) A base pin in advance of the runner is knocked over by a baseman hitting it with the ball, provided the ball has been fielded and passed in the order of the bases (that is, to first, second, etc.) to a baseman who knocks over a pin before the runner reaches that point.

(5) The runner is hit by the ball while he is between the bases, the ball having been passed counterclockwise (first, second, etc.) around the bases to the point where the runner is advancing.

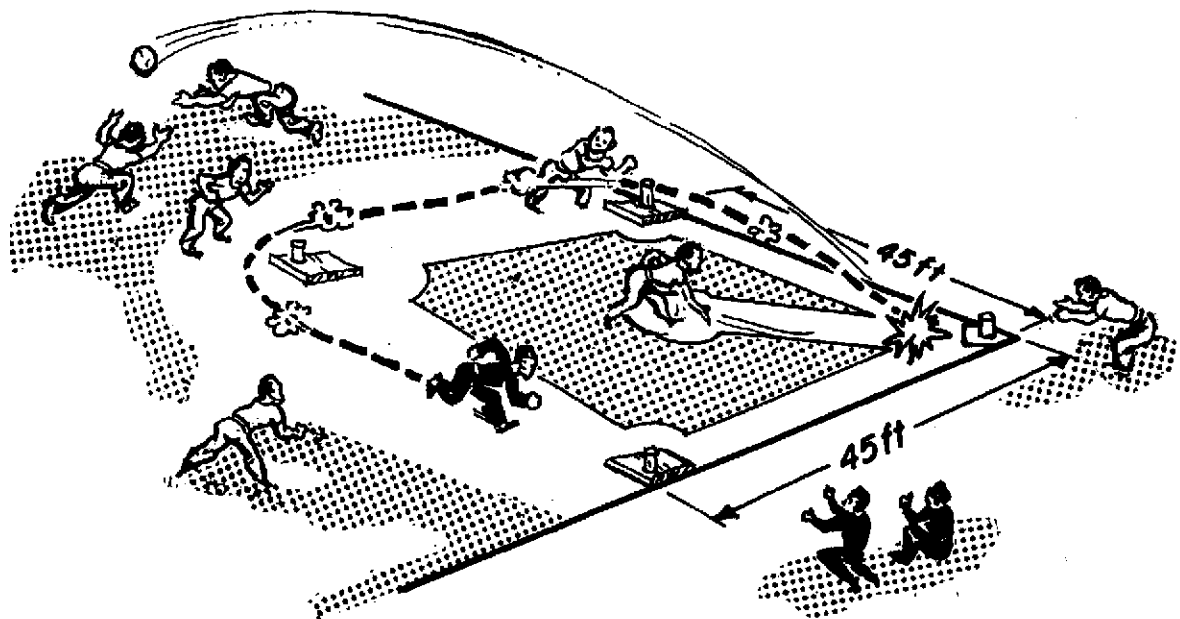


Figure 78. Kick pin baseball.

Three putouts constitute a side out. Any predetermined number of innings may be played.

e. *Scoring.* The batter cannot stop on any base and he must make a home run to score.

310. Line Soccer

a. *Players.* 20 to 80 men on a side (fig 79).

b. *Equipment.* One soccer ball.

c. *Area.* 120 to 150 feet wide by 240 to 300 feet long. (Use larger area when available.) Lines 30 feet from and parallel to the end lines mark off the penalty area.

d. *The Game.* All the men on each side line up

in a single line across the field on their own goal line. The first four or six men at the left of each line come out as the whistle is blown, and the ball is rolled out into the middle of the playing area by the game leader. The players try to kick the ball across the opponent's goal line, not higher than the height of the shoulders. They continue playing until one side has scored a goal. All the remaining players on each side guard their goal. In doing so, they are not permitted to use their hands or to leave the goal line. After each goal, a new set of players advances to the center, usually in successive order from the goal line.

(1) When the ball is kicked above the heads of the goal defenders, a free kick is given to the

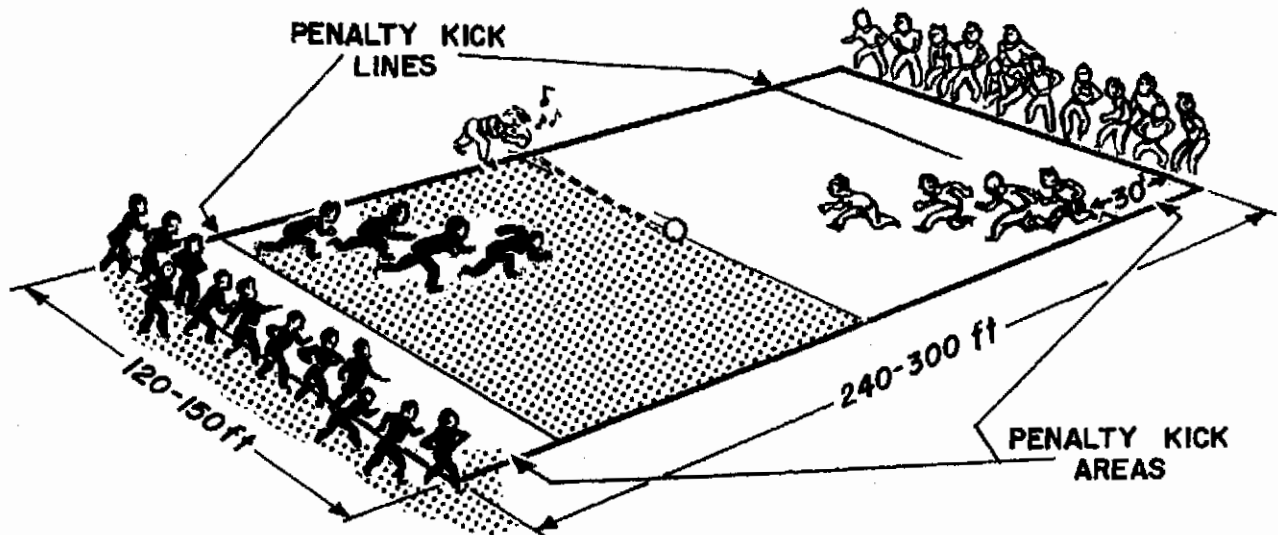


Figure 79. Line soccer.

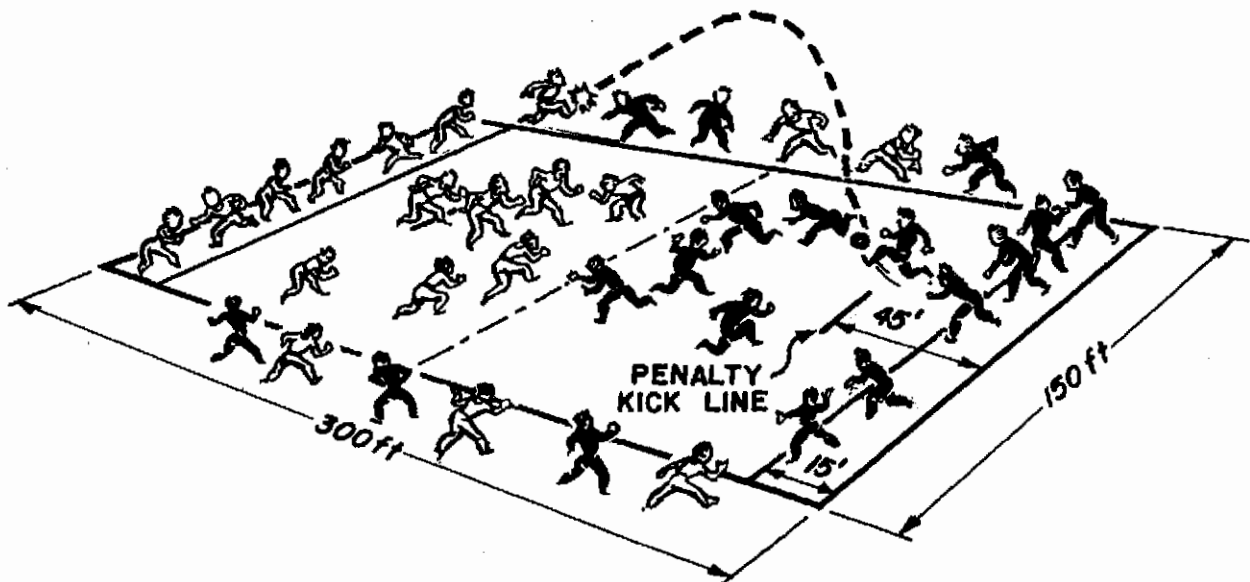


Figure 80. Side line soccer.

defensive team. The ball is placed on the goal line for this kick.

(2) When the ball goes out of bounds over the side lines, the opposite side puts it back into play with a throw-in from the spot where it crossed the side line.

(3) On all free kicks, the opponents must be at least 5 yards away from the ball at the moment it is kicked. No goal may be scored directly from a free kick.

(4) No one is permitted to use his hands and arms. When this rule is violated, the opposite side is given a free kick at the spot of the foul. If the defenders use their hands within their own penalty area (the 30-foot area in front of their end line), a penalty kick is awarded the other side. For the penalty kick, the ball is placed on the line 30 feet from the goal line. The ball is in play immediately after the kick if the goal is not made.

e. Scoring. Each goal scores one point. A goal from a penalty kick also counts one point.

311. Side Line Soccer

a. Players. 50 to 100 men (fig 80).

b. Equipment. A soccer ball.

c. Area. A field from 100 to 150 feet wide and 200 to 300 feet long.

d. The game. The game requires no goal posts, may be administered with a minimum of marking, and provides continuous action for large numbers of men. Divide the group into two equal teams. From each team select six goal tenders. These men may use both their hands and their feet to

play the ball. They cannot run with the ball and they must remain in the goal tenders' area (15 feet from the goal line). If a goal tender moves out of this area, the opposing team is awarded a penalty kick. A goal is scored when the ball is kicked over the goal line at a height not greater than the upstretched hands of the goal keepers.

(1) Each team selects from its members six men who are placed outside both sides of the playing field, three from each team to a side and in alternate positions. These men play up and down the side line throwing and kicking the ball back into the field to the advantage of their own team. Side line players are not allowed to run with the ball, but they may use their hands as the goal tenders do. No goals may be scored directly on a throw or kick by a side line player.

(2) To start the game, the ball is placed in the center of the field. One member from each team stands facing each other over the ball. The rest of the members of the team (except the side line players) remain in the goal tenders' area until the whistle is blown. Upon this signal the two players put the ball in play by trying to kick it to their advantage. The rest of the players (with the exception of the goal tenders and side line players) may play anywhere on the field. After each goal, the play is started as at the start of the game.

(3) The goal keepers and the side line players should be rotated with the field players. If a player other than a goal tender or side line player uses his hands in playing the ball, the offended team is awarded a free kick from the point of the foul. For flagrant roughness, the offended team is

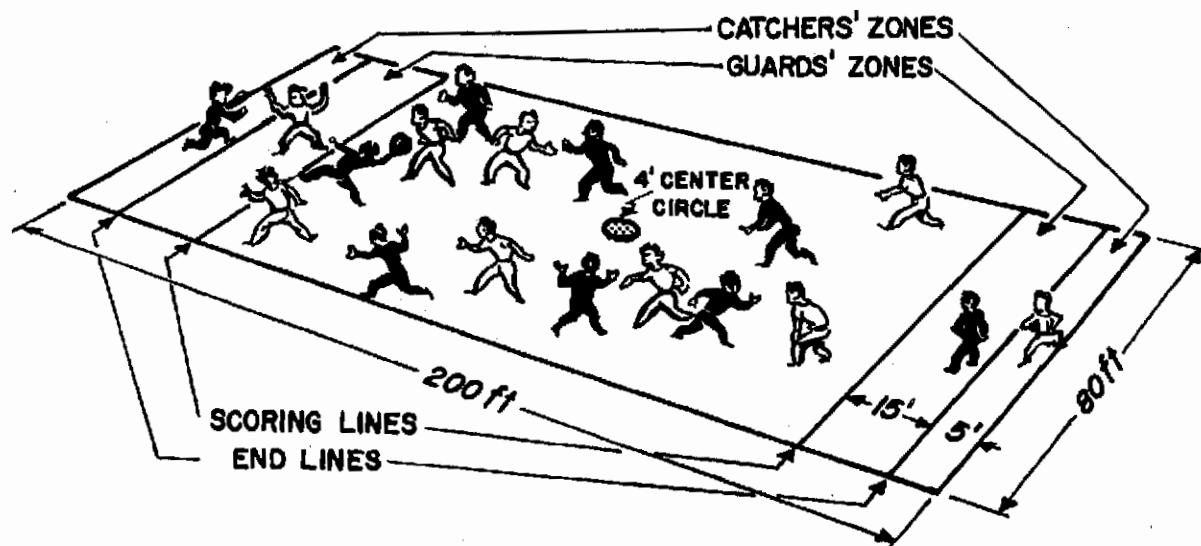


Figure 81. American ball.

awarded a penalty kick from the penalty kick line 45 feet in front of the goal line. Only the six goal tenders may protect the goal on these kicks. The game continues for a predetermined length of time.

e. Scoring. Field goals and penalty kick goals are scored as one point each.

312. American Ball

a. Players. 9 to 15 men on each side (fig 81).

b. Equipment. Soccer ball, volleyball, or basketball.

c. Area. A field 80 by 200 feet.

d. The Game. The game is started at the center of the field by a tossup between two members of opposing teams who try to tip the ball to a member of their own team. The teams line up anywhere on the field, usually in a man-to-man setup. The game is resumed in this manner after each goal.

(1) The ball is carried, kicked, or passed from one player to another. Each team tries to score by throwing the ball to its catcher, and tries to stop the other team from scoring by gaining possession of the ball by intercepting it or by trying to stop the progress of the ball by using legal tackles and blocks. A ball thus stopped is put in play by the possessing team at the spot by centering the ball backward. The team not in possession cannot rush until the ball is centered.

(2) A goal is made when the catcher, in his area, catches an aerial pass from a teammate who passes the ball from in front of the scoring line. If the catcher takes possession of the ball when an attempted try for a goal fails and the ball is recovered in the catcher's zone or goes out of bounds behind the zone, he must throw the ball onto the playing field within 5 seconds after gaining possession of it.

(3) The guard playing in the guard zone tries to stop the pass to the catcher and return the ball to a teammate. When a ball goes out of bounds it is awarded to the opponents and is put into play again by throwing it into the playing area. If a ball is "tied up" on the playing field and cannot be moved, a jump ball is called at the point where the ball's progress was stopped.

(4) A game consists of two 10-minute periods with an intermission of 5 minutes between periods.

e. Penalties.

(1) A player shall not touch or cross the scoring line. If a goal is made in violation of this condition, it does not count.

(2) No player, except the catcher, should be inside the catcher's zone at any time during the game. Penalty: Ball awarded to opposing team out of bounds (side line).

(3) The catcher shall not be outside his zone at any time. Penalty: Ball awarded to opposing team out of bounds (side line).

(4) A player shall not take more than 10 seconds in making a free throw for the goal. If more time is taken and the goal is made, it does not count.

f. Personal Fouls.

(1) Tackling an opponent above the shoulders, below the knees, or leaving the feet in making a tackle.

(2) Tripping, blocking from the rear, or leaving the feet while blocking.

(3) Unnecessary roughness.

(4) Tackling an opponent who doesn't have the ball. The penalty for all personal fouls is one free throw taken from the scoring line. A player who makes four personal fouls shall be disqualified from further participation in the game.

(5) Scoring: Successful passes to the catcher from the field of play and on free throws count one point. The team scoring the greatest number of points wins.

(6) Variation: Increase the number of catchers and guards in equal numbers.

(7) Variation: In order to stop progress of the ball replace two-handed touch for tackling.

313. Goal Hi

a. Players. 2 to 20 men (fig 82).

b. Equipment. Basket on a 10-foot standard and one basketball. Basket standard is in a circle with a 4-foot radius. Another circle is drawn with a 15-foot radius around the standard. Then another circle with a 30-foot radius is drawn around the standard.

c. Area. Level ground 75 feet square.

d. The Game. Both teams shoot for the same goal. Start the game by awarding the ball to one team out of bounds. The object of the game is to score a basket. The ball may be passed or dribbled.

(1) Players are not allowed to touch the standard. If the standard is touched by the team in possession of the ball, the opponents are awarded the ball out of bounds. If the standard is touched by the team not in possession of the ball, the referee decides if play shall continue or if the offender shall be penalized for the foul. Deliberate

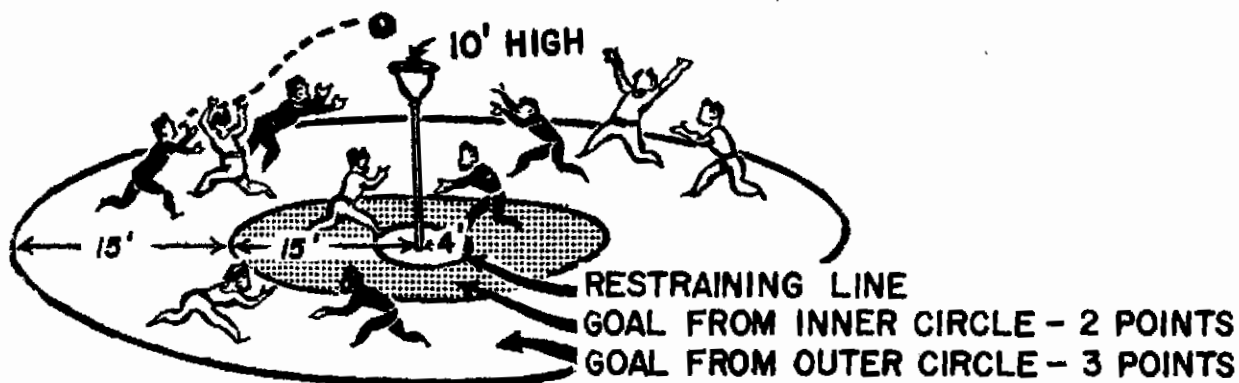


Figure 82. Goal hi.

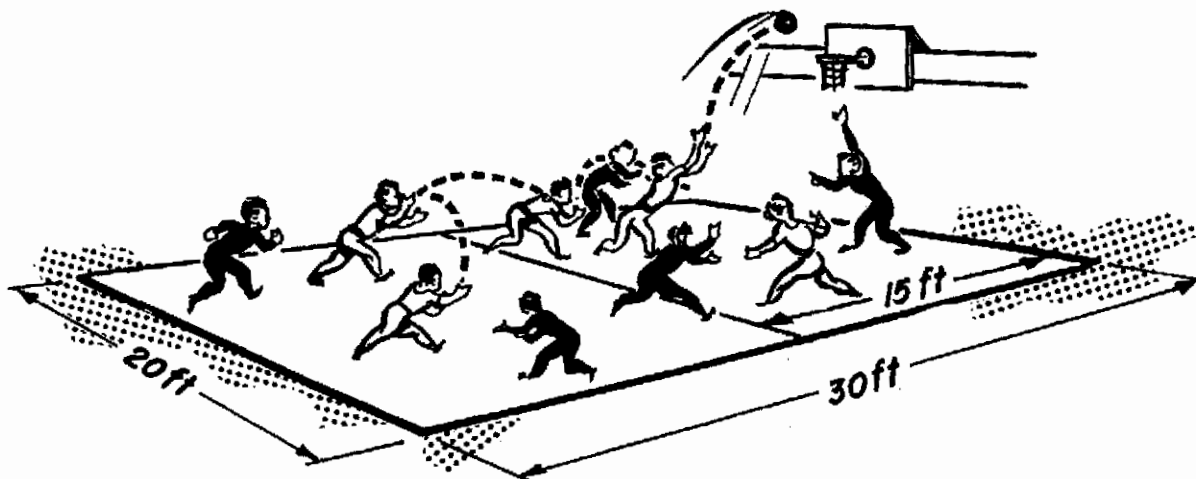


Figure 83. One-basket basketball.

shaking of the goal is a foul, the penalty for which is a free throw. No player shall attempt a goal if he receives the ball on or inside the circle nearest the standard.

(2) There shall be no running with the ball, striking, tripping, or other unnecessary roughness. Penalty: Free throw from the 15-foot line. After a successful free throw or field goal, the ball goes to the opponents out of bounds.

(3) A game consists of two 10-minute periods with a 5-minute rest between periods.

e. Scoring. Free throw, 1 point; field goal from the middle circle, 2 points; field goal from the outer circle, 3 points. The team scoring the most points wins the game.

314. One-Basket Basketball

a. Players. 5 to 6 men on a side (fig 83).

b. Equipment. 1 basket and basketball.

c. Area. 20 by 30 feet.

d. The Game. Both teams shoot for the same goal. The game is started by awarding the ball to one team out of bounds. The object of the game is to score a basket. The ball may be passed or dribbled.

(1) The player who recovers the ball from a shot taken and missed by a teammate may immediately shoot at the basket. If an opponent recovers the ball, he must first pass to one of his teammates before any player of his team may shoot at the basket. Regulation basketball rules apply in penalizing fouls. Penalty for any foul is one free throw from the line 15 feet from the basket. After a basket is scored, the ball is awarded to the opponent out of bounds behind the 15-foot line.

(2) A game consists of two 10-minute periods with a 5-minute rest between periods.

e. Scoring. Two points for a field goal; one point for a free throw. As a variation in scoring, eliminate free throws and award the ball to the offended team out of bounds.



Figure 84. Quick lineup.

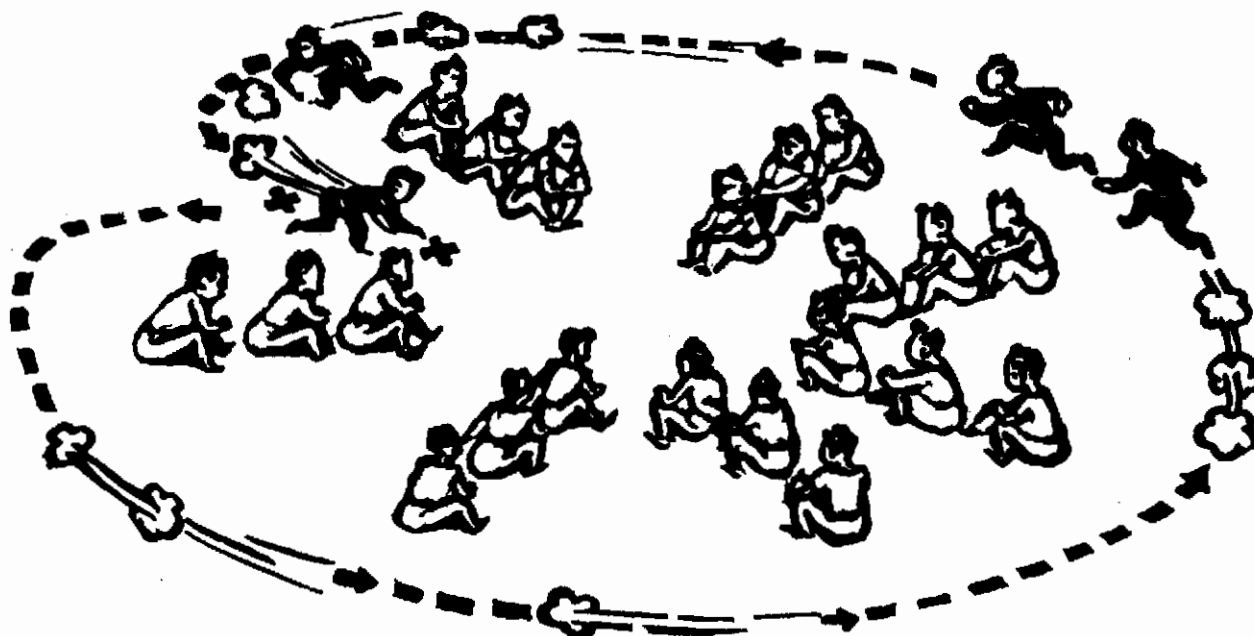


Figure 85. Spoke tag.

315. Quick Lineup

a. *Players.* 40 to 200 men (fig 84).

b. *Equipment.* None.

c. *Area.* 100 feet square.

d. *The Game.* Players line up in four lines to form a square. They fall in by height with the tallest man on the right in each line.

(1) The leader stands in the middle of the square. He tells the group that regardless of where he goes and stops on the field, the No. 1 line should always face him; No. 2 line should always line up on his left; No. 3 line should always be

behind him, and No. 4 line to his right. At each stop, the leader faces a new direction.

(2) To start the contest, the leader runs to the new position, and the lines can break ranks to follow as soon as he clears the line he chooses to pass through. All men run to their new position individually and quickly reform in the proper order.

e. *Scoring.* The first side forming a new line in proper order scores one point. The first side scoring five points wins the game.

f. *Variation.* Have men line up either in close interval or at normal interval.

316. Spoke Tag

a. *Players.* 20 to 40 men (fig 85).

b. *Equipment.* None.

c. *Area.* Any area free from rough, cutting surfaces.

d. *The Game.* Divide the group into even files with three or four players to a file. Form the files so that each represents a spoke in a large wheel. Each man is seated facing the center.

(1) One man is "it." He jogs around the outside of the wheel, selects any spoke, stops and slaps the last man of the spoke vigorously on the back. The slap is passed from man to man up to the front and each man rises as he is slapped. No one (including "it") can move out of line until the first man (the one nearest the center) of the spoke starts to run, then all must race in the same direction.

(2) The object is for the individual members of the spoke and "it" to race around the circle and avoid being last. The last one to get around and be seated in a place in the spoke line becomes "it."

e. *Scoring.* None.

f. *Variation.* Have spokes stand instead of sit. Rules prohibit pushing, tripping, pulling by runners, and interference by spokes not running.

317. Chain Dodge Ball

a. *Players.* 20 to 40 men (fig 86).

b. *Equipment.* Soccer ball or volleyball.

c. *Area.* Any level area.

d. *The Game.* Divide the players into teams of

five or six men. Put one team in the circle and arrange them in a file, each man grasping the player in front of him around the waist, forming a chain.

(1) Remaining teams form a circle around the chain and attempt to hit the end man with the ball. The players forming the circle may pass the ball around in any manner. The players in the chain attempt to keep the end man from being hit.

(2) Only the first man of the chain may use his hands to prevent the ball from striking the end man. When the end man of the chain is hit, he leaves the game.

(3) Players then throw at the new end man, and continue until the entire team is eliminated. Each team in turn should go into the circle until all have had an opportunity to act as the chain.

e. *Scoring.* The team that stays in the circle for the longest time wins the game.

f. *Variation.* Count the number of direct throws necessary to eliminate the teams. The winning team is the team that requires the greatest number of throws to eliminate all its members.

g. *Variation.* Do not play as a team game, but send five men into the circle forming a chain as above. When the end man is hit, he leaves the chain to take the place of the man who hits him. The man who hits him goes into the circle at the front of the chain.

318. Keep Away

a. *Players.* 2 to 20 men on each side (fig 87).

b. *Equipment.* A basketball or soccer ball.

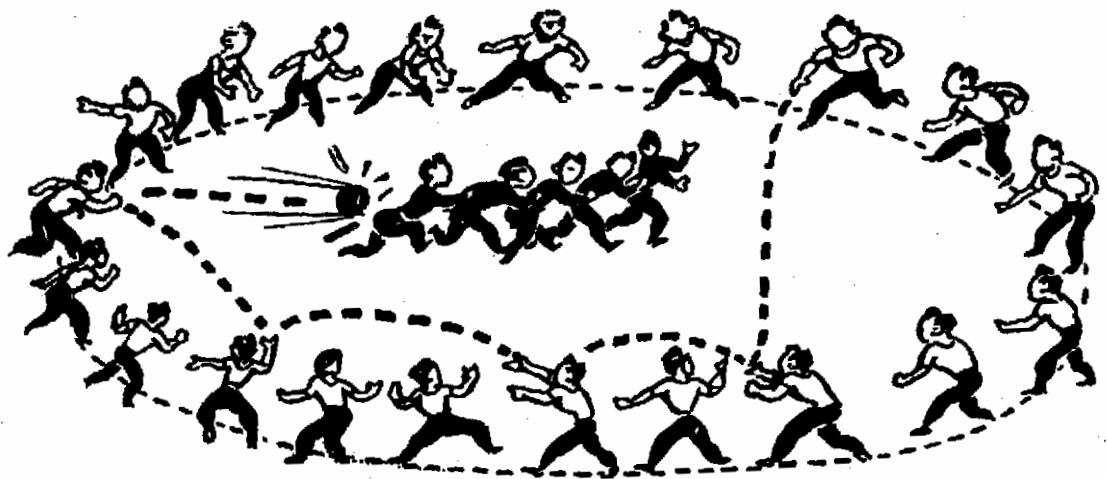


Figure 86. Chain dodge ball.

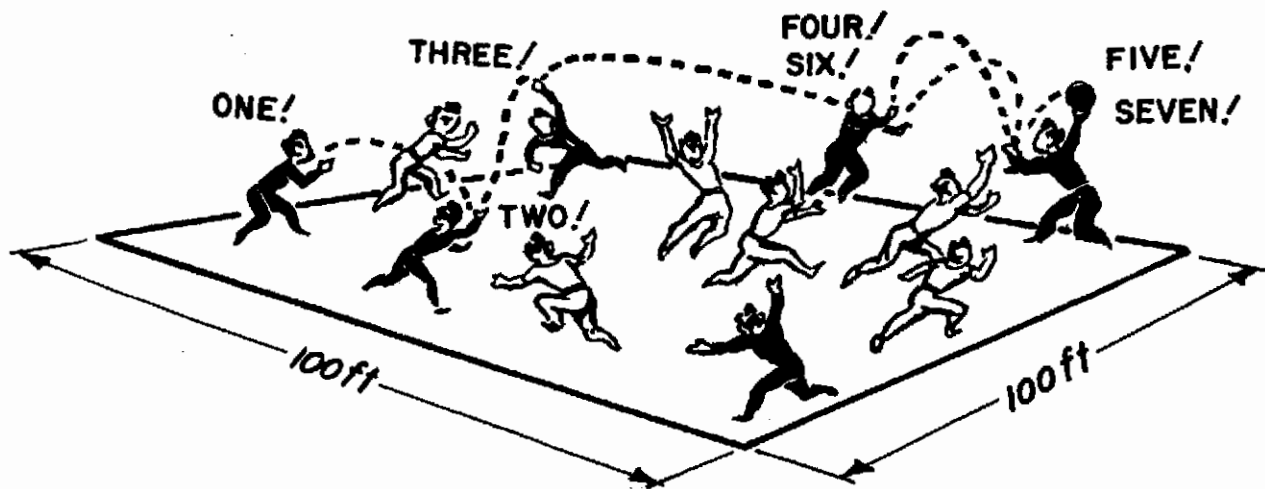


Figure 87. Keep away.

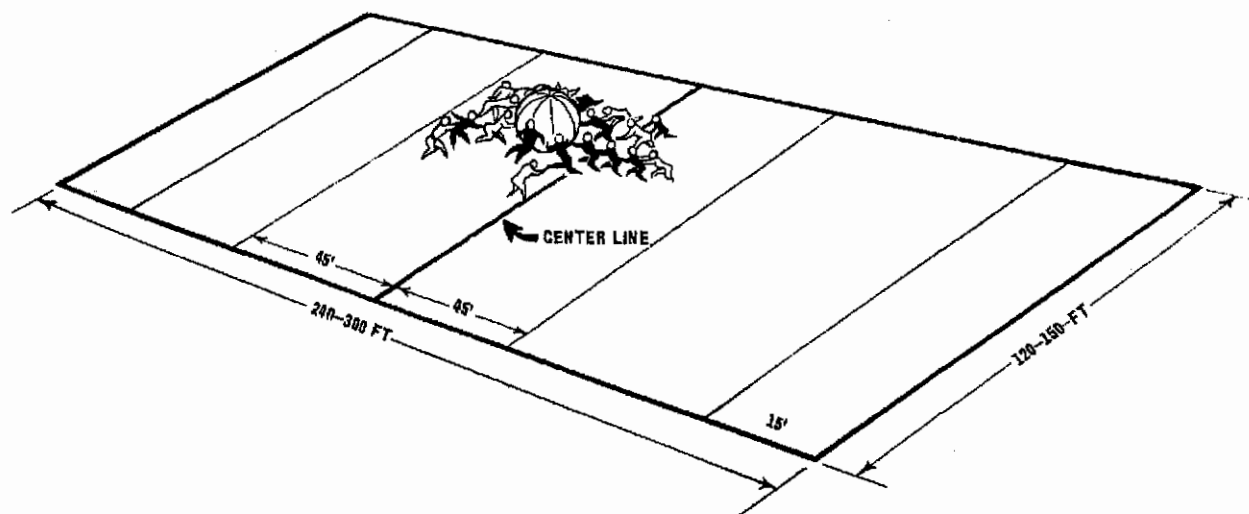


Figure 88. Push ball.

c. *Area.* Any space with boundaries. An area 100 feet by 100 feet is ideal.

d. *The Game.* Divide the group into two teams and mark them so that they may be easily distinguished. The game is started with a center jump as in basketball.

(1) The team that gets the ball passes it among the team members, attempting to pass it successfully ten times in succession. The other team attempts to get the ball.

(2) Running is permitted, but tripping, pushing, and pulling are not allowed. When the offensive team is guilty of one of these violations, the other team is given the ball. When the defensive team commits any of the above fouls, the offensive team is granted completion of the series of ten passes and a score is counted.

(3) Each time a team makes a successful pass, the player catching it calls the number of

the catch. "One" is called on the first catch; "two" on the second, and so on.

(4) When the ball touches the ground or is caught by the opponents, all previous counts are disregarded and as soon as the team in possession makes a successful pass, the count starts again. After a score, the game is restarted by a center jump.

e. *Scoring.* A team counting ten consecutive catches wins one point. The team that first reaches a predetermined number of points wins the game.

319. Pushball

a. *Players.* 10 to 50 men on a side (fig 88).

b. *Equipment.* A large pushball 5 to 6 feet in diameter.

c. *Area.* 240 to 300 feet in length, 120 to 150 feet wide. Divide the length of the field equally by a center line parallel to the end lines. Mark a line 45 feet on either side of this center line and parallel to it, extending it across the entire field. Mark another line 15 feet in from each end line and parallel to it, extending it across the entire field.

d. *The Game.* Four 10-minute quarters are played. Two-minute rests are given between quarters and 5 minutes between halves. The object of the game is to propel the ball over the opponent's goal line by pushing, rolling, passing, carrying, or any other way except kicking.

(1) The ball is placed on the center line with the opposing captains 3 feet from it. The rest of the players are all 45 feet from the ball, on their half of the field. On the referee's starting whistle, the captains immediately play the ball with their respective teams coming to their assistance.

(2) At quarter time, the ball remains dead for 2 minutes at the spot where it was when the quarter ended. At half-time the teams exchange goals. The play is then started as it was in the beginning.

(3) Players may use any means of interfering with an opponent's progress except striking and clipping (throwing the body across the back of an opponent's leg as he is running or standing). Use of force may legally be applied to all opponents whether they are playing the ball or not. For striking an opponent, the offender is removed from the game and his team penalized half the distance to their goal. The penalty for clipping is the same.

(4) When any part of the ball goes out of bounds, it is a dead ball or an out-of-bounds. The teams line up at right angles to the side lines and 6 feet apart at the point where the ball went out. The referee then tosses the ball between the teams.

(5) When, for any reason, the ball becomes tied up in one spot for more than 10 seconds, the referee declares the ball dead. The ball is then put into play as it is for an out-of-bounds situation.

e. *Scoring.* A goal is scored when the ball, or any part of it, is propelled across the opponent's end line. A goal counts five points. The team scoring a goal has the privilege of trying for a point after the goal. To try for this extra point, the ball is placed on the opponent's 5-yard line. The teams line up across the field separated by the width of the ball. Only one man may have his hands on the ball; the member of the team who just scored is directly in front of the ball. On the referee's sig-

nal, the ball is put into play for 1 minute. If any part of the ball is driven across the goal line in this 1-minute period, the offensive team scores one point. The defending team may not score during the opponent's try for the extra point.

320. Line Rush

a. *Players.* Any number up to 50 on each side (fig 89).

b. *Equipment.* None.

c. *Area.* A field, 75 by 100 feet.

d. *The game.* One team lines up behind one goal line and the other in midfield. On the starting signal, the team standing behind the goal line seeks to cross the field to the other goal within 30 seconds, while the team in the center seeks to prevent it by catching and holding the runners. At the end of 30 seconds the teams change.

e. *Scoring.* Count the number of men crossing the far goal at the end of 30 seconds. After each team has had from three to five tries, the scores are added and the winner declared. A man scores one point when any part of his body is across the goal line.

321. Human Tug of War

a. *Players.* 10 to 20 on a team (fig 90).

b. *Equipment.* None.

c. *Area.* 40 to 60 feet.

d. *The Game.* Draw a line in the center of the area. Divide the players into two equal teams; line them up in single file on opposite sides of the center line facing each other. Each man places his arms around the waist of the teammate in front of him. The two leaders of the opposing teams grasp each other around the waist. On signal, the teams try to pull each other over the center line within a 30-second time limit.

e. *Scoring.* The team pulled across the center line loses. If neither team is pulled over the center line, but one team breaks its file, that team loses the match.

f. *Variation.* Use a $\frac{3}{4}$ - or 1-inch rope and space the first man on each team 10 feet apart. The team pulled across the center line loses.

322. Master of the Ring

a. *Players.* Any number (fig 91).

b. *Equipment.* None.

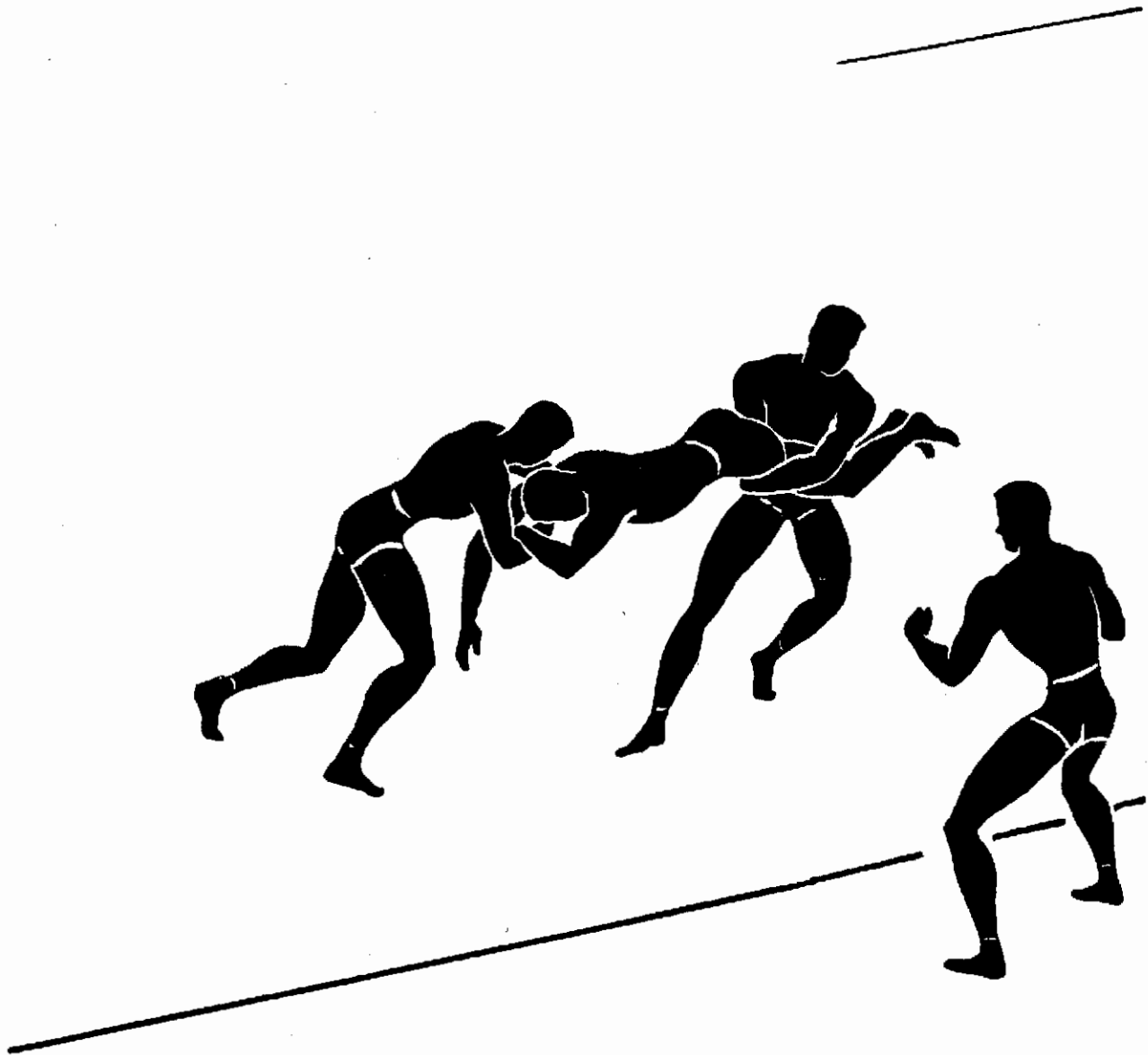


Figure 39. Line rush.

c. Area. A clearly marked circle large enough to contain all the players.

d. The Game. All the players stand inside the circle. At the signal, the teams attempt to throw each other out of the circle. All tactics are fair except unnecessary roughness. When any part of the body touches across the line, the player is out and cannot re-enter play. Several officials are needed to spot the players who cross the line.

e. Scoring. The last player remaining in the circle is the master of the ring.

f. Variation. The players are divided equally into two teams. Each team is clearly marked. Upon signal, each team tries to throw the opponents out of the circle. The winning team is the

team that eliminates all the opponents from the circle.

g. Variation. The players are divided equally into two teams. Each team sends only one man into the circle. When one man has been forced out of the circle, the losing side only sends in another man. The team which eliminates all the opponents is the winner.

h. Variation. A pit, approximately 4 feet deep is used rather than a ring on the ground. The contest may then be used as an individual or team activity.

323. Log Pivot Circle

The log is held in the bend of the arms in front of



Figure 90. Human tug of war.

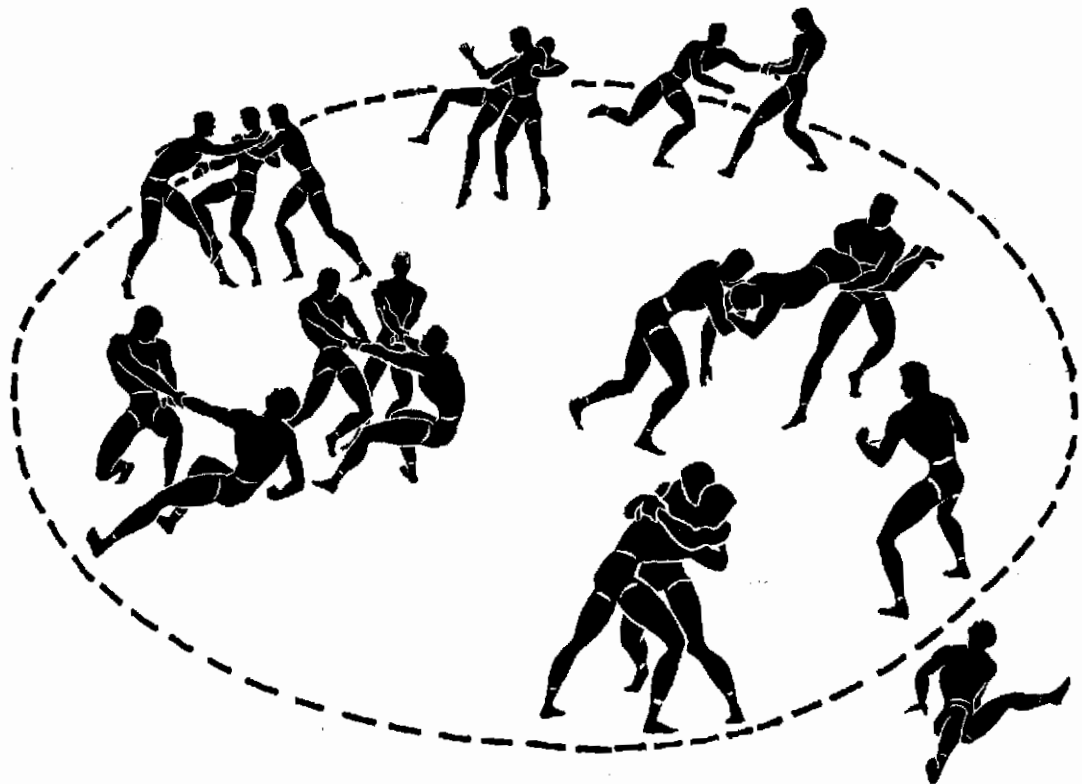


Figure 91. Master of the ring.

the chest (fig 92). At the commands, 1. CIRCLE RIGHT, 2. MOVE, the left flank man holds the pivot and the log is carried around 360 degrees, back to the original position. This movement may also be performed to the left and at double time. Commands may be given such as: CIRCLE

RIGHT, CIRCLE HALF-RIGHT, CIRCLE HALF-LEFT. The first team to complete the prescribed movement is the winner.

324. Rolling Race

Each team tries to roll its log a measured distance

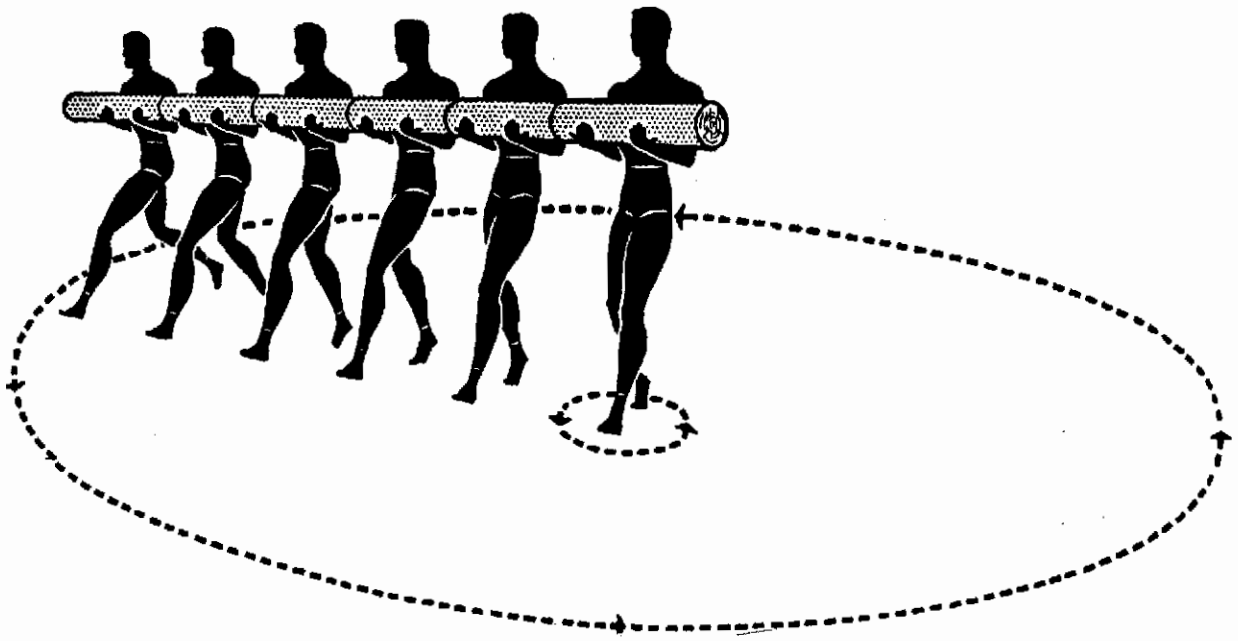


Figure 92. Log pivot circle.

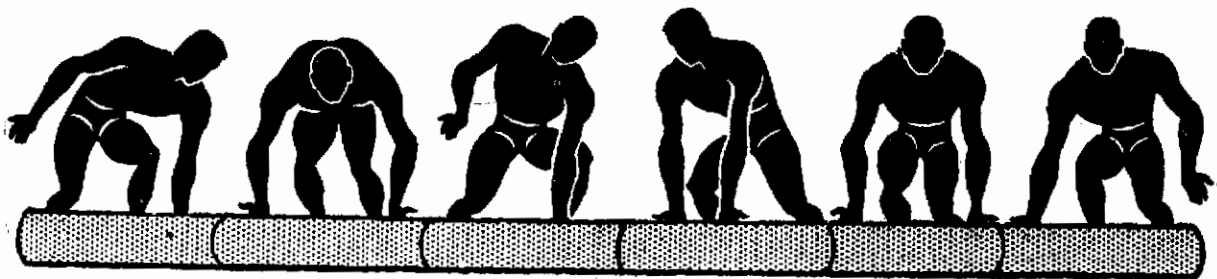


Figure 93. Rolling race.

by pushing it (fig 93) with the hands and driving the body forward with the legs. The first team to get the entire log across the finish line wins.

325. Prone Push Contest

Two teams lie prone, facing each other with a log between them (fig 94). Both teams place their hands against the log, keeping their arms straight. Then, by driving with the legs, each team attempts to push the other a measured distance to the rear.

326. Shuttle Relay Race

This race is run by pairs of teams, each pair consisting of a Team A and a Team B (fig 95). Team A members run 50 yards with the log held under their right arms. At the distance line they give the log to Team B whose members bring it back to the starting line. The team pair finishing first is the winner.

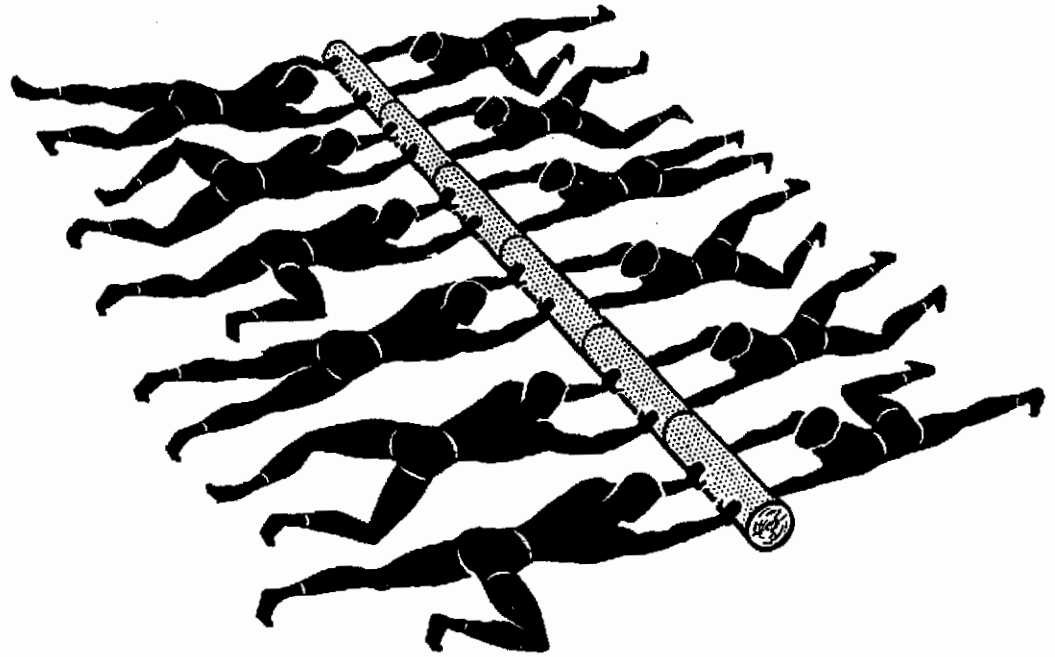


Figure 94. Prone push contest.

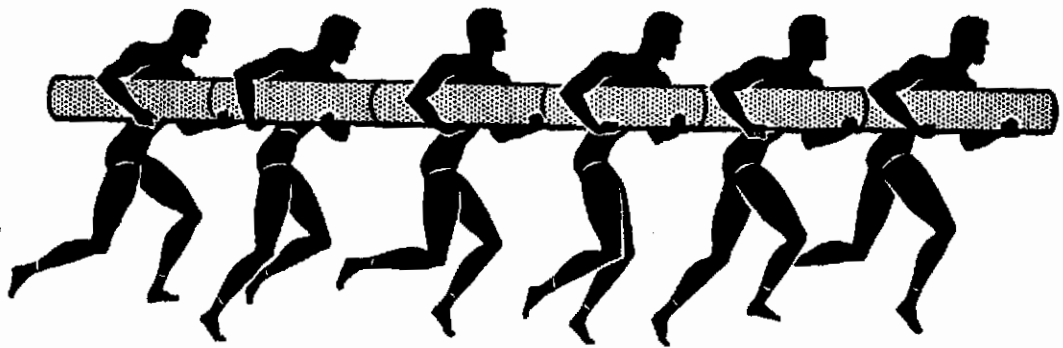


Figure 95. Shuttle relay race.

CHAPTER 23

TEAM ATHLETICS

Section I. INTRODUCTION

327. Place in the Program

Team athletics deserve a prominent place in the physical training program because they contribute to the increased combat efficiency of the soldier. Because of the competitive nature of athletics and their natural appeal, the men take part in them with enthusiasm. Athletic teams formed at intramural and higher levels are a strong unifying influence and provide one of the best means of developing esprit de corps.

328. Preconditioning Necessary

Men must undergo conditioning prior to participation in athletics. Muscles, organs, joints, and ligaments not accustomed to stress and strain, involved in sudden stops and starts, falls, body contact, rapid turns, prolonged running and the other rigors of athletic competition are subject to injury when not properly conditioned. Although athletics should not be introduced until men are

physically prepared there is still opportunity to engage in competition through lead-up contests. Men learn many of the skills required for athletics while participating in team contests (chap 22). For example, when the men play "keep away," a team contest, they are learning the skill of passing used in basketball.

329. Benefits of Athletics

Athletics are beneficial primarily in sustaining interest in the program and in maintaining a sustaining level of physical fitness. Conditioning activities should be continued and athletics considered as a supplement, and not a substitute for other types of conditioning activities. All of the desirable traits of physical fitness cannot be developed through athletics, yet the contribution is significant. For athletics to make a proper contribution to physical conditioning the sports selected must be vigorous.

Section II. BASKETBALL

330. Introduction

Basketball has enjoyed increased popularity and growth within the past few years. It should be comparatively easy for an instructor to create interest in basketball among military personnel, both for conditioning and recreational purposes. Few sports have the potentialities that basketball has for developing coordination, endurance, skill, teamwork, and the will to win. It is an excellent activity for the sustaining stage of physical conditioning.

331. Basic Skills and Fundamentals

Although men prefer to compete rather than practice, many men need some instruction and practice to achieve satisfaction from participation. Some practice or brief instruction should be part of every beginning period when the sport is first

introduced. The following basic skills should be practiced:

a. Shooting Baskets.

(1) *One-hand set shots.* Shoot from a balanced position. Keep both feet on the floor. Follow through.

(2) *Two-hand set shots.* Shoot from a balanced position and apply equal pressure on the ball with each hand. Keep both feet on the floor. Follow through.

(3) *Lay-ups.* Jump high, reach high before releasing the ball, using the backboard when possible.

(4) *Shooting while on move.* This is usually a one-hand shot. Shoot off opposite foot from the hand that releases the ball.

(5) *Free throws.* These are two-hand underhand throws and one-hand push shots. Put a slight backspin on the ball.

b. Ball-Handling.

(1) *Two-hand chest pass.* Step in the direction of the pass. Use a wrist action to release the ball with a backspin.

(2) *One-hand and two-hand bounce pass.* Step in the direction of the pass. Bounce the ball a reasonable distance in front of the receiver, putting a backspin on the ball with a wrist action.

(3) *One-hand baseball pass.* Step in the direction of the pass; throw as you would throw a baseball, except do not twist the wrist. This is used mostly for long passes.

(4) *Two-hand overhead pass.* Hold the ball above the head with the arms extended. Throw with a wrist action. This pass is used mainly to get the ball to the pivot man who is close to the basket.

c. Dribbling.

(1) *Changing hand with ball.* Only one hand may touch the ball at one time while dribbling. The hands may be alternated.

(2) *Change of pace.* Changing speed and direction while dribbling.

(3) *Dribbling exercise with eyes not directly on ball.* Change direction; change hands; keep the head up with the eyes directed toward possible passing or shooting situations.

d. Footwork.

(1) *Pivoting.* Give all men practice in pivoting; the pivotman or center may require special practice. One foot remains stationary while the opposite foot is mobile.

(2) *Individual defense.* Stress footwork and the position of the hands and body.

(3) *Check position of feet when shooting various types of shots.* Points to check: the position of balance, correct foot forward when in shooting position, the distance between each foot, the position of the hands on the ball, and the follow-through.

332. Small Group or Team Practice

a. Man-to-Man Defense.

(1) *Switching.* Each defensive man is responsible for defending against a designated man, until a screen or block forces the defensive men to change defensive responsibility.

(2) *Nonswitching.* Each defensive man who is responsible for a designated offensive player goes with the offensive man through or behind screens and blocks.

b. *Man-to-Man Offense.* Various types of offensive formations have been especially designed to combat man-to-man defense. Use textbooks writ-

ten by professional coaches for technical knowledge.

c. *Zone Defense.* There are numerous variations of this type defense aimed at defending a restricted area in front of the basket. The defensive target is the ball, not the man.

d. *Zone Offense.* The zone offense forces the defense to adjust position, as a unit, rapidly and often. Zone offense is most effective when employing rapid movement of the ball within the defense area.

e. *Defense Against Fast Break.* Stress rebound work on the offensive team.

f. *Fast Break Offense.* Move the ball down court into scoring or offensive territory quickly before the defense can get set.

333. Practice Drills

a. *Keep-Away.* Divide unit into two groups. Designate each individual's defensive responsibility by name or number. Use half of a basketball court as the playing area. The team in possession of the ball passes it among the team members until the defense gets possession of it. Basketball rules apply. Continue with each team taking turns as it gets possession of the ball.

b. *Shooting Exercise.* Divide unit into small groups, each group with a ball. Designate the various positions on the floor where the shooting practice is to be done. Use a prearranged scoring method. Play numerous games, giving each group an opportunity to shoot from all positions on the floor.

c. *Dribbling Exercise.* Divide unit into two or three groups, each group with a ball. Conduct a dribbling relay. Place obstacles for dribblers to avoid and designate the path each team will follow.

d. *Defense Exercise.* Use the two free throw circles and the restraining circle at center court. Place five men around the outside of each circle. One man is in the center of each ring. It is the job of the man in the center to intercept or deflect the path of the ball which is passed from man to man by the men outside of the circle. No pass may be made to an adjacent man in the circle. When the man inside the circle succeeds in intercepting, deflecting, or touching the ball, the passer takes his place.

334. Facilities and Equipment

a. *Facilities.* In some sections of the country,

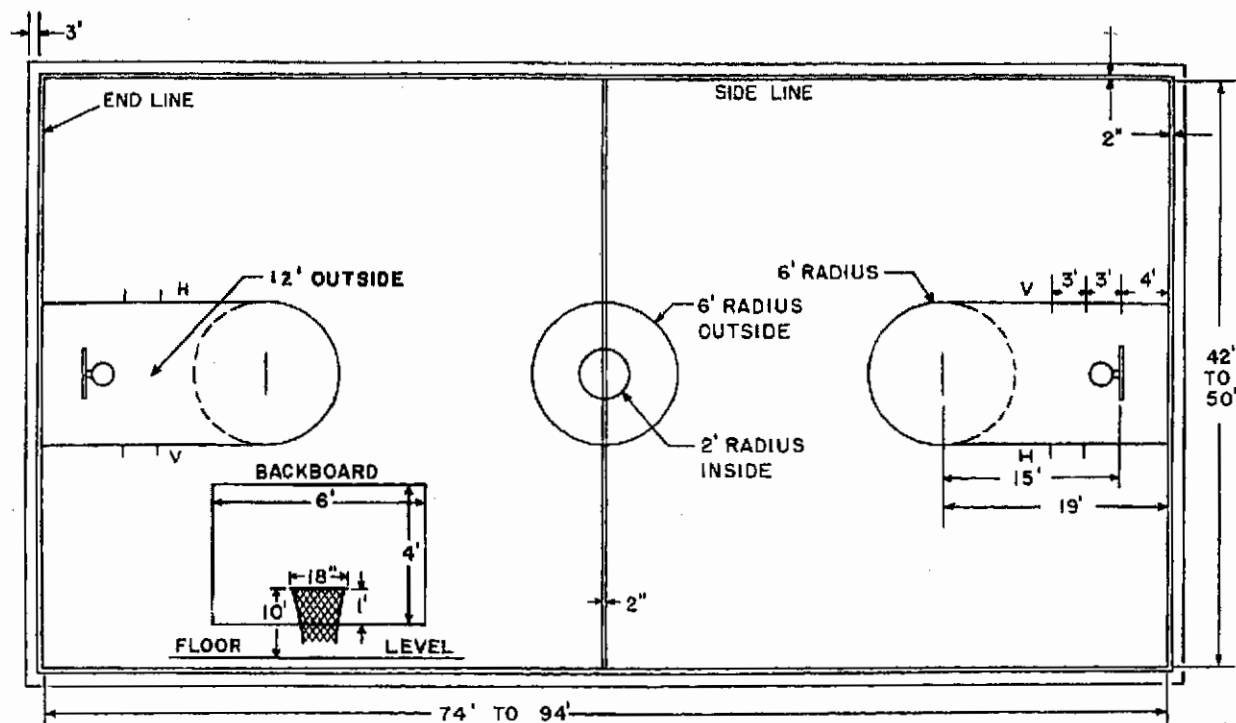


Figure 96. Basketball court and backboard.

outdoor facilities may be used, and they are easily constructed. The minimum dimensions of a court for competition are approximately 74 feet by 42 feet; maximum dimensions are 94 feet by 50 feet. Figure 96 shows a court and details of backboard construction.

b. Equipment. A basketball is the only required equipment. For highly organized competition,

however, uniforms, special shoes, and other equipment may be required.

335. Rules

The National Collegiate Athletic Association (NCAA) rules, are used in conducting basketball in the Army physical training program. Each year a new paperbound guide booklet is published and sold by the NCAA.

Section III. CROSS-COUNTRY AND DISTANCE RUNNING

336. Introduction

Long distance running gives some benefits that cannot be obtained in the same degree from any other sport. It builds powerful leg muscles, increases the lung capacity, and develops endurance. For these reasons, cross-country and distance running should be included in the Army physical training program. These sports require only a few miles of open space that is available at any Army station.

a. Short cross-country runs and middle-distance runs can be used to supplement other activities, particularly the team sports or the sports that develop precision or agility rather than endurance. Short cross-country runs can be scheduled once a week, gradually increasing the distance as the physical condition of the men improves

through other activities such as conditioning exercises.

b. There is a common belief that long distance running is too strenuous, often resulting in permanent injury to the heart. While distance running may be harmful to the man who overdoes the sport when he is not in proper physical condition, the conditioned, supervised distance runner is in no greater danger of strain than the man engaged in any other athletic activity.

337. Cross-Country Runs

Cross country is a distance run held on a course laid out along roads, across fields, over hills, through woods, and on any irregular ground. A flat cinder or dirt track is not a suitable surface for cross-country running. Opinions vary as to the

proper length of a cross-country course. Some runs are as long as 6 miles. Five miles used to be accepted as standard, but recently there has been a tendency to shorten the run to 3 or 4 miles. Only if time is available for a full season cross-country program should the physical training instructor try to train men for a 5-mile course. If time is limited, or if cross-country running is being used to supplement other activities, the 3-mile course is long enough for most men.

338. Place in the Program

Cross-country should be used only after the men reach the sustaining stage of conditioning. This type of running should then be scheduled occasionally to provide variety in the program. Cross-country running has the advantage of allowing mass participation. Interest can be stimulated by putting the runs on a competitive basis.

339. Basic Skills

a. Running form in cross-country races varies with the terrain and the contour of the course. On a flat course use the same form as used in a 1-mile run. The body lean should be between 5 and 10 percent. A lean of more than 10 percent places too much strain on the legs. A lean of less than 5 percent is retarding. In running uphill, lean forward at a greater angle and cut the length of the stride. To gain an added lift, swing the arms high and bring the knees up high on each stride. Do not slow down after reaching the crest of the hill, but resume the flat course stride as soon as the ground levels off.

b. The runner's stride will naturally lengthen in going downhill, but he should not stretch his stride or increase his pace excessively. There is less control and balance when running downhill; therefore, there is greater danger of turning an ankle and/or falling. Keep the arms low, swinging freely, and use them as a brake and as a balance. Coming onto the flat from a downhill run, do not slow down but float or coast into a flat course pace. More energy will be used in attempting to brake the speed of descent than in maintaining the faster pace and slowing down gradually.

c. Run on the toes or the balls of the feet rather than on the heels. Landing on the heels throughout a 3- to 5-mile course would jolt the entire body. Runners who have a tendency to strike the heel on the ground should wear a cotton or sponge rubber pad in the heels of their shoes.

340. Practice Methods

a. Conditioning is more essential to distance

and cross-country running than to any other sport. Championship distance running depends on stamina, and stamina can be developed only through constant training. A man of only average ability can become an outstanding distance runner by steady and careful training. Hiking is the best method for getting into condition before the season opens. Long walks build up the leg muscles. During the first month of the season, training should be gradual, starting with short distances, and increasing day by day. At first the legs will become stiff, but the stiffness gradually disappears if running is practiced every day. To prevent strain, it is essential to warm up thoroughly each day before running.

b. In the training of a large group, leaders should be stationed at the head and the rear of the column and they should make every effort to keep the men together. After determining the abilities of the men in cross-country running, it is advisable to divide the unit into three groups. The poorest conditioned group is started first, the best conditioned group, last. The starting time of the groups should be staggered so that all of them finish about the same time.

c. In preliminary training, the running is similar to ordinary road work in that it begins with rather slow jogging, alternating with walking. The speed and distance of the run is gradually increased. As the condition of the men improves, occasional sprints may be introduced. At first the distance run is from $\frac{1}{2}$ to 1 mile. It is gradually increased to 2 or 3 miles. On completing the run, the men should be required to continue walking for 3 or 4 minutes to permit a gradual cooling off and return to normal physiological functioning.

341. Facilities and Equipment

a. A course 3 or 5 miles long should be measured and marked by one of the three methods specified below:

(1) Directional arrows fastened to the top of a tall post and placed at each point where the course turns. Such signs should also be placed at any other point where there may be doubt as to the direction of travel.

(2) A lime line placed on the ground over the entire course.

(3) Flags. They should be clearly visible to the runners.

(a) A red flag indicates a left turn.

(b) A white flag indicates a right turn.

(c) A blue flag indicates the course is straight ahead.

b. There should be at least one stopwatch (preferably three) for timing the runners.

342. Rules

a. *Team Members.* A cross-country team shall consist of seven men, unless otherwise agreed. In dual meets, a maximum of 62 men may be entered, but only seven shall enter into the scoring.

b. *Scoring.* First place shall score 1 point, second place 2, third place 3, and so on. All men who finish the course shall be ranked and tallied in this manner. The team score shall then be determined by totaling the points scored by the first

five men of each team to finish. The team scoring the least number of points shall be the winner.

Note. Although the sixth and seventh runners of a team to finish do not score points toward their team's total, it should be noted that their places, if better than those of any of the first five of an opposing team, serve to increase the team score of the opponents.

c. *Cancellation of Points.* If less than five (or the number determined prior to the race) finish, the places of all members of that team shall be disregarded.

d. *Tie Event.* In case the total points scored by two or more teams are the same, the event shall be called a tie.

Section IV. SOCCER

343. Introduction

a. Soccer is one of the best athletic activities for developing endurance, agility, leg strength, and a great degree of skill in using the legs. The game is one of the most popular sports in the world and the national sport of many countries. In recent years it has become popular in the United States.

b. A soccer ball is the only equipment needed for the game, and the game can be easily learned. The men do not need much skill to participate, but the amount of skill they can develop is unlimited.

344. Place in the Program

a. Soccer should be introduced into the physical training program during the later part of the slow improvement stage and used as a competitive activity in the sustaining stage. It is primarily a spring or fall sport.

b. Any level field is suitable for competition. The boundaries for the soccer field are similar to the dimensions for a football field (fig 97). Goals are essential to the game, but they are easily constructed and are usually of a temporary nature, so that they may be removed when not in use. The various areas and lines on the field are as follows:

(1) *Goal lines.* The lines at each end of the field.

(2) *Touch or side lines.* The lines at each side of the field.

(3) *Midline.* The line which divides the field into two halves.

(4) *Center circle.* The circle at midfield with a radius of 10 yards.

(5) *Goal.* A rectangular frame erected on

each goal line measuring 8 feet high and 24 feet wide.

(6) *Goal area.* The area immediately in front of each goal measuring 18 feet by 60 feet.

(7) *Penalty area.* The area beyond the goal area measuring 54 feet by 132 feet.

(8) *Penalty mark.* A line from which penalty kicks are taken, located 18 feet from the forward edge of the penalty area.

(9) *Restraining arc.* A partial circle at the forward edge of the penalty area with a radius of 12 feet. During a penalty kick this line serves as a restraining line for players to maintain 10 yards distance from the kicker.

345. Basic Skills

a. *Passing.* Passing with the feet is the primary means of moving the ball. Short passes are easier to control and can be executed more accurately than long ones. Emphasis should be continually placed on the skill of passing.

b. *Dribbling.* The ball is dribbled by a series of kicks with the inside or outside of the foot. Do not kick with the toe. Keep the head over the ball when kicking and propel it only a short distance at a time. Keep it close to the feet. When the ball gets very far from the feet while dribbling, an opposing player can easily take it away.

c. *Instep Kicking.* The instep kick, which is the basic soccer kick, is made from the knee joint instead of from the hip as in football. The toe does not come in contact with the ball. It is pointed downward and the instep (the shoe laces) is applied to the ball with a vigorous snap from the knee. For a stationary ball, the nonkicking foot is alongside the ball at the time of the kick. For a ball rolling toward the kicker, his nonkick-

ing foot stops short of the ball; for a ball rolling away from the kicker, his nonkicking foot stops beyond the ball. The kicker must keep his eye on the ball until it leaves his foot.

d. Inside-of-the-Foot Kicking. The ball is kicked with the inside of the foot and the leg is swung from the hip. The toe is turned outward and the sole of the foot is parallel with the ground as the foot strikes the ball. The ball should be well under the body at the time of contact. This kick is used for short passes and for dribbling.

e. Foot Trapping. The foot trap is a method of stopping the ball by trapping it between the ground and the foot. Place the sole of the foot on top of the ball at the instant it touches the ground, but do not stamp on it. Keep the foot relaxed. This is an effective way to stop a fast moving ball.

f. Shin Trapping. The shin trap is a method of stopping the ball with the shins. Stand just forward of the spot where the ball should strike the ground and allow it to strike the shins in flight or on the bounce. Use either one or both legs from the knee down, but do not allow the ball to strike the toe.

g. Body Trapping. The body trap is another method of gaining control of a ball in flight. Intercept the ball with any part of the upper body except the arms and hands. Keep the body relaxed and inclined toward the ball. To keep the ball from bouncing, move backward quickly, relax the

body as the ball hits the chest, bend the body and allow the ball to roll down. This will drop the ball at the feet in position for dribbling or passing.

h. Heading. Heading is the technique for changing the direction of the flight of a ball by butting it with the head. Tense the neck muscles and jump up to meet the ball, butting the ball with the forehead at about the hairline to reverse its direction; use the side of the head to deflect it to the side. Always watch the ball, even during contact.

346. Offensive and Defensive Positions

A team is composed of 11 players: four forwards, three halfbacks, three fullbacks, and one goalie. The forwards normally play on the offensive half of the field and attempt to score, although all players may score. The halfbacks may play either on the offensive or defensive half of the field. The fullbacks play on the defensive end of the field and aid the goalie in the defense of the goal. The goalie, who is the only player permitted to use his hands, defends the goal and seldom goes more than 5 yards from the goal area. The 4-3-3 formation (fig 98) is one of many recommended soccer formations because of its flexibility and ease of control.

347. Drills to Develop Basic Skills

Drills of kicking, passing, shooting, trapping, heading, and dribbling are necessary to teach the basic skills before attempting team competition.

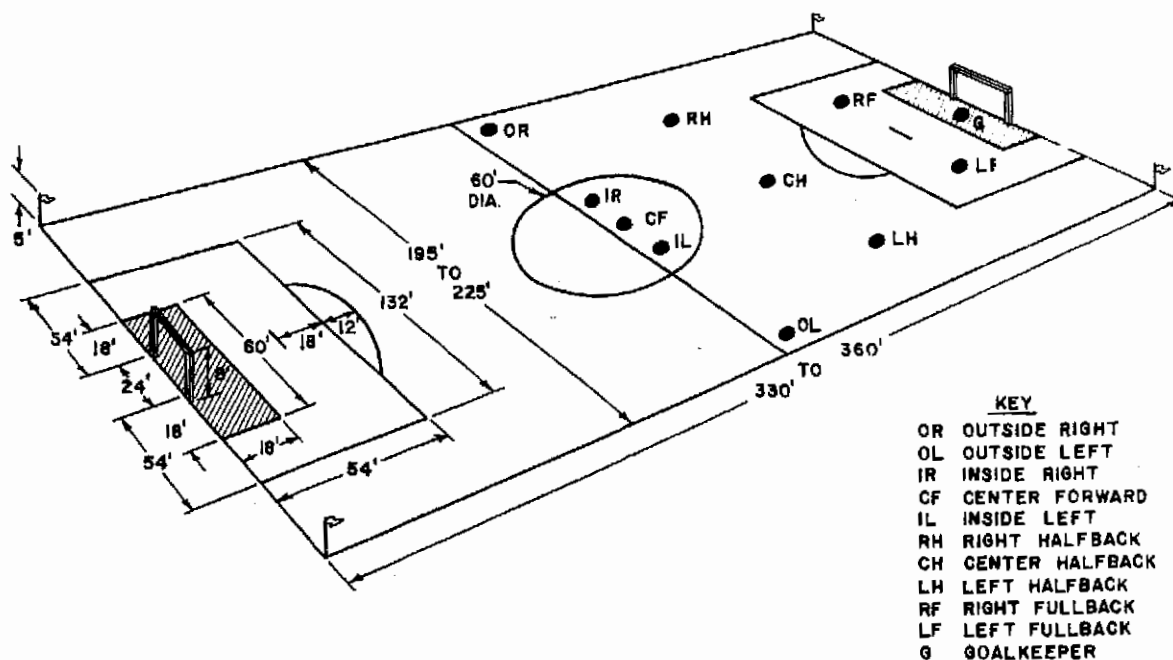


Figure 97. Soccer field with positions.

a. A team circle formation may be used for practice of these skills. Form as many circles as there are teams.

b. Several drills are recommended for developing skill in kicking, passing, dribbling, and shooting (fig 99).

348. Description of the Game and Abridged Rules

a. To begin play, the ball is placed at the center of the midfield line. The offensive team begins

play by kicking the ball forward. After the ball turns one complete revolution, it is a free ball to play for anyone except the original kicker. The original kicker may kick the ball only after another player has touched it. When play begins, all defensive players must be at least 10 yards from the ball, in their own half of the field. Once play has started, all players except the goalie may position themselves and move anywhere on the field.

b. The offensive team attempts to move the ball toward the defensive team's goal, using any

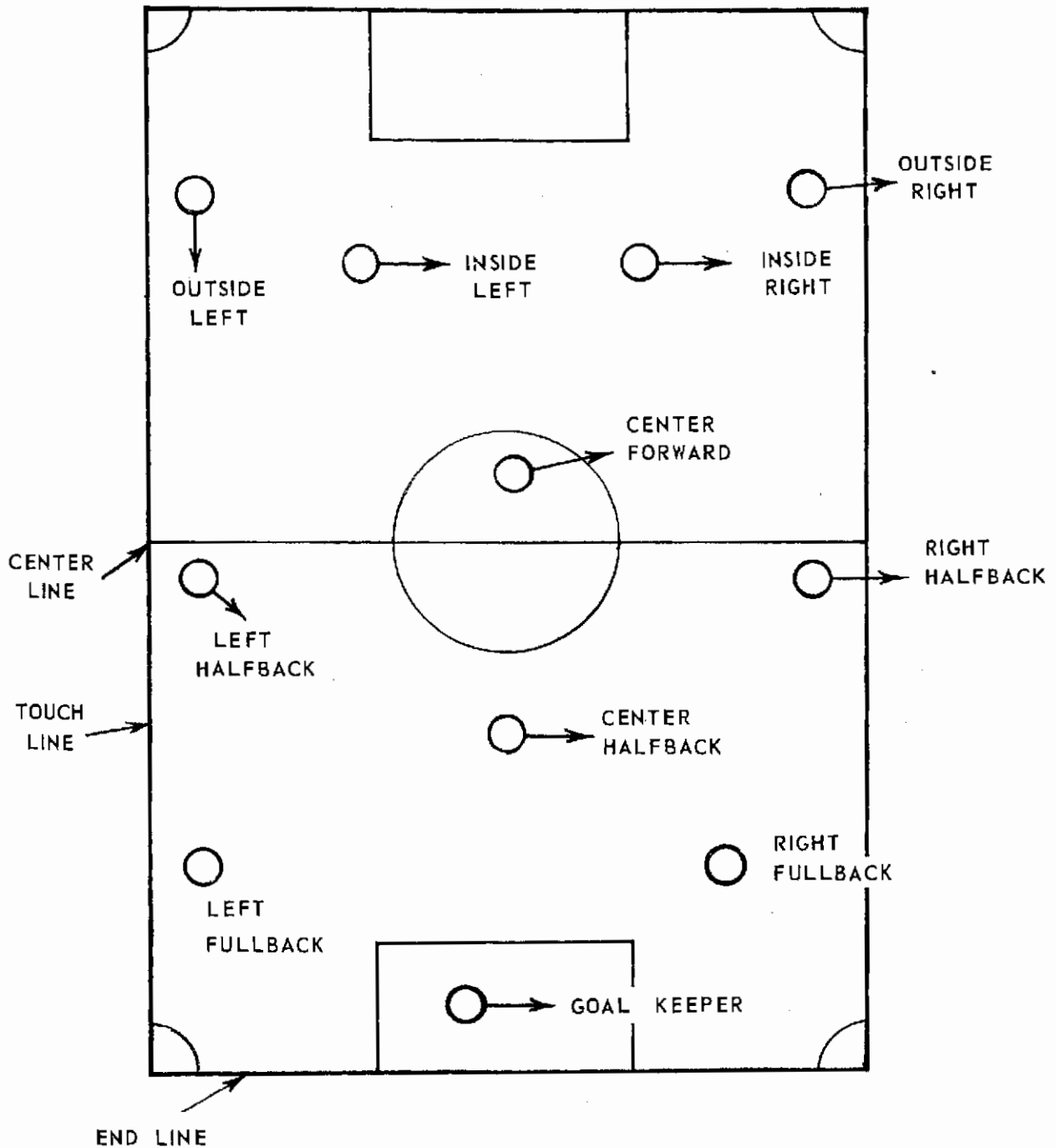
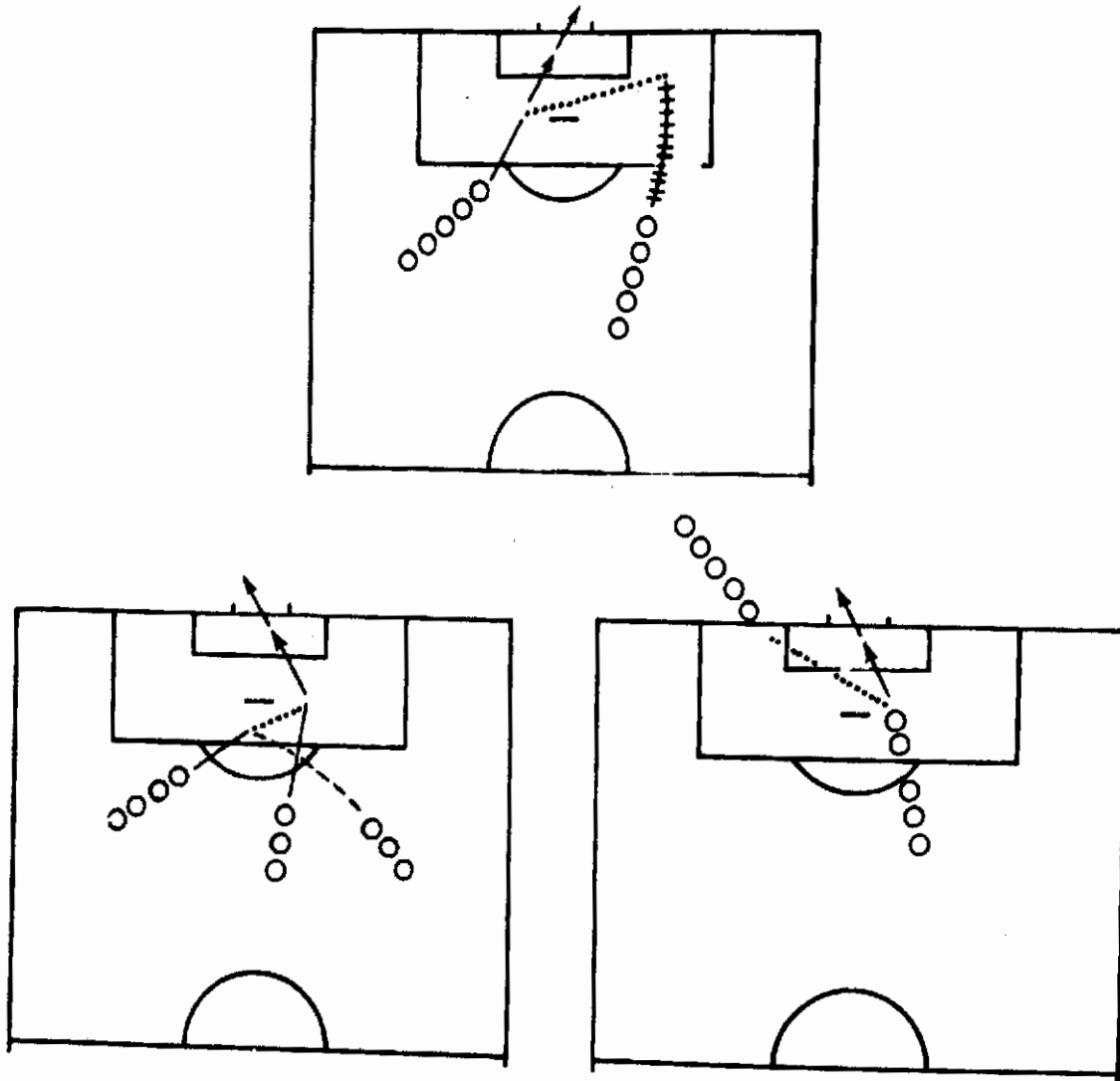


Figure 98. 4-3-3 offensive soccer formation.

means except the arms and hands. The defensive team attempts to kick the ball away from the offense—toward their own goal. The intricacies of the offensive and defensive maneuvers are commensurate with the skill level of the players. However, it is normally good strategy for the offensive players to stay spread and pass the ball to

each other in the direction of the defensive team's goal. Usually, the defensive players play the offense man-to-man, thus insuring that no offensive player is left open.

c. A goal is scored when the entire ball passes over the goal line within the area defined by goalposts. A goal counts one point. After a successful



KEY

- BALL PASSED ON GROUND
- - - - - BALL KICKED IN AIR
- → → BALL SHOT AT GOAL
- ||||| DRIBBLING
- — — RUNNING
- ○ ○ PLAYERS

Figure 99. Soccer drills.

goal, the teams return to midfield where the team scored against becomes the offensive team and gains possession of the ball to kick it forward.

d. The Goalie.

(1) The goalie may use his hands to stop the ball anywhere within the goal area. Once he leaves the goal area, he must observe the rules that govern the other players.

(2) Once the goalie has caught the ball within the goal area, he is permitted to kick or throw the ball in any manner. He is allowed three steps and must dribble the ball each step.

e. Time and Start of Game.

(1) The team that wins the coin toss has their choice of first ball possession or goal to defend.

(2) A game consists of two 16-minute halves with a 3-minute break between halves.

(3) No timeouts are allowed during the game.

f. Referees. The referees control the game using a whistle to start and stop play.

Note. The whistle is not used to start play on an out-of-bounds ball; the ball is put back into play immediately.

g. Offside. Without the ball, an offensive player cannot go into the offensive half of the field unless there are at least two defensive players between him and the goal. The goalie counts as a defensive player. If the ball is between an offensive player and the goal line, the offensive player may play the ball, even though there are not two defensive players between him and the goal.

h. Out of Bounds.

(1) *Over sidelines.* A ball that goes out of bounds on either side of the field is put back into play IMMEDIATELY by the opposite team, at the point it went out of bounds. It must be put back into play by a two-hand, overhead throw, with both of the player's feet remaining on the ground.

(2) *Drop ball.* If it cannot be determined by whom a ball went out of bounds, a drop ball results. The ball is held by the referee between the two players involved, and then dropped to the ground. The ball must make contact with the ground before it can be played. All other players must remain 10 yards away from the drop point.

i Fouls. Because of rule infringements or fouls by one team, the offended team may be awarded one of the following types of kicks:

(1) *Free kick.* A free kick is either direct or indirect.

(a) *Direct.* A direct free kick is awarded to the offended team for the following rule infractions that occur outside the penalty area: illegal charging, goalkeeper carrying the ball, kicking, striking, kneeling, pushing, holding, jumping at an opponent, or a player other than the goalkeeper handling the ball. The kick is taken at the spot of the infraction, and the kicker has the option of passing to a teammate or trying for a goal. Except for the kicker, all players must remain 10 yards away from the ball until the ball is kicked.

(b) *Indirect.* An indirect free kick is given to the offended team for rule infractions that include offside, illegal substitutions, and goalkeeper carrying the ball more than three steps when he is in the penalty area. This kick is made from the point of the infraction or from the spot where play is stopped; the kicker may not try directly for a goal.

(2) *Penalty kick.* A penalty kick is awarded to the offended team at the penalty kick mark (fig 97) if a defensive player commits any of the following acts in his own penalty area: pushing, holding, kneeling, striking, jumping at an opponent, illegal charging, or handling the ball (any player other than the goalkeeper). During a penalty kick, all players other than the goalie and kicker must remain at least 10 yards from the ball. The goalie remains stationary on the goal line until the ball is kicked. As soon as the ball is kicked, the goalie may try to prevent it from entering the goal.

(3) *Goal kick.* A goal kick is given to the DEFENSIVE team if the ball goes over the goal line but not between the goalposts and is last touched by an offensive player. The goal kick, which is executed similarly to a kickoff in football, is taken from a point on the forward edge of the goal area corresponding to the side of the field where the ball went over the goal line.

(4) *Corner kick.* A corner kick is taken from the corner area (fig 97), closest to the spot where the ball passed over the goal line. A corner kick is awarded to the OFFENSIVE team when the defensive team last touches the ball before it passes over the goal line (other than between the goalposts). A goal may be scored directly from a corner kick.

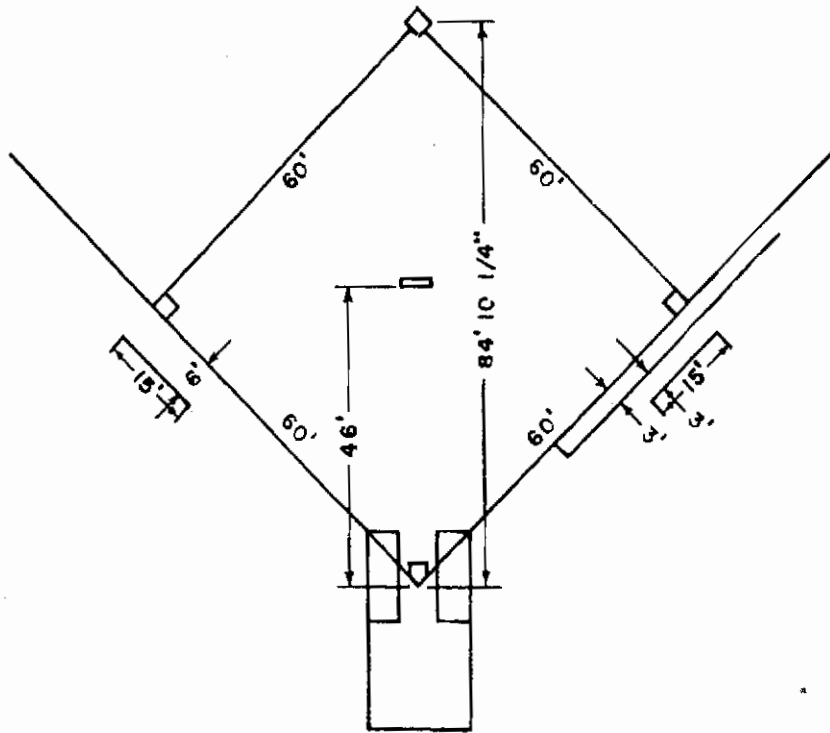
Section V. SOFTBALL

349. Introduction

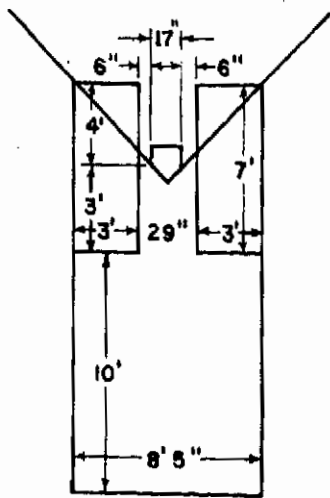
a. Softball is a game that is well known in America. It has become one of the principal on-

and off-duty physical training activities in the Army.

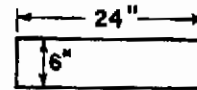
b. Softball is patterned after baseball, but has



A. FIELD



B. HOME PLATE DETAIL



C. PITCHERS RUBBER

Figure 100. Softball field.

added advantages because it requires less equipment and is easily adapted to every age group. It requires a smaller play area (fig 100); the ball is larger and softer; and the bats are lighter, making them easier to handle. Because of its popularity, a majority of the men in the Army have a general understanding of softball and its rules.

350. Place in the Program

a. Softball is a sustaining type of activity. It does not require continuous exertion on the part of each player; however, it is an enjoyable and occasionally strenuous game that should be included in the physical training program.

b. When a group already knows something about pitching, fielding, and batting, the instructor should give only a brief review of these fundamental skills, and place more emphasis on the rules and offensive and defensive strategy. Most of the time devoted to softball should be used for organized competition.

351. Organization of Instruction

When instruction is given on the basic skills and techniques, the men should first be shown the correct method of executing each skill. The class should then be divided into groups to practice. Ample time should be provided to familiarize each individual with the techniques and basic skills necessary to play every position. When this instruction is completed, the class should be divided into teams for organized competition.

352. Basic Skills

a. *Batting.* Select a bat that balances easily; the hands grasp the handle at a point where the butt is neither too heavy nor too light. For a right-handed batter, the left foot points at about a 45 degree angle toward the pitcher, and the right foot points toward homeplate. The feet are spread a comfortable distance apart. The head and eyes face the pitcher and the bat is over the right shoulder, hands away from the body. In swinging, keep the eyes on the ball, twisting at the waist. As a result of the twist, the arms will swing automatically. The power of the swing is developed with a snap of the wrists and the extension of the arms in the followthrough.

b. *Bunting.* The initial stance for bunting is the same as for batting. When the ball leaves the pitcher's hand, immediately bring the bat from over the shoulder, moving the right hand slightly up the handle, until the bat is directly over the plate. Rotate the body so that it faces the pitcher.

The feet are comfortably apart. Meet the ball squarely, absorbing the shock with the arms. Hold the edge of the bat perpendicular to the direction in which the ball is to be bunted.

c. *Base Running.* After hitting the ball, the runner should start quickly for first base. He should always be watching and listening to the coach for directions. Speed is the most important factor, but running the shortest distance between bases is also essential.

d. *Sliding.* A variety of sliding techniques such as the hook (right or left), stand up, or head first slide are feasible. To prevent injury, it is important to keep the body relaxed and the hands and feet high.

e. *Catching.* Assume the knee bend position, with the upper arms parallel to the ground, forearms vertical, and palms down. As the ball strikes the mitt, grasp it with the bare hand. On high pitches, cup the fingers of the bare hand to prevent injury. On low pitches, extend the palms toward the pitcher with the thumbs down. Always avoid pointing the fingers toward the pitcher. The catcher must not sacrifice accuracy for speed in throwing to bases and must learn through experience when he can throw a player out at a certain base.

f. *Pitching.* Pitching, to a large degree, determines a team's defensive strength, and pitching can only be developed through practice. To hold the ball, grasp it loosely with the fingers, the index, middle, and third fingers on one side and the thumb and fourth finger on the other side. The most effective manner of pitching is the windmill pitch. To start the windup, face homeplate with both feet on the pitcher's rubber. The ball is held with both hands in front of the body. Move the left foot to the rear as the right arm swings backward. The body pivots to the right, the left hand is extended, and the head and eyes remain on the catcher's glove. When the right arm reaches the 9 o'clock position, step forward with the left foot directly toward homeplate, swing the arm forward and twist the body to the left. With a snap of the wrist on the underhand swing release the ball, and follow through. Control is very important and is gained only through practice.

g. *Infield Play.* An infielder must anticipate at all times what he should do if the ball is hit to him. On batted, ground balls he should play the ball to his front. Field each ground ball with the feet apart, hands well out in front. When the ball strikes the glove, secure it with the bare hand. The hands and arms should relax and the arms

should be drawn backward toward the right hip preparatory to the throw.

h. Outfield Playing. An outfielder should be alert, fast, and able to judge the ball so he can assume the best position to catch it. It takes practice to be a successful fielder. To catch a flyball, he extends the arms forward, forming a cup with the hands. He keeps his eyes on the ball until he has firm possession of it. He catches ground balls in the same way as the infielder (*g* above).

353. Drills

a. Pitching and Catching. Divide the class into two lines 50 feet apart; one side will pitch, the other will catch. Make corrections on form for both pitching and catching. Emphasize form and control. Change over.

b. Infield Play. Divide the class into 7-man groups. Place each group in a separate area, simulating (if necessary) the softball diamond (fig 100). Designate a first, second, and third baseman, and a shortstop. Choose one man to bat, one to catch at homeplate, and another to retrieve the balls which go into the outfield due to error. The batter calls a play such as first base, double play, or throw it home. He then hits a ground ball to one of the infielders who, in turn, carries out the

prescribed play. Demand enthusiasm and hustle. Change over often enough to allow each man to play each position.

c. Outfield Play. Place seven men in the outfield, and designate definite positions. Have a player hit both fly and ground balls to the field. Use one player to catch balls at homeplate. After each ball has been played, have it relayed back to the hitter. Change positions so that each outfielder has an opportunity to play the various outfield positions.

d. Base Running. Divide the class into 15-man groups. Time each runner in a complete circuit of bases. Stimulate competition and critique each runner.

e. Hitting and Bunting. Divide the class into regular 9-man teams. Place one team in the field to shag balls. The players on the other team take turns at bat, hitting ten balls each. On the last pitch, they lay down a bunt and run to first base, trying to beat the throw. Change over.

354. Rules

Most men know something of softball rules to the extent needed for competition. However, for complete official rules, see the Amateur Softball Association Official Guide.

Section VI. SPEEDBALL

355. Introduction and General Description

Speedball is a game that offers vigorous and varied action with plenty of scoring opportunities. It is easy to learn and provides spontaneous fun. Little equipment is needed—a ball is all that is absolutely necessary. Speedball combines the kicking, trapping, and intercepting elements of soccer; the passing game of basketball; and the punting, dropkicking, and scoring pass of football.

a. Two teams of 11 men each play the game under official rules, but any number of players may successfully constitute a team. An inflated leather ball, usually a soccer ball, is used. The playing field is a football field with a football goal post at each end (fig 101).

b. The game starts with a soccer-type kick-off. The kicking team tries to retain possession of the ball and advance it toward the opposite goal by passing or kicking it. Running with the ball is not allowed, so there is no tackling or interference. When the ball touches the ground, it cannot be picked up with the hands or caught on the bounce, but must be played as in soccer until it is raised

into the air directly from a kick; then the hands are again eligible for use.

c. When the ball goes out of bounds over the side lines, it is given to the opposing team and is put into play with a basketball throw-in; when it goes over the end line without a score, it is given to a player of the opposing team who may either pass or kick it on to the field.

d. When two opposing players are contesting the possession of a held ball, the official tosses the ball up between them as in basketball.

e. Points are scored by kicking the ball under the crossbar of the goalposts, dropkicking the ball over the crossbar, completing a forward pass into the end zone for a touchdown, or by kicking the ball under the crossbar of the goalposts on a penalty kick.

356. Place in the Program

Speedball, like soccer, should be introduced into the physical training program during the latter part of the toughening stage, and used as a com-

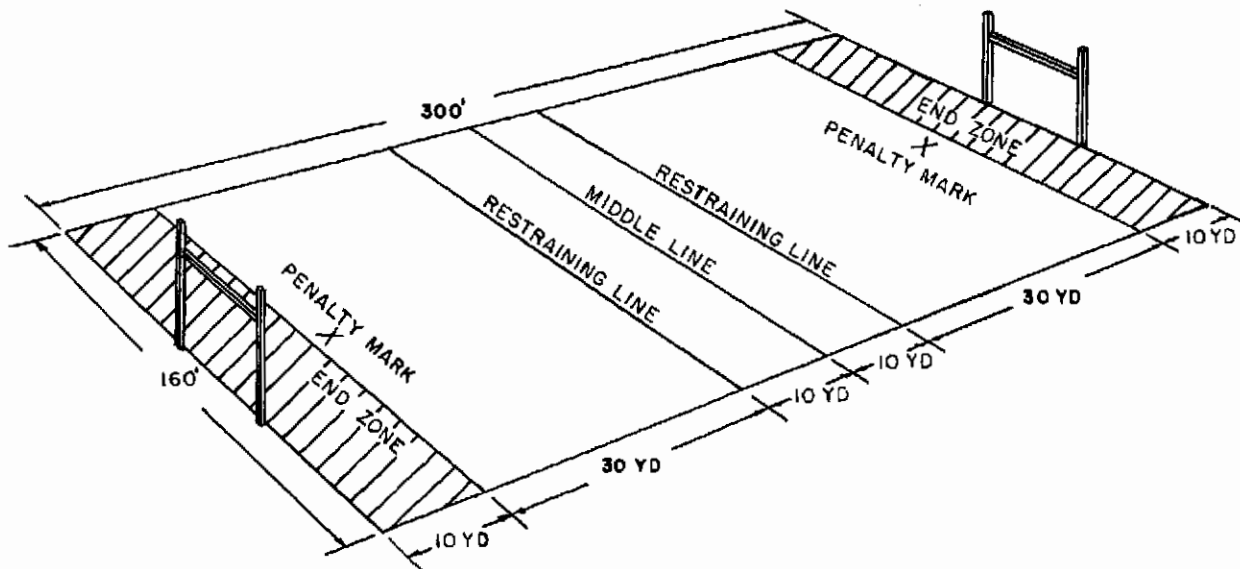


Figure 101. Speedball field.

petitive activity in the sustaining stage. It may be played any time the weather permits, but it is primarily a spring or fall activity.

357. Basic Skills

a. The skills of kicking, passing, heading, and trapping from soccer, and skills of punting, drop-kicking, and forward passing from football are combined with passing, receiving, and pivoting from basketball to make up the skills of speedball.

b. *Kickups and Lifts.* The kickup is a play in which a player lifts the ball into the air with his feet so that he may legally play the ball with his hands. The kickup is generally used to make the transition from ground play to aerial play. The technique of making the play depends upon whether the ball is rolling or stationary. To kick up a ball rolling or bouncing toward the player, the foot is held on the ground with the toe drawn down until the ball rolls onto the foot, then the foot is raised, projecting the ball upward. If the ball is stationary, the player rolls it backward with one foot then places the foot where the ball will roll onto it. He can then lift the ball with that foot. If a ball is rolling away from the player, he should stop it with a foot and play it as a stationary ball. There is also a method of raising the ball by standing over it with a foot on either side. He presses his feet against the ball and jumps into the air, propelling the ball into his hands.

358. Offensive Positions and Strategy

The positions of the players in speedball are much the same as in soccer. However, some of the posi-

tions are designated by different names. There are eleven players on each team. The forward line is composed of five players, the right end, right forward, center, left forward, and left end. The second line consists of right halfback, fullback, and left halfback. In the next line is the right guard and left guard. The player who defends the goal is the goal guard. The strategy employed in speedball during offensive play is very similar to that of soccer.

359. Defensive Play

There are two types of defensive formations in speedball: man-for-man and position defense. Man-for-man defense is recommended for beginning players.

360. Abridged Rules

a. *The Field.* It is 360 feet long and 160 feet wide (a regulation football field).

b. *Players.* Eleven on a team. The goal guard has no special privileges.

c. *Time.* 10-minute quarters, 2 minutes between. Ten minutes between halves. Five minutes for extra overtime periods. (Begin first overtime by a jump ball (*g* below) at center, same goals; change goals in the event of a second overtime period.)

d. *Winner of Toss.* The winner of the coin toss has the choice of kicking, receiving, or defending a specific goal.

e. *Starting Second and Fourth Quarters.* The team that received the ball at the start of the

game kicks off to begin the second and fourth quarters.

f. Half. The team that received the ball at the beginning of the game kicks off to start the second half.

g. The Start of the Game. The game is started with a kickoff from the middle line (50-yard line), both teams being required to remain back of their respective restraining lines until the ball is kicked. The ball must travel forward.

h. Fly and Ground Ball. The most characteristic feature of the playing rules of speedball is the differentiation between a flyball (or aerial ball) and a ground ball. A player is not permitted to touch a ground ball with his hands and must play it as in soccer. A flyball is one that has risen into the air directly from the foot of a player (example: punt, dropkick, placekick, or kickup). Such a ball may be caught with the hands provided the catch is made before the ball strikes the ground.

i. Kickup. A kickup is a ball that is so kicked by a player that he can catch it himself. A bounce from the ground may not be touched with the hand because it has touched the ground since being kicked. This rule prohibits the ordinary basketball dribble, but one overhead dribble (throwing the ball into the air and advancing to catch it before it hits the ground) is permitted.

j. Out of Bounds. If a team causes the ball to go out of bounds over the side lines, a free throw-in (any style) is given to the opposing team. When the ball goes over the end line without scoring, it is given to the opponents who may pass or kick from out of bounds at that point.

k. Tie Ball. In case two players are contesting the possession of a held ball, even in the end zone, a tie ball is declared and the ball is tossed up between them.

l. Kickoff. The kickoff is made from any place on or behind the 50-yard line. Team A (the kicking team) must be behind the ball when it is kicked. Team B must stay back of its restraining line (10 yards distance) until the ball is kicked (penalty—a violation). The ball must go forward before A may play it (penalty—violation). Kickoff out of bounds to opponents at that spot. A kickoff touched by B and going out of bounds, no impetus added, still belongs to B. A kickoff, in possession and control of B and then fumbled out of bounds, belongs to A at the spot. A fieldgoal from kickoff (under crossbar) scores 3 points.

m. Scoring Methods.

(1) *Fieldgoal (3 points).* A soccer-type kick,

in which a ground ball is kicked under the crossbar and between the goalposts from the field of play or end zone. (A punt going straight through is not a fieldgoal for it is not a ground ball. The ball must hit the ground first.) A dropkick from the field of play that goes under a crossbar does not count as a fieldgoal. A dropkick from the end zone that goes under the crossbar counts as a fieldgoal; if it goes over the crossbar, it is ruled as a touch back.

(2) *Dropkick (2 points).* A scoring dropkick must be made from the field of play and go over the crossbar and between the uprights. The ball must hit the ground before it is kicked (usually with the instep).

(3) *End goal (1 point).* This is a ground ball which receives its impetus (kicked or legally propelled by the body) from any player, offensive or defensive, in the end zone and passes over the end line but not between the goalposts.

(4) *Penalty kick (1 point).* This is a ball kicked from the penalty mark that goes between the goal posts and under the crossbar. The penalty mark is placed directly in front of the goal at the center of the goal line.

(5) *Touchdown (1 point).* A touchdown is a forward pass from the field of play completed in the end zone. The player must be entirely in the end zone. If he is on the goal line or has one foot in the field of play and the other in the end zone, the ball is declared out of bounds. If a forward pass is missed, the ball continues in play, but must be returned to the field of play before another forward pass or dropkick may be made.

n. Substitutions Unlimited. Substitutions may be made any time when the ball is not in play. If a player is withdrawn, he may not return during that same period.

o. Timeout. Three timeouts of 2 minutes each are permitted each team during the game.

p. Fouls.

(1) *Personal (four disqualify).* Kicking, tripping, charging, pushing, holding, blocking, or unnecessary roughness of any kind, such as running into an opponent from behind. Kicking at a flyball and thereby kicking an opponent.

(2) *Technical.* Illegal substitution, more than three timeouts in a game, unsportsmanlike conduct, unnecessarily delaying the game.

(3) *Violation.* Traveling with the ball, touching a ground ball with the hands or arms, double overhead dribble, violating tie ball, and kicking or kneeling a flyball before catching it.

(4) *Penalties.* (The offended player shall attempt the kick.)

	<i>Penalty</i>	<i>Location</i>
Personal	.....In field of play	----1 kick with no follow-up.
Technical	.....In field of play	----1 kick with no follow-up.
Violation	.....In field of play	----Out of bound to opponent.
Personal	.....In end zone	-----2 kicks with followup on last kick.
Technical	.....In end zone	-----1 kick with followup.
Violation	.....In end zone	-----1 kick with followup.

q. Summary of Fouls.

(1) Fouls in the field of play allow no fol-

lowup while fouls in the end zone always allow followup.

(2) On penalty kicks, with no followup, only the kicker and goalie are involved.

(3) On penalty kicks, with a followup, the kicking side is behind the ball and the defending side behind the end line or in the field of play. No one is allowed in the end zone or between the goalposts except the goal guard. The kicker must make an actual attempt at goal, and he cannot play the ball again until it is touched by another player.

Section VII. TOUCH FOOTBALL

361. Introduction

Touch football has become a major Army game on the lower levels of competition. Considering its similarity to football and yet its comparative simplicity, it is easy to understand the popularity of the game. The modification of regulation football rules for touch football eliminates the necessity for much special equipment, training, and professional leadership. Touch football encourages participation, reduces the number of injuries, and simplifies the teaching of fundamental rules, techniques, and skills.

362. Place in the Program

Touch football is an excellent conditioning activity. It may be used in the latter part of the toughening stage and during the sustaining stage of physical conditioning. It should be played in the fall when the interest in football is at its peak. Any level field can be used. Goalposts are desirable but not absolutely necessary. The field should conform as nearly as possible to the regulation size (fig 102).

363. Organization of Instruction

Most men know something about football, but not all have had an opportunity to play. Several short periods should be devoted to the instruction of all men in the basic fundamentals found in paragraph 364. A desirable method is to give 5 to 10 minutes of instruction at the beginning of each football period followed by actual play.

364. Basic Skills

a. Offensive Stance. Touch football emphasizes speed; therefore, a high offensive stance should be used to facilitate a fast start. The feet should be about shoulder width apart and parallel, knees bent, thighs just above the horizontal and back nearly parallel with the ground. The head and

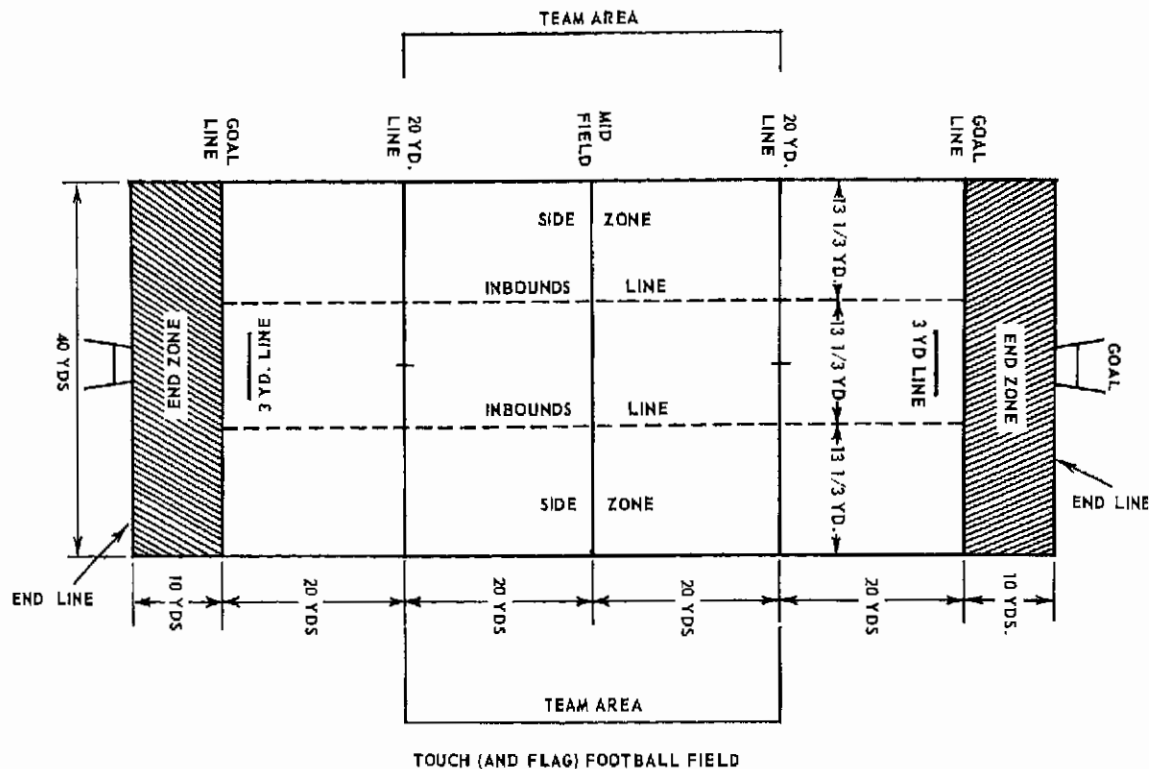
eyes are up and the right hand is extended straight downward, the fingers curled under, the thumb toward the rear. The left arm rests on the left thigh.

b. Defensive Stance. This type stance may be similar to the offensive stance or somewhat higher to allow for better visibility and free use of the hands to ward off blockers. The same principles of balance, body control, and vision used in the offensive stance are applicable to the defensive stance.

c. Shoulder Block. Touch football rules state that a blocker must remain on his feet before, during, and after his block. The blocker should maintain a wide base for shoulder and upright blocks. For the shoulder block, the hands should be close to the chest, the elbows raised sideward, the feet under the body and widely spread, the head up, and the buttocks low. Upon contact, the feet should be moved rapidly in short, choppy steps to force the body forward, thus keeping the shoulder in contact with the opponent.

d. Upright Block. The upright block is useful in the open field and is executed by the player while standing nearly erect. The feet are widely spread, and the head is erect. The arms are raised and the hands are placed on the chest, forearms forward to contact the opponent. Due to the nature of the block, the opponent is contacted above the waist.

e. Cross Body Block. In performing the cross body block, the blocker uses the hip to contact the opponent, usually in the area of the thighs. The execution of this type of block requires the blocker to throw his head, shoulders, and arms past the target area, thus bringing his hip into contact with his opponent. Then, assisted by movement of the hands and feet which are in contact with the ground, he forces the opponent backward or down. The shoulder, upright, or cross body blocks may be used in the line or in the open field.



TOUCH (AND FLAG) FOOTBALL FIELD
 Figure 102. Touch (and flag) football field.

f. *Ball Carrying.* The first fundamental to stress in ball carrying is the grip of the ball. The ball is placed in the arm with its long axis parallel to the forearm. It is held firmly and close to the body. The hand grips the lower point of the ball with the fingers spread to form a firm grip. Stress the principles. Teach runners to carry the ball in the arm away from the opponent. The runner should be cautioned to follow his interference and to keep his head up, so he can avoid his opponents.

g. *Forward Passing.* In touch football forward passing is one of the principal means of advancing the ball. Teach the method of gripping or holding the ball with the fingers spread on the laces and toward the end of the ball, cocking the arm with the hand holding the ball close to the head and the wrist rotated so that the rear point of the ball is pointing toward the head. The ball is delivered with a baseball catcher's throwing motion, by extending the arm and imparting a spiral to the ball. To make a successful forward pass, it is usually best for the passer to have the feet spread comfortably and in contact with the ground, the free hand extended to aid in balance. He throws the ball to a spot where the receiver can catch it without breaking his stride. Do not allow beginners to attempt jump passes, as the

successful throwing of this type of pass requires the skill of an experienced forward passer.

h. *Pass Receiving.* To catch a forward pass requires the receiver to keep his eyes on the ball, to run to a spot where he can reach the ball, to catch it without breaking stride, and to take it out of the air by relaxing the hands as the ball strikes. In receiving a pass over the shoulder, the little fingers are facing, with the thumbs outward and all fingers spread. In catching a pass while facing the passer, the receiver should catch a high pass with the thumbs facing and the little fingers out, and a low pass with the little fingers facing and the thumbs pointing outward.

365. Drills to Develop Fundamentals

It is recommended that the time available for instruction in the fundamentals be used in teaching the following skills: stance, shoulder block, cross body block, forward passing, and pass receiving.

a. *Stance Drill.* Use the extended rectangular formation (app B). Demonstrate the stance and tell the men they will execute the drill by the numbers. At the count of one, place the feet in position. At the count of two, bend the knees and trunk. At the count of three, lean forward and

place one hand on the ground. (For the proper technique of assuming the stance, see para 364). After checking for errors and making corrections, command *UP* and execute the drill again. Have the men do this several times before progressing to the next drill.

b. Blocking Drills. All the blocks may be practiced by forming the class into two lines facing one another and having the men pair off. Explain the drill, demonstrate the block desired, and designate one line as blockers and the other as opponents. After several practice blocks, have the blockers and opponents change over. During the course of the drill, emphasize the three phases of blocking: the approach, contact, and follow-through.

c. Forward Passing Drill. Form the class in groups of ten men each. The groups form two lines that line up facing each other at a distance of 10 to 15 yards. Have 5 to 10 feet between each man on line. Using at least one ball to a group, practice grip, balance throwing with a spiral, and followthrough. The ball is thrown by each man, in turn, to the next man in the opposite line who catches it and throws.

d. Passing and Receiving Drill. Each of the groups is formed as for the drill outlined in *c* above. One man, the center, is stationed between the two files with the ball. One file is designated as passers and the other as receivers. The center snaps the ball to the first passer. He passes to the first receiver who runs down the field at the snap of the ball. The receiver catches the pass and returns the ball to the center. Upon his return, the receiver joins the "passer" file and the passer joins the "receiver" file. This rotation continues until all men have an opportunity to throw and receive forward passes.

e. Other Drills. If time permits, other fundamental drills may be included, such as snapping the ball from center, kicking, lateral passing, and other individual skills of a specialty nature.

366. Offensive Formations and Play

a. A 9-man team is recommended. Three offensive formations (fig 103) are suggested for this size team. Of the three formations illustrated, the double wing-back is the recommended for touch football.

b. To complete the instruction in offensive play, it will be necessary to insure that some member of the team can perform the individual specialties. These special skills are passing the ball from

center, punting, free kicking for kickoffs, back-field pivots, and handoffs.

c. Men like to develop their own plays and should be encouraged to do so. Time must be made available for them to practice such plays before using them in a game.

367. Defensive Play

The class should be shown several defensive formations. Four different formations are illustrated for the 9-man team (fig 104). The selection of a defense depends upon the opponent's offense. The 4-2-2-1 and the 5-1-2-1 are better pass defense formations than the 4-3-2 and the 5-2-2. The latter formations are weak "down the middle." However, the 4-3-2 and 5-2-2 are stronger against a running attack. If fewer men are employed on a team, the defense could be altered by eliminating either linemen or backs.

368. Rules

It is important that the participants know the rules that govern touch football. Official National Touch and Flag Football Rules shall govern all plays.

a. Rule I—Field and Equipment.

(1) *Section 1—Field* (fig 102). The game shall be played on a regulation touch and flag football field. When space is limited, the dimensions of the field may be modified.

(2) *Section 2—Uniforms.* Distinctive jerseys, shorts, sweat suits, or trousers, and basketball shoes or regulation footwear may be worn. Pads, helmets, and cleated shoes are not authorized.

b. Rule II—Length of Game.

(1) *Section 1—Periods.* The game shall be played in four periods, each 10 minutes in length, with a 1-minute interval between the first and second and the third and fourth periods; and with a 10-minute interval between the second and third periods.

(2) *Section 2—Time outs.* Each team is entitled to two time-outs during each half without penalty. A referee's time out is called:

(a) After a touchdown, fieldgoal, safety, or touchback.

(b) During a try for a point.

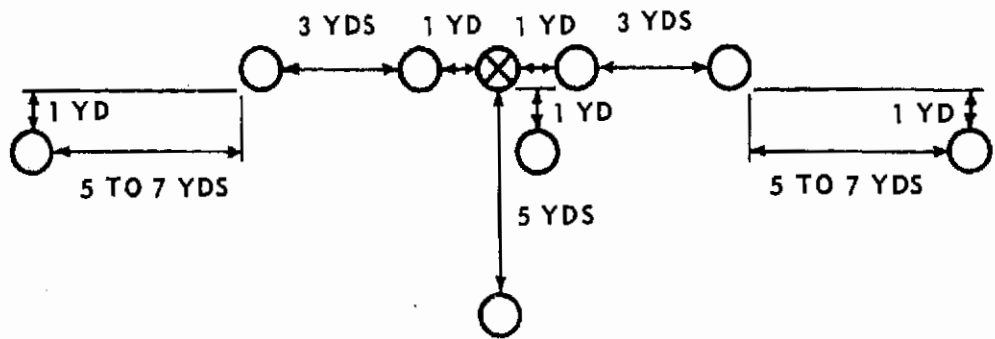
(c) After an incomplete forward pass.

(d) When the ball goes out of bounds.

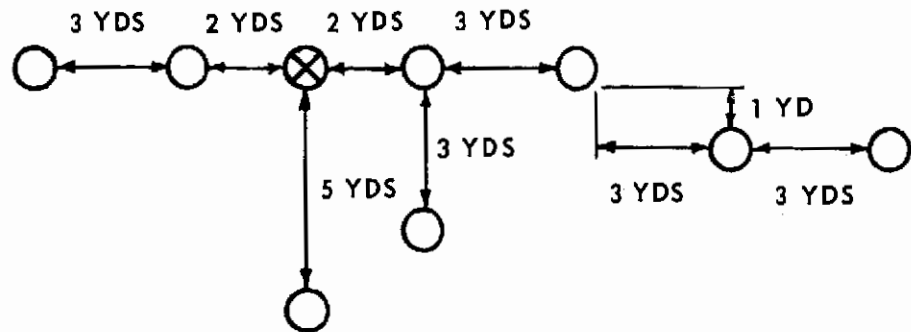
(e) During the enforcement or declination of penalties.

c. Rule III—Players and Substitutes.

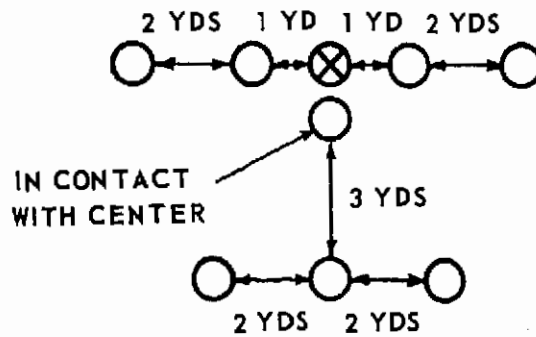
(1) *Section 1—Players (9-man game).* Each



9-MAN DOUBLE WING

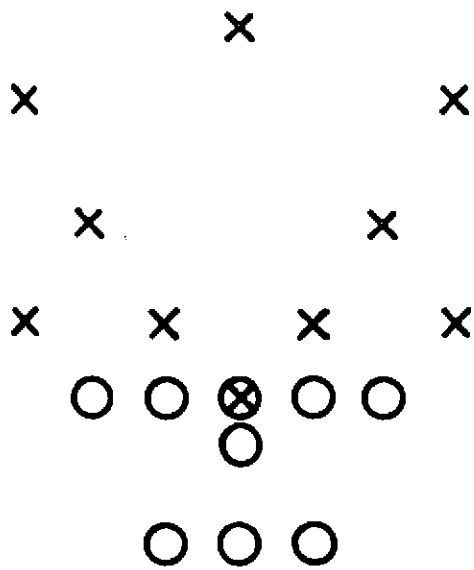


9-MAN SPREAD FORMATION (RIGHT)

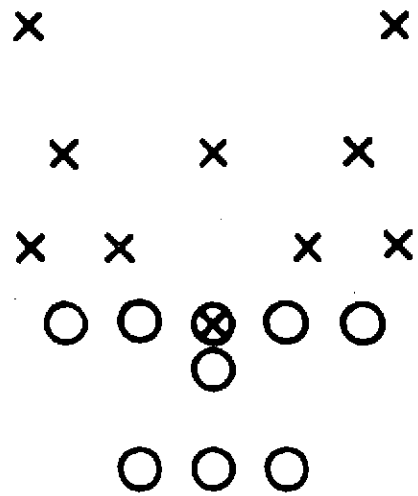


9-MAN "T" FORMATION

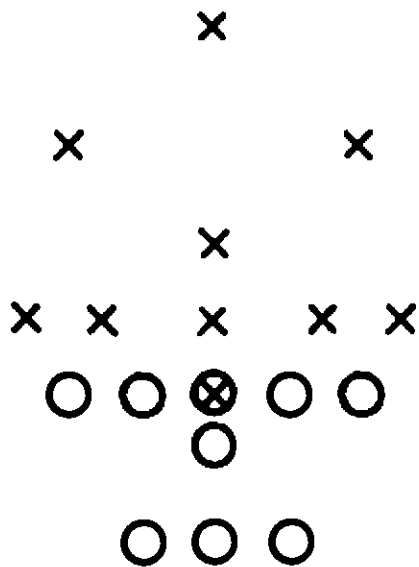
Figure 108. Offensive formations, touch football.



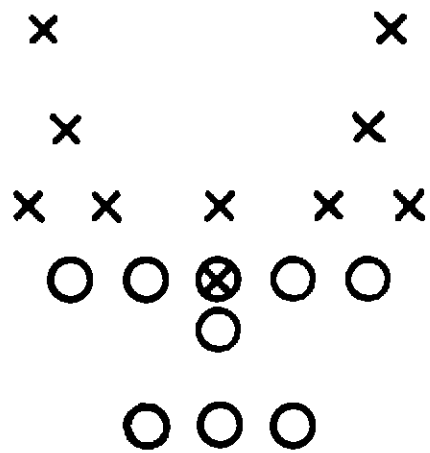
4-2-2-1 DEFENSE



4-3-2 DEFENSE



5-1-2-1 DEFENSE



5-2-2 DEFENSE

Figure 104. Defensive formations, touch football.

team shall consist of nine players. The offensive team shall have a minimum of five players on the scrimmage line when the ball is snapped.

Note. The following diagram designates the position of the players:

END GUARD CENTER GUARD END
 QUARTERBACK
 HALFBACK HALFBACK
 FULLBACK

(2) *Section 2—Players (6-man game).* Each team shall consist of six players. The offensive team shall have a minimum of three players on the scrimmage line when the ball is snapped.

Note. The following diagram designates the position of the players:

END CENTER END
 HALFBACK HALFBACK
 FULLBACK

(3) *Section 3—Substitutions.* Unrestricted substitutions may be made when—

(a) The ball is dead.

(b) The clock is running, provided substitutions are completed and the ball is snapped within 25 seconds after the ball is ready for play.

d. Rule IV—Playing Regulations.

(1) *Section 1—Starting.* Starting the game and putting the ball in play after any score shall be as prescribed by the Official National Touch and Flag Football Rules handbook.

(2) *Section 2—Kickoff.* In a 9-man game, the receiving team shall have three players within 5 yards of its own restraining line until the ball is kicked.

(3) *Section 3—Restriction.* In a 6-man game, the only restriction on the receiving team is that all players must remain behind their own restraining line until the ball is kicked.

(4) *Section 4—Fumbled ball.* A ball that is

fumbled and touches the ground during a run, kick, or lateral pass play, may not be advanced by either team. The ball may be touched and recovered by any player. It shall be dead and in possession of the player who first touches it after it strikes the ground.

Note. Players shall be warned against diving on fumbled balls and may be penalized for unnecessary roughness.

(5) *Section 5—Fumbled ball or lateral pass.* A fumbled ball or lateral pass, intercepted or recovered before it touches the ground, may be advanced by any player.

(6) *Section 6—Downed ball by legal touch.* The player in possession of the ball is downed and the ball is dead when such player is touched by an opponent simultaneously with both hands above the waist and below the head.

(7) *Section 7—Forward passing.* One forward pass may be made during each scrimmage play from behind the passer's scrimmage line.

(8) *Section 8—Eligible receivers.* All players of offensive and defensive teams are eligible to receive forward passes. Two or more receivers may successively touch a forward pass.

e. Rule V—Fouls and Penalties. Use of hands and arms, for both offense and defense, are prescribed in the Official National Touch and Flag Football Rules handbook.

Note. The primary difference between touch football and flag football is in the manner in which a runner is declared down. In flag football, two flags are positioned on the hips of each player. Pulling one of the flags off indicates a "tackle" to the referee. For complete information concerning flag football refer to the National Touch and Flag Football Rules handbook Published by the Athletic Institute.

Section VIII. VOLLEYBALL

369. Introduction

a. Volleyball is a popular sport. The game entails much physical activity, yet it is not strenuous. It is, therefore, a game for young and old alike, for beginners and for skilled players. It may be played indoors or outdoors on any type of terrain. As an informal activity, volleyball can be played by as many as 18 persons. As an organized activity it provides, as few other sports do, a game for 12 men to play in a limited area.

b. While volleyball requires no great skill to play, it does permit a high degree of proficiency. An individual naturally gets more enjoyment when he knows the game and plays it well. For this reason, instruction in the basic skills should be provided.

370. Organization

Usually a 10- to 15-minute period of instruction followed by a scrimmage, during the first three or four classes, is enough to teach the basic skills, rules, and techniques of volleyball. If available, more time can be given to teaching basic skills, but the emphasis is on competitive play rather than on formal instruction. It is best to lecture and demonstrate to the entire class, then divide the class into smaller groups for practice. For drills and scrimmages, divide the class so that there will be from 12 to 24 men to each court. One court may be used for instruction by allowing 12 players at a time to execute the drill while the other class members observe, act as coaches, or retrieve balls. After the instruction phase of

training has been completed, divide the class into 6-man teams. Organize the teams on the basis of ability. All teams should be as nearly equal as possible.

371. Place in the Program And Basic Skills

a. *Programming.* Volleyball may be used occasionally as a competitive activity during the sustaining stage. It is a year-round sport, but it should be included in the physical training program only when it is impractical to conduct a more strenuous activity. It is an excellent off duty activity.

b. *Basic Skills.*

(1) *Passing the low ball.* A ball that is lower than the waist is one of the easiest to hit, but it is also a frequent cause of fouls: holding or carrying the ball. The best position for handling a low ball is to have the feet staggered, knees flexed, and arms flexed at the elbows and rotated so the thumbs are pointing outward, the palms up. When the fingers contact the ball, the entire body reacts in a lifting motion. The arms and hands swing upward in a scooping action. It is important that the fingers, not the palms, contact the ball, and that the ball is batted, not thrown. The best way to prevent the common foul of "lifting" is to teach the players to curl their fingers into the palm of the hand so that the ball can only strike the curled fingers and the heel of the hand.

(2) *Passing the high ball.* The chest pass is the most effective method of playing the ball. To receive the ball, the feet are staggered, knees are fixed, and the body is tilted forward. The elbows are raised sideward to a point in line with the shoulders. The wrists are extended in line with the forearm and the arms, wrists, and hands are rotated inward. To pass the ball, the hands are chest high, thumbs pointing inward. The fingers are flexed, forming a cup, allowing them to contact the ball. On contact with the ball, the wrists are snapped while the fingers and elbows are pushed upward, sending the ball upward. A high ball is much easier to handle than a low ball.

(3) *The underhand serve.* Take a position behind the back line facing the net, left foot forward, holding the ball in the palm of the left hand. The left knee is flexed, the right knee is straight. Swing the right arm back and at the same time move the left hand (holding the ball) across the body in line with the right hip. Then swing the right arm forward hitting the ball off of the left hand with the palm of the right hand, raising the hips and arching the back in the same motion. Be certain to swing the right arm in a straight line, or the ball will be difficult to control.

(4) *Placement of the serve.* When the opposition is in formation, the server should try to place the ball in the right or left back area, and not near the net.

(5) *Setup.* A setup is a ball hit into the air near the net by one player, so a teammate may hit or "spike" it sharply downward into the opponent's court. The chest pass is the best pass to use. The ball is sent approximately 10 feet into the air toward the spiker so it will descend from 4 to 20 inches from the net.

(6) *Spiking.* The spike is characterized by a leap into the air and a sharp downward hitting of the ball into the opponent's court. A spiker must be able to spring easily from the floor, judge the movement of the ball, and strike it with a downward movement of his arm. Stand with the right or left side to the net, facing the setup man. Much depends upon the setup man to place the ball in the proper position. The spiker jumps into the air and strikes the ball above its center so as to drive it downward. A snapping movement of the arm and wrist will drive the ball forward and downward with power and control. Aim for a weak spot in the opponent's defense.

(7) *Blocking.* The block is a technique of defense used to prevent a spiker from driving the ball across the net. It is an attempt by one or more defensive players at the net to block a hard hit shot by using the force of the ball to send it immediately back into the opponent's court. An effective block occurs when the forwards on the defensive team spring into the air at the time of the spike, placing both hands and arms in the expected path of the ball. An effective block tends to upset the offense and presents another element for the spiker to worry about. To be effective, the blocker must anticipate the path of the ball and time his block in order to offset the spike.

372. Drills to Develop Basic Skills

a. *Passing.* Divide the class into 24-man groups. Have them form a circle and begin passing a ball around the circle trying to prevent it from touching the floor. Another method is to divide the group with 12 men on each side facing the net. Form four ranks per side, with the first ranks passing the ball back and forth over the net until a pass is incomplete. Then have the second rank move up. Place the groups in a regular playing formation concentrating only on passing, using both the chest pass and the low pass.

b. *Serving.* Divide the men into two groups—one line to act as servers, the other as retrievers. Change over frequently giving each man a chance. When the men control the serve, have each server

try to place the ball in the various areas of the court.

c. *Spiking.* Have two files on one side of the court facing the net. One file is the spiking line, the other is the setup line. One man from each file moves up to the net at one time. The spiker tosses to the setup, the setup sets the ball up for spiker, and the spiker drives it over the net. Rotate the files.

373. Offensive and Defensive Play

a. *Offensive Play.* Each member of a good offensive team should—

- (1) Be able to serve.
- (2) Know the capabilities and weaknesses of each of his teammates.
- (3) Have an understanding of all offensive plays.
- (4) Be able to analyze the opponent's weaknesses.
- (5) Always know what area of the court he is responsible for.
- (6) Be ready to "back up" a teammate receiving the ball.

The big offensive power is the spiker. It is also necessary, however, to build a well-balanced team that can serve, pass, and "setup."

b. *Defensive Play.* The reception and handling of serves and spikes is the primary duty of the defensive team.

(1) *Receiving the serve.* The forwards move to the rear of their area. The left and right backs cover the rear, the center back plays slightly forward of the other two backs.

(2) *Blocking.* The block is made by the center forward and either the right or left forward. The forward not executing the block must cover the position left vacant.

374. Abridged Rules

a. The volleyball court is 30 feet wide by 60 feet long (fig 105).

b. The top of the net is 8 feet high.

c. A volleyball team consists of six players.

d. A match consists of the best two out of three games.

e. The first team scoring 15 points wins the game, provided that they have two points more than their opponents.

f. A deuce game is a game in which both teams score 14 points. The game is continued until one team obtains a 2-point advantage over the other.

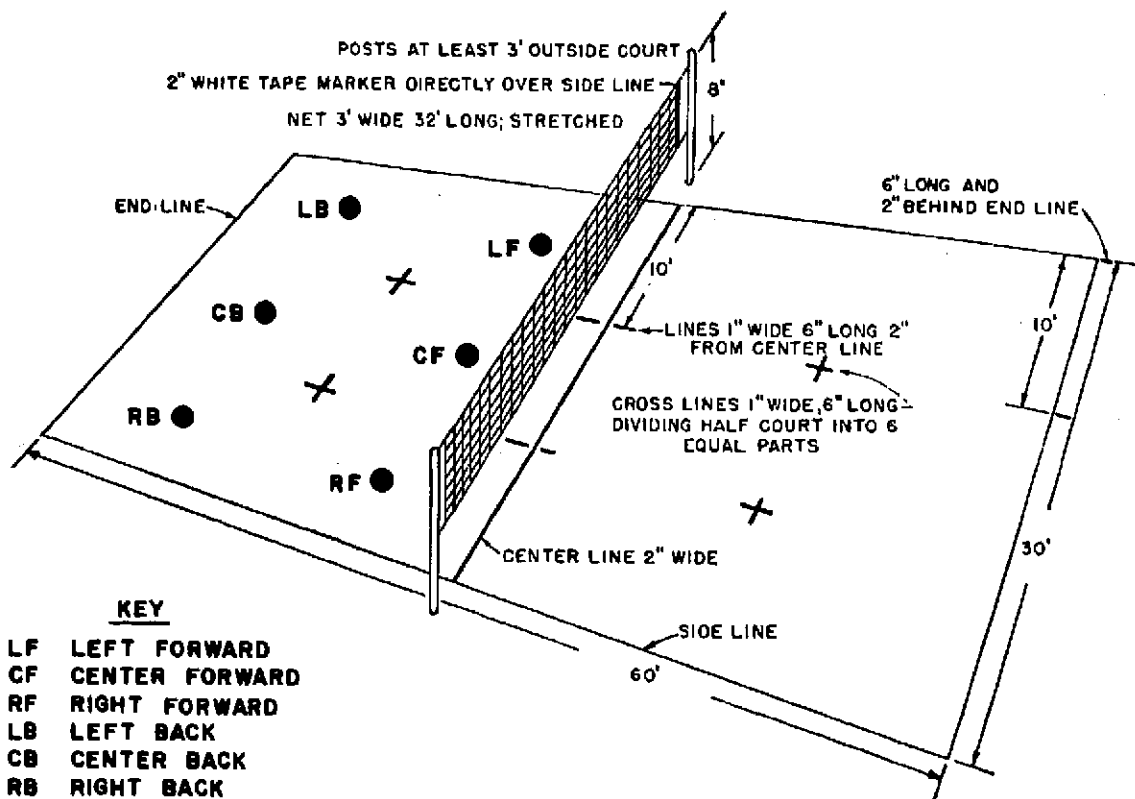


Figure 105. Volleyball court with positions.

g. Only the serving team can score. If the serving team commits a fault, it loses the serve to the opposing team.

h. The team receiving the ball for service rotates one position in a clockwise direction.

i. The ball is put into play by serving from behind the back line.

j. A served ball touching the net and not falling into the opponent's playing area results in the loss of the serve. A served ball which touches the net and continues into the opponent's playing area is considered a "let ball" and is not in play. When a "let ball" occurs the serving team is given one more chance to correctly serve the ball. If on this second chance the ball touches the net, or does not fall into the opponent's playing area, the serving team loses serve.

k. The ball is dead when it touches the ground inside or outside of the boundary lines.

l. To be considered out of bounds, the ball must touch the floor or wall outside the boundary line. The ball is playable if out of bounds, provided it has not touched any objects or the ground.

m. All line balls are good.

n. The players must hit or bat the ball; they may not throw, lift, or scoop it.

o. A player may not touch the ball with any part of the body below the knees.

p. A player may not play (touch) the ball twice in succession. In receiving a hard-driven spike, a defensive player may make several contacts with the ball even if they are not simultaneous. All such contacts, however, must constitute one continuous play, and all must be above the knees.

q. A back line player is allowed to move anywhere on his team's end of the court; however, he is not allowed to spike the ball—or forcefully propel the ball in a downward direction—into his opponents' court. Only front line players may spike.

r. The ball may be touched no more than three times on one side of the net before being returned across the net to the opposing team.

s. A player must not touch or reach across the net.

t. A player may not cross the line under the net; he may touch it, however.

u. For complete official volleyball rules, see the United States Volleyball Association: Volleyball Official Guide.

Section IX. FLICKERBALL

375. Introduction

a. Flickerball is a sport which combines running with the fundamentals of football and basketball. Flickerball is played with a football and the object of the game is to advance the ball by passing it to a position from which a goal can be attempted. Body contact is not allowed. Any attempted goal results in the loss of the ball. After a successful goal attempt the defensive team puts the ball in play by throwing it inbounds from behind its own end line.

b. Excluding the goals, a football is the only equipment needed.

376. Place in the Program, and Basic Skills

Flickerball should be introduced into the physical training program during the latter part of the slow improvement stage, and used as a competitive activity during the sustaining stage.

377. Basic Skills

a. Passing the ball overhand is the only method of moving the ball forward. Lateral or backward

passes may be thrown either underhand, or overhand, using either one or both hands. Short passes are easier to handle and keep the game interesting. Long passes are less accurate and involve fewer players in the play of the game.

b. Two points are awarded when a team throws the ball through the goal. A shot that strikes the face of the board scores one point. (A penalty shot awards the same number of points as mentioned above.)

c. In attempting to score, the only pass allowed is the overhand football-type pass. All other methods of passing, such as the hook or underhand pass, are illegal methods of scoring or attempting to score.

378. Drills to Develop Basic Skills

Passing a football is the primary skill to be developed. Any drill which involves passing can be used.

a. Parallel Line Drill. Begin this drill with two lines approximately 5 yards apart. The personnel

in the two lines alternate throwing the football to each other, and attempt to hit various parts of the receiver's body. Vary the drill by increasing the distance between the two lines.

b. Receiving and Passing Drill. Form two lines on either side of a passer and alternate sending out pass receivers. The passer attempts to hit the receivers with long and short passes. Change the passer every other pass. For variation have the passer throw while running.

379. Abridged Rules

a. Players. A fickerball team consists of seven players. Players may enter or leave the field only during timeouts.

b. Playing Area. The game is played on any level field with dimensions of 60 yards by 30 yards. The goal is a board 4 feet by 5 feet in dimensions with a 2- by 3-foot hole in the center (fig 106). Each goal is set 5 yards back of the end line. The bottom edge of the hole in the board is 8 feet above the ground. A free throw line is placed 10 yards in front of the end line.

c. Duration of Game. The game consists of four 8-minute quarters with 1 minute between quarters and 2 minutes at the half. One time out per team, per quarter, is allowed.

d. Advancing the Ball.

(1) No one is permitted to advance toward his goal while the ball is in his control. The player with the ball in his control may move only laterally or away from his goal.

(2) Upon receiving the ball, a player will be allowed a maximum of one and one-half steps in which to stop his advance.

(3) If player is called for traveling (i.e., illegally advancing towards his goal with the ball in his control), the referee will immediately blow his whistle. An offending player must place the ball on the ground in order that opponents can immediately put ball in play after the official grounds it.

e. Free and Dead Balls.

(1) An incomplete forward pass, which is not touched by any player before hitting the ground, is a dead ball and is given to the opponents of the team throwing the ball, at a point out of bounds nearest the spot where the ball hit. If a forward pass is touched by either team prior to hitting the ground, it is a free ball.

(2) An incomplete lateral pass which remains on the field of play is a free ball.

(3) Any fumbled ball which remains on the field of play is a free ball.

(4) When the ball goes out-of-bounds, the opponent of the player who last touched the ball inbounds will be given possession at that out-of-bounds point.

(5) The following are situations in which the ball is whistled dead:

(a) Player called for traveling.

(b) Personal foul.

(c) Technical foul.

(d) Ball goes out-of-bounds.

(e) Signaling of time out or end of playing time.

(f) Violation of "Out-of-Bounds Rules."

(g) Violation of "Five Second Rule" (individual possession).

(h) Violation of "Back Court Rule" (ten second rule).

(i) Held ball.

(j) Incomplete, untouched forward pass.

f. Rules of Play.

(1) A jump ball will be used to start a game, the third quarter, and in all held-ball situations. The first player obtaining possession of the ball after the jump may not carry the ball into the back court. A player other than a jumper must touch the ball after the jump before either jumper may again handle the ball.

(2) All players other than jumpers will remain 10 feet away until the ball is batted.

(3) No player is allowed to hold the ball more than 5 seconds at any one time during active play of the game.

(4) A ball whistled dead on the field of play or out-of-bounds remains dead until picked up by a player entitled to put it in play. A player putting the ball in play cannot move from his position until he throws the ball.

(a) When the ball is out-of-bounds or dead in the front court, a player putting the ball in play must throw the ball laterally or backwards.

(b) When the ball is out-of-bounds or dead in the back court a player may throw anywhere, forward or laterally, as long as the receiver is in the back court.

(5) A team putting ball in play in the back court will be given 10 seconds to advance the ball into its front court.

(6) Balls put into play on the half court line may be thrown into either the front or back court.

g. Fouls and Infractions.

(1) Certain types of rule violations are called personal fouls and are penalized by loss of ball possession and by the offending player going to

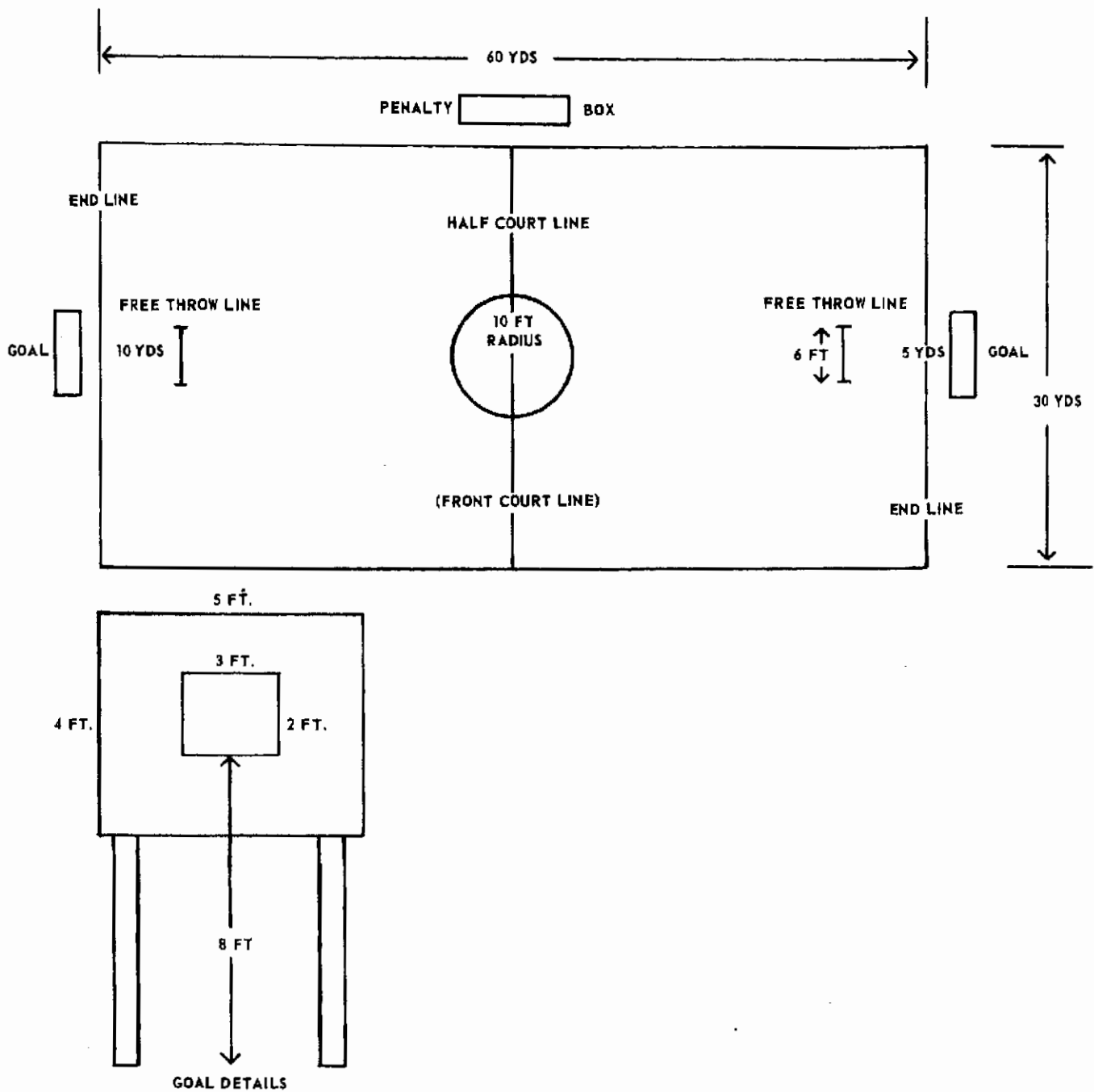


Figure 106. Flickerball playing field.

the penalty box. Once in the penalty box, the player must remain there until the quarter ends or a goal is scored (not counting a goal scored on a penalty shot). Personal fouls are—

- (a) Physical contact by any player (exception to above); if the offended player is in the act of shooting, he is awarded a penalty shot.
- (b) Diving on a loose ball.
- (c) A player kicking the ball.
- (d) Standing closer than 3 feet to the man who is putting the ball in play.
- (e) Jumping out of bounds while guarding a man who is putting the ball in play.

(2) Other types of rule violations are called technical fouls and are penalized by awarding the offended team a penalty shot. During a penalty shot, the shooter will remain behind the penalty shot line until the ball is dead. The ball is given out of bounds to the shooter's team at the center line opposite the penalty box after all technical fouls/penalty shots, whether successful or not. Double technical fouls nullify each other, and the ball is put into play by a jump ball at the center line. Technical fouls are—

- (a) Too many timeouts.

(b) Leaving the penalty box without authorization.

(c) Delay of the game.

(d) Illegal substitution.

(e) A player other than the team captain talking to the officials.

(f) Unsportsmanlike conduct.

(g) Gross fouling by a team.

(h) Too many men on the field.

(i) Not double-timing to the penalty box.

(j) Leaving the field of play to gain an offensive or defensive advantage.

(3) The following types of rule violations result in the offending team losing possession of the ball. It is a dead ball and is given to the defense at the point of infraction.

(a) Incomplete pass (touched by no player).

(b) Individual possession for longer than 5 seconds.

(c) Traveling.

(d) Failure by a team to advance the ball into its front court in 10 seconds.

(e) Taking the ball over the center line into the front court and then returning it to the back court.

(f) Failure to lateral after a jump ball.

(g) Failure to lateral from a dead ball in front court.

(h) First pass from back court dead ball thrown into front court.

(i) All personal fouls.

(j) All technical fouls.

(k) Violation of the 10-foot rule during a jump ball.

Section X. TEAM HANDBALL

380. Introduction

Team handball, a favorite team sport in European countries, recently has become increasingly popular in the United States. Team handball is readily adaptable to all phases of physical training, athletics, and intramural programs. The game is an excellent means of developing agility, coordination, and muscular and cardio-vascular endurance. The game is played on a field (indoors or outdoors) similar in dimension to a basketball court (fig 107). A goal is located at each end of the field or court. An inflated ball, 15-17 ounces in weight and not less than 23 inches nor more than 24 inches in circumference is used (larger than a soft ball and smaller than a volleyball).

381. Place in the Program

Team handball should be introduced as a competitive sport to supplement the physical conditioning program. It is an excellent activity for the sustaining stage of conditioning.

382. Basic Skills

a. Passing. Passing with the hands is the primary means of moving the ball. Short passes are more accurate and involve more players. Faking passes and passing behind the back are worthwhile skills which can be developed.

b. Shooting. Throwing the ball into the goal is referred to as shooting. Shooting while moving is an essential skill and can be developed through shooting drills. Leading with the knee when shooting (such as shooting a layup in basketball) is not allowed.

c. Blocking. Blocking an opposing player with the trunk portion of the body is permitted by both offensive and defensive players. Blocking an opponent is used to set up a shot, stop an opposing player from scoring, or moving to a position of advantage.

d. Dribbling. Dribbling the ball, as in basketball, is an accepted method of moving the ball. Dribbling should never become the primary means of moving the ball.

383. Offensive and Defensive Players

a. Players. Each team consists of six field players and one goalie. Described by position there are two wingmen, two outside shooters, a circleman, a playmaker, and a goalie (fig 108).

b. Goalie. The goalie, when in the goal area, may use any part of his body to block an attempted score; however, he should try to catch the ball. The goalie can leave the goal area to prevent an opposing player from scoring, but once he leaves the goal area, he must abide by the same rules that govern a court player.

c. Wingmen. The function of the wingmen is to keep the ball moving and to pick and screen opposing players to give his teammates a shot. Normally, he plays opposite the opposing wingman.

d. Circleman. The circleman on offense will position himself as near to the goal line as possible without placing his entire foot into the goal area. His function is to block and screen opposing players for the outside shooters and to execute dive

shots which involve shooting the ball while diving toward the goal.

e. The Outside Shooters. The primary function of the outside shooters is to score points. On offense the shooters will position themselves around the free throw line (9-meter line) on the right and left of the opposing goal. On defense, the out-

side shooters will play to the inside of their wingmen between the 9-meter line and the goal area (fig 107).

f. Playmaker. The playmaker's job is to keep his team moving while calling plays and offensive and defensive formations.

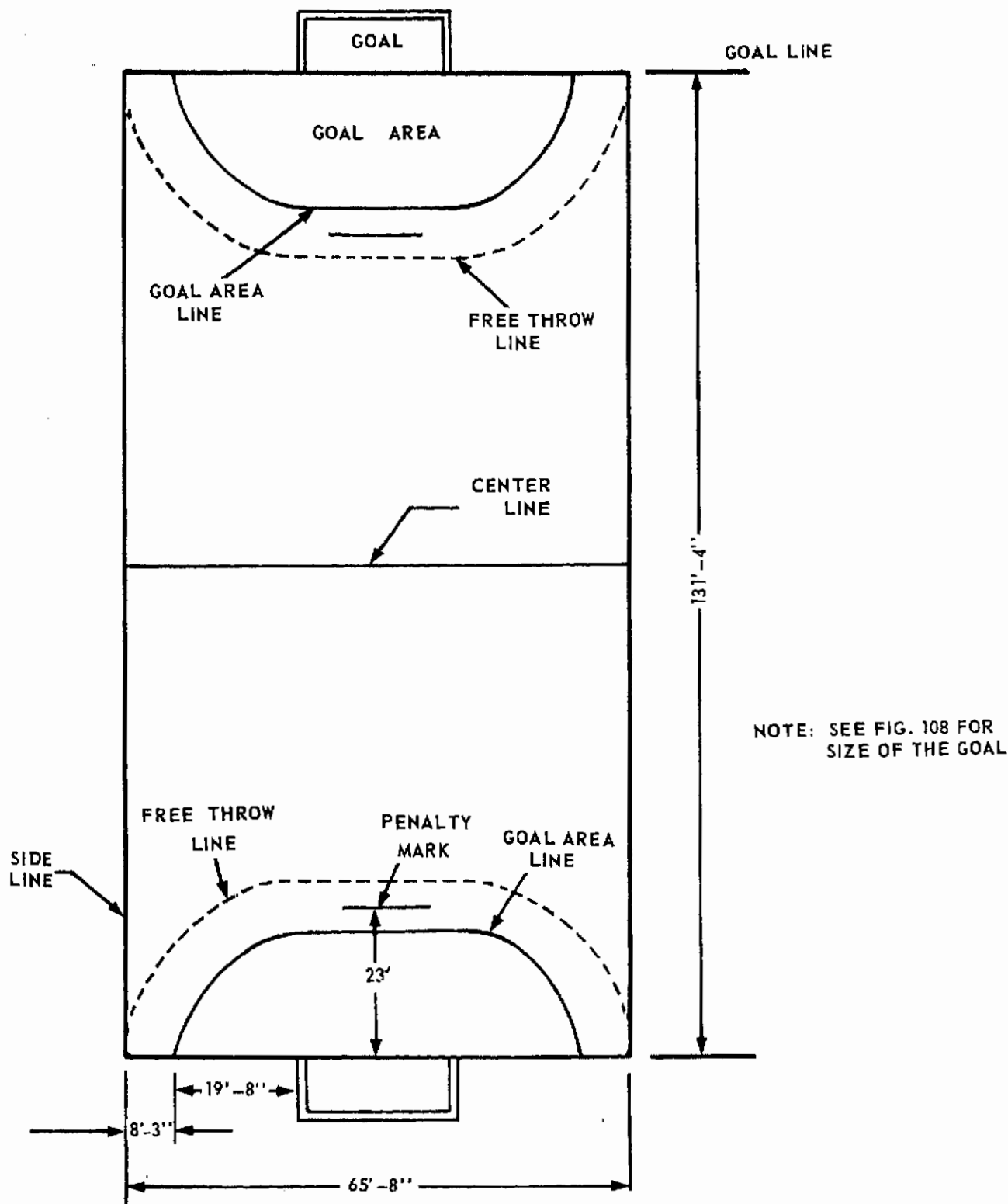


Figure 107. Team handball field or court (may be played indoors or outdoors).

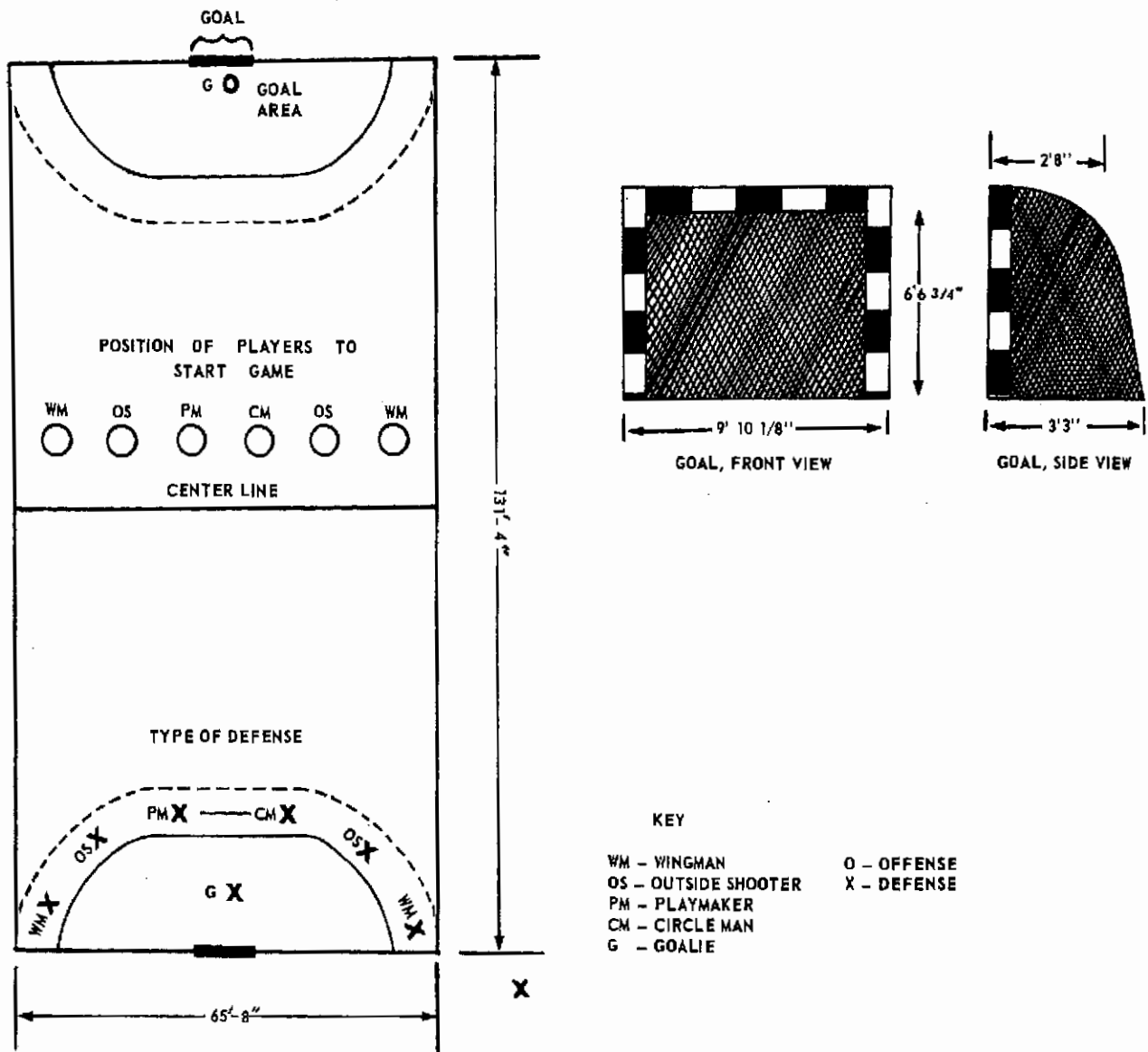


Figure 108. Team handball offensive and defensive positions.

384. Drills to Develop Basic Skills

A 15-minute warmup drill is needed prior to the game. The drill should consist of exercises and calisthenics. Ball handling should be included in the warmup drill.

a. *Passing Drill.* Form the players in a circle and have them throw the ball back and forth across the circle. The men should keep moving their feet as in grass drills. Bounce passing (bounce the ball to the man across the circle from you) can be used.

b. *Shooting.* Shooting drills that are similar to shooting drills in basketball can be conducted. The goalie should be in the goal area during shooting drills to practice blocking shots. Shooting drills

should be conducted from outside the free throw line.

385. Abridged Rules

a. Many of the rules of team handball are controlled and enforced when the referees direct the players to conduct various types of throws. The throws are named as follows:

- (1) Corner throw.
- (2) Throw-in.
- (3) Throw-off.
- (4) Free throw.
- (5) Penalty throw.
- (6) Throw-on.
- (7) Referee's throw.

b. An understanding of how, when, and where to conduct the throws will aid the beginner in understanding the game. Following is an explanation of each throw.

(1) *Corner throw.* A ball, caused to go out of bounds over the goal line by the defensive team, is awarded to the attacking team for a corner throw from a point where the sideline and goal line meet. The ball may be thrown in any manner, and a goal may be scored directly from a corner throw.

(2) *Throw-in.* A ball that goes out of bounds over the sideline is put in play by a two-hand, overhead throw-in by the team not committing the violation, from the point where the ball went out. No goal may be scored directly from a throw-in.

(3) *Throw-off.* If the attacking team throws the ball over the defense's goal line, the defensive goalie gets the ball for a throw-off. He attempts to get the ball to one of his teammates and may throw it in any manner.

(4) *Free throw.*

(a) Free throws are awarded to the offended team for the following infractions:

1. Illegal player substitutions.
2. Rule infractions while playing the ball.
3. Causing the ball to go out of bounds intentionally.
4. Illegally entering the goal area.
5. Illegal execution of the throws.
6. Unsportsmanlike conduct.
7. Leaving the feet and diving for a loose ball.

(b) The free throw, taken from the point of the infraction, may be thrown in any manner. If the point of infraction is within the goal area, the ball is brought out to the free throw line. When the throw is being taken, the defensive players may position themselves no closer than 10 feet from the thrower.

(5) *Penalty throw.*

(a) A penalty throw is awarded for the following rule infractions:

1. Illegal goalkeeper substitution.
2. Illegal entry of a player into the goal area for defensive purposes.
3. Rule infractions that destroy a clear

chance for a goal—e.g., grabbing a player who is attempting a shot on the goal.

(b) During a penalty throw which is taken from the penalty mark, the thrower, while keeping his lead foot stationary, may throw the ball in any manner. Only the goalkeeper is permitted to prevent the penalty throw from entering the goal.

(6) *Throw-on.* The throw-on is taken to begin play after a goal and at the start of each half. No goal may be scored directly from a throw-on. The referee throws the ball to a member of the offensive team from the sideline at center court.

(7) *Referee's throw.* If the game is interrupted, or if both teams commit simultaneous rule infractions, a referee's throw is conducted. During a referee's throw, two players face each other approximately 3 feet apart. The referee bounces the ball between the players so that it rebounds straight up into the air. The two opposing players attempt to jump and tap the ball to a teammate when the ball is on its descent. Jumping and hitting the ball as it bounces upward is not permitted.

c. Following is a summary of several other important rules.

(1) Two referees are used to officiate a team handball game.

(2) When the referee hands the ball to a player for a throw, the player has 3 seconds in which to throw it. If the ball is not thrown in 3 seconds, it is awarded to the opposing team.

(3) The game consists of two 30-minute halves with a 5–10 minute half-time period.

(4) A coin toss decides which team receives the start of game throw-on.

(5) If the regulation game ends in a tie, two 5-minute overtime periods are played.

(6) It is permissible to legally obstruct an opponent even if he does not have possession of the ball.

(7) The goalkeeper is not allowed to touch the ball until it enters the goal area.

d. For additional information on team handball, refer to *Team Handball—Rules of the Game*, published by the United States Team Handball Association.

PART FIVE
THE ARMY PHYSICAL FITNESS EVALUATION

CHAPTER 24
MEASURING PHYSICAL FITNESS

Section I. INTRODUCTION

386. General

This part of the manual contains the Army Physical Fitness Evaluation (APFE), which is designed to improve the method of testing individual physical fitness of all male personnel in the Army. These chapters were compiled specifically to provide administrative personnel with the information and guidance necessary to organize and conduct testing for male personnel serving in various types of assignments. There are seven tests which constitute the APFE. These tests are designed to measure the basic components of physical fitness to include endurance, agility, coordination, strength (including explosive power). These tests will evaluate an individual's physical fitness to perform assigned physical tasks, taking into consideration age and job assignment. The APFE test concept requires minimum construction of facilities and each of the seven tests can be administered within a 2- to 3-hour period.

387. Composition of the APFE

The APFE makes it possible to evaluate the physical fitness of individual personnel from the time of entering the service until termination of that service. The seven tests are as follows:

a. The Advanced Physical Fitness Test (chap 25 and 26).

b. The Staff and Specialist Physical Fitness Test (chap 25).

c. The Basic Physical Fitness Test (chap 26).

d. The Inclement Weather/Limited Facilities Physical Fitness Test (chap 27).

e. The Minimum Physical Fitness Test (chap 27).

f. The Airborne Trainee Physical Fitness Qualification Test (chap 27).

g. The Ranger/Special Forces Physical Fitness Qualification Test (chap 27).

388. Requirement to Administer Tests

Tests will be administered as specified by AR 600-9, by appropriate Army directives, and at such other times as the commander or the situation direct. Tests are also used to determine those individual personnel who meet minimum physical fitness standards for entrance into specialized courses of instruction.

Section II. PREPARATION FOR ADMINISTERING TESTS

389. General

Certain preparation for the administration of physical fitness tests applies equally to all tests. This section contains preparations which should be made prior to test administration which are common to all tests. Items of preparation for specific test events are contained in following chapters which pertain to these specific cases.

390. Test Scorecard and Scoring Tables

a. Scorecards must be obtained and provided for each man tested. A common scorecard, DA Form 705, (Army Physical Fitness Evaluation Score Card) (fig 109), is used for scoring the seven standard tests. The scoreboard is divided into three parts. Part I is for recording performance scores at the time the test is administered.

Part II contains directions for completion of the scorecard; and Part III is the record of qualification.

b. Scoring tables are to be reproduced locally. The scoring tables are used for the conversion of raw scores to point scores after the test events have been completed. Scoring tables appropriate to each test are located in the following chapters where the tests are explained. Copies of the scoring table should be distributed to the men being tested, or posted where all can see the table. Otherwise, men would have no way to interpret the worth of raw scores which they made on the test, or to anticipate the worth of various raw scores in the understanding of standards to be achieved.

391. Assignment and Duties of Test Officials

Personnel are required to administer the test. These men must be appointed and trained to perform their test function. Some of these same personnel may be utilized to supervise the preparation and layout of the test area. These personnel include:

a. *Chief Examiner.* The chief examiner is an officer who assumes overall responsibility for administration of the test. His responsibilities include:

- (1) Procurement of necessary equipment and supplies.
- (2) Arrangement for layout of the test area, construction of facilities, and proper completion of test area.
- (3) Training of event supervisors, scorers, and demonstrators.
- (4) Insuring the test is properly administered and test events are explained, demonstrated, and scored as prescribed.
- (5) Preparation of a final report at the conclusion of testing.

b. *Assistant to the Chief Examiner.* The assistant is a noncommissioned officer who assists the chief examiner in the preparation for and administration of the test.

c. *Event Supervisors.* The event supervisors are noncommissioned officers. Each is in charge of one test event. They will be responsible for—

- (1) Checking to see that necessary equipment is present for the conduct of their assigned test event.
- (2) Reading test instructions to the examinees prior to administration of the event. Instructions must be read exactly as they appear for that event.
- (3) Assuming overall responsibility for in-

sureing that the event is properly demonstrated and correctly scored as specified.

(4) Performing individual duties peculiar to the test event being administered.

d. *Scorers.* The scorers consist of the remaining noncommissioned officers prescribed for the test plus the event supervisors who serve as scorers when not administering their assigned events. They are responsible for—

- (1) Supervising the execution of the test event in their respective lanes.
- (2) Marking the score on the test scorecard of the examinees who are tested in their respective lanes.
- (3) Assisting as demonstrators or to carry out other assignments as specified by the chief examiner.

e. *Demonstrators.* Demonstrators are usually scorers who are capable of both good form and speed of execution in the correct demonstration of test events. A demonstrator is not needed for the running events as these events are not normally demonstrated.

392. Facilities and Test Area

The test area must be prepared and required facilities provided for the specific test to be administered. Several facilities are used in more than one test. These facilities are described below. Other facilities or areas peculiar to specific tests are covered in later chapters. The test area should be a level training field preferably with a grassed surface, large enough to permit the layout of those events which require no permanent-type construction. The horizontal ladder, run, dodge, and jump, chinup bars, and running events require construction of immovable facilities and should be placed to the side or near the field to prevent interference with other activities. There is no preferred order for these areas and facilities. The only criterion is that the facilities for the test be on or near the same training area. Specifications for permanent-type facilities are as follows:

a. *Inverted Crawl* (fig 110). Sixteen lanes, six feet wide by 20 yards long, are required. Overall dimensions to include the above area and additional space needed for test administration requires an area 32 yards wide by 40 yards long. Some permanent means of marking the ends of the lanes used as the starting and finishing points must be provided as constant use will soon erase a temporary line. Strips of canvas may be used; however, this material must be securely fastened to the ground.

PART II. DIRECTIONS FOR COMPLETION OF TESTING RECORD

1. FOR EXAMINEE:
 - A. PRINT ALL REQUIRED PERSONAL INFORMATION IN SPACES PROVIDED.
 - B. ENTER YOUR RANK BY TITLE, FOR EXAMPLE CPT - SGT - PVT
 - C. THE OFFICER IN CHARGE OF THE TEST WILL PROVIDE YOU WITH THE DATA TO RECORD IN THE WEATHER CONDITIONS SPACE.
2. FOR ADMINISTRATORS AND SCORERS:
 - A. PHYSICAL FITNESS EVALUATION THROUGH TESTING IS SPECIFIED BY AR 600-9.
 - B. FOR TEST ADMINISTRATION, METHODS, STANDARDS AND SCORING TABLES, SEE FM 21-20.
 - C. PROVIDE EXAMINEES TAKING TEST WITH WEATHER DATA AS FOLLOWS THE TEMPERATURE IS _____ DEGREES, AND CONDITION IS (CLEAR, CLOUDY, RAIN OR SNOW).
3. SCORES FOR THE TEST EVENTS ARE RECORDED IN THE FOLLOWING MANNER:
 - A. RUN, DODGE AND JUMP, INVERTED CRAWL AND SHUTTLE RUN WILL BE RECORDED IN THE NEAREST HALF SECOND. EXAMPLE 21.5
 - B. DISTANCE RUNS (1, ONE AND TWO MILES) WILL BE RECORDED IN MINUTES AND WHOLE SECONDS. EXAMPLE: 7:45
 - C. HORIZONTAL LADDER IN NUMBER OF RUNGS PERFORMED.
 - D. SIT-UPS, PUSH-UPS, SQUAT THRUSTS, CHIN-UPS AND BEND AND REACH IN NUMBER OF CORRECTLY PERFORMED REPETITIONS.
 - E. THE 15-METER SWIM IS A PASS OR FAIL EVENT.
 - F. TEST EVENTS FOR WOMEN ARE ON A PASS OR FAIL BASIS.
4. FOR OFFICER VERIFYING QUALIFICATION:
 - A. ENTER REASON FOR TEST (BCT, AIT, CST, EIB, OCS, RANGER, SPECIAL FORCES, AIRBORNE TRAINEE SEMI-ANNUAL EVALUATION OR OTHER).
 - B. INDICATE ABBREVIATED TITLE OF TEST ADMINISTERED (APFT, BPFT, MPFT, SSPFT, ATPFQT R/SPFPQT IW/LPFT OR FOR WOMEN - AMPFT-F).
 - C. CHECK THE QUALIFICATION RECORD, DATE, AND SIGN YOUR NAME AND RANK.

PART III. STATEMENT OF QUALIFICATIONS

TEST NUMBER	REASON FOR TEST	TEST NAME ABBREVIATE	QUALIFICATION		DATE	VERIFYING SIGNATURE AND RANK
			YES	NO		
FIRST TEST	SEMI-ANNUAL EVALUATION	APFT	✓		15 JAN 72	<i>E. Sullivan, Cpt.</i>
SECOND TEST	SEMI-ANNUAL EVALUATION	IW/LPFT	✓		17 JUL 72	<i>C. Roberts, 1LT</i>
THIRD TEST	AIRBORNE APPLICATION	ATPFQT	✓		3 SEP 72	<i>M. Wood, Cpl</i>
FOURTH TEST	SEMI-ANNUAL EVALUATION	SSPFT	✓		19 JAN 73	<i>J. Parker, Cpt</i>

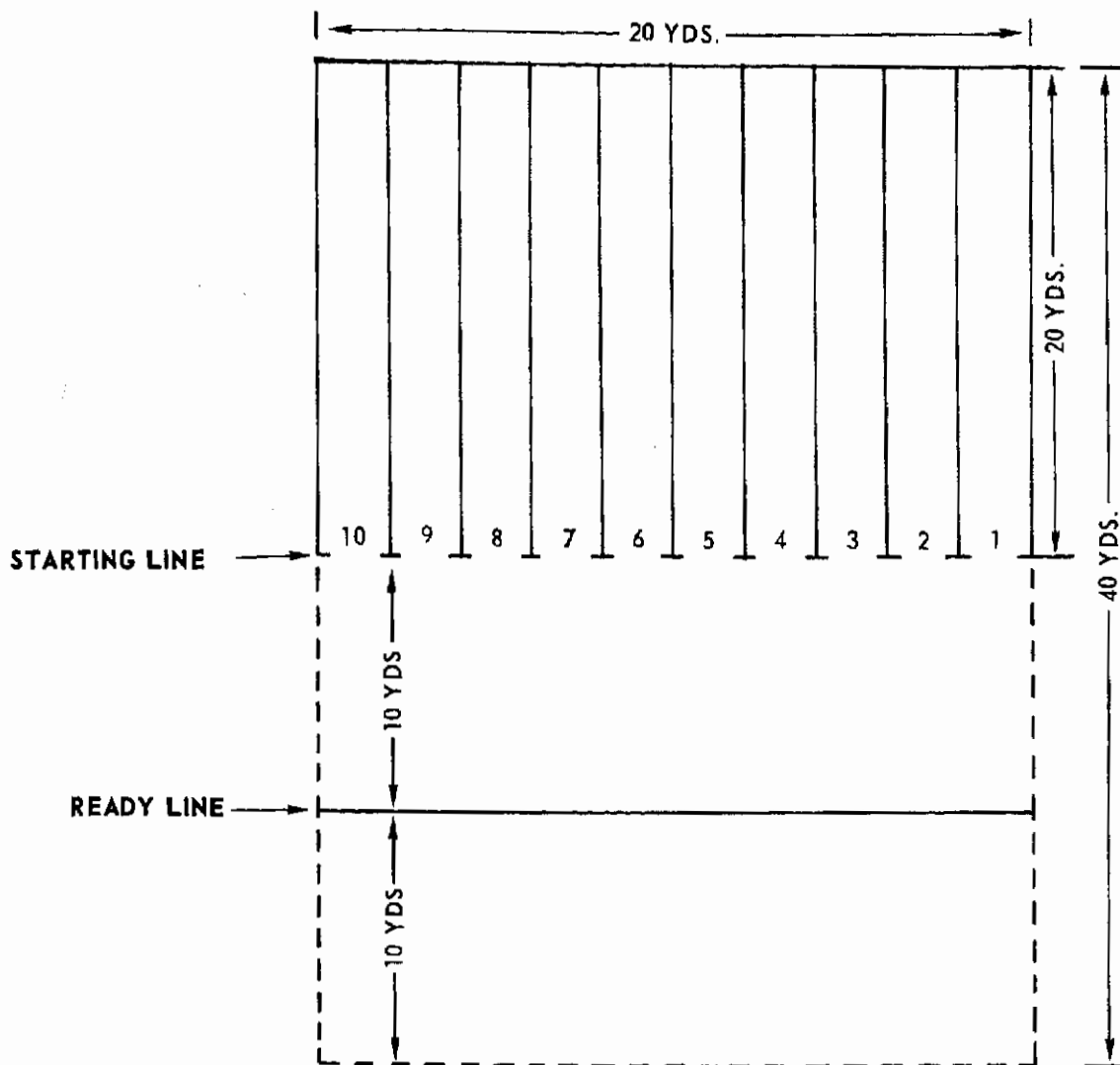
REMARKS:

NOTE: TO FIND THE POINTS THAT CORRESPOND TO RAW SCORES FOR MEN REFER TO FM 21-20. THERE ARE SIX SCORE TABLES. THE AIRBORNE TRAINEE PHYSICAL FITNESS QUALIFICATION HAS NO SCORE TABLE.

USE THIS SPACE TO RECORD LAPS FOR THE RUNS, OR NOTES

(Rear)

Figure 109—continued.



NOTES ON LAYOUT OF CRAWL AREA

1. DOTTED LINES INDICATE MINIMUM SIZE OF AREA.
2. SHORT LINES AT THE END OF EACH LANE BOUNDARY ARE PREFERRED OVER A SOLID STARTING LINE AS A SOLID LINE IS ERASED DURING CRAWLING.

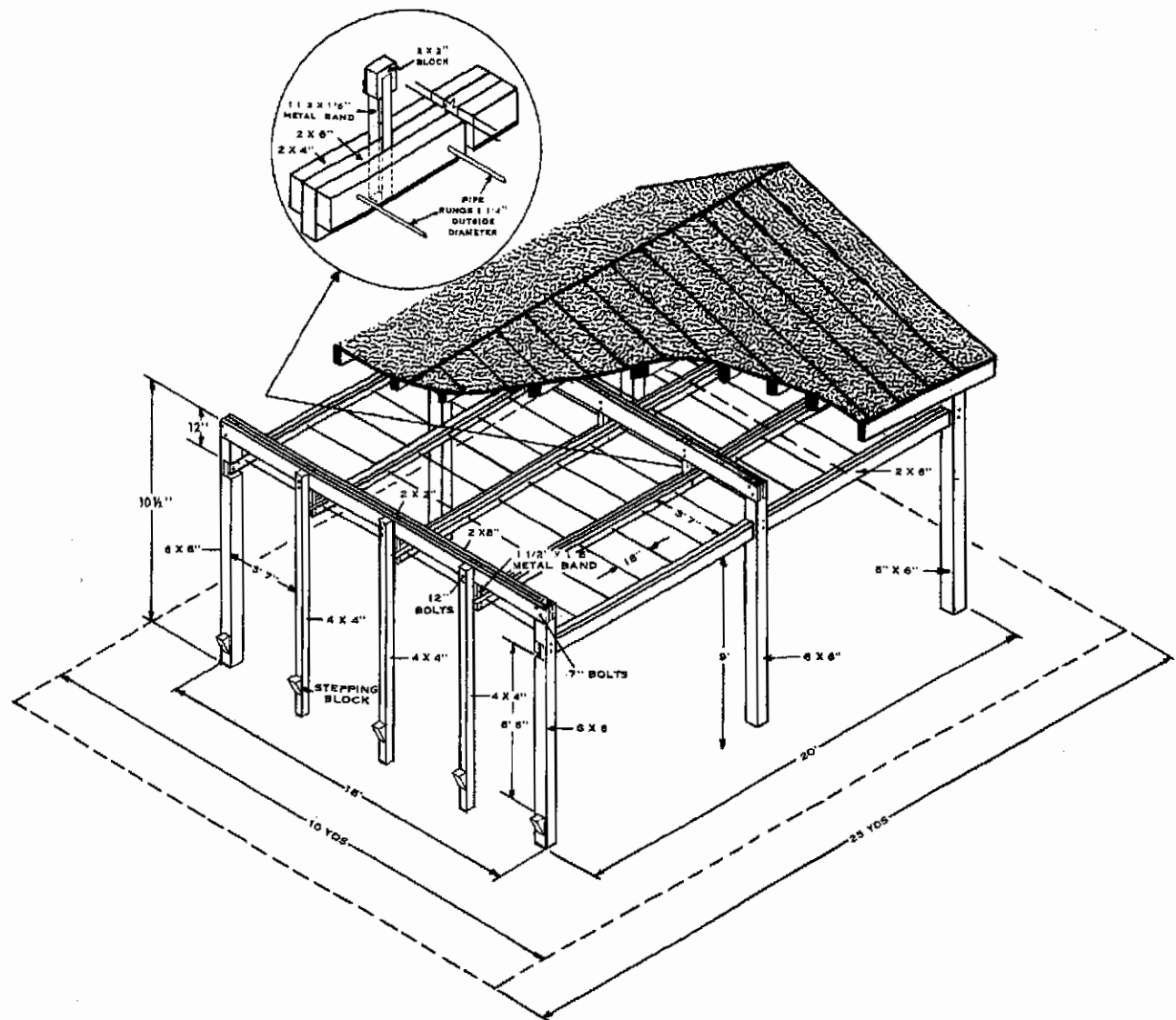
Figure 110. Inverted crawl area.

b. Horizontal Ladder (fig 111). A four-lane ladder is required and should be constructed to the specifications as indicated. Ladder dimensions are: height, nine feet; length, 20 feet; and width, 16 feet. The area needed for the construction of the ladder and for test administration should be 10 yards wide by 25 yards long.

(1) The following construction details should be carefully applied in the building of the ladder facility. There are 14 rungs in each lane. The rungs are made of pipe with an outside diameter of one and one-quarter inches. The spacing between rungs is 18 inches, center to center. To counter excessive friction and heat resulting in

skin damage to the palms of the hands, the bars or rungs are individually seated in each lane to allow turning of the bar rather than the examinees' hands turning on the bar.

(2) To prevent heating of the bars from sunlight, a roof over the entire facility is provided. This roof will also prevent the bars from becoming wet due to rain. The roof should be constructed in a manner which allows proper drainage and meets local climatic conditions. For safety purposes in absorbing shock during the act of dropping or falling from the bars, a heavy layer of sawdust or similar shock absorbing material, to



NOTES ON LAYOUT OF AREA

1. Dotted lines indicate minimum size of area.
2. There are 14 rungs in each lane. The rungs are made of pipe with an outside diameter of 1 1/4 inches.
3. The spacing between rungs is 18 inches, center to center.
4. The bars or rungs are individually seated to allow turning of the bar in it's seat rather than the examinee's hand turning on the bar. (See insert for detail!)
5. The 6 x 6 inch support post should extend at least 4 feet underground.
6. Roof to extend 6 inches on each side and 12 inches on each end.

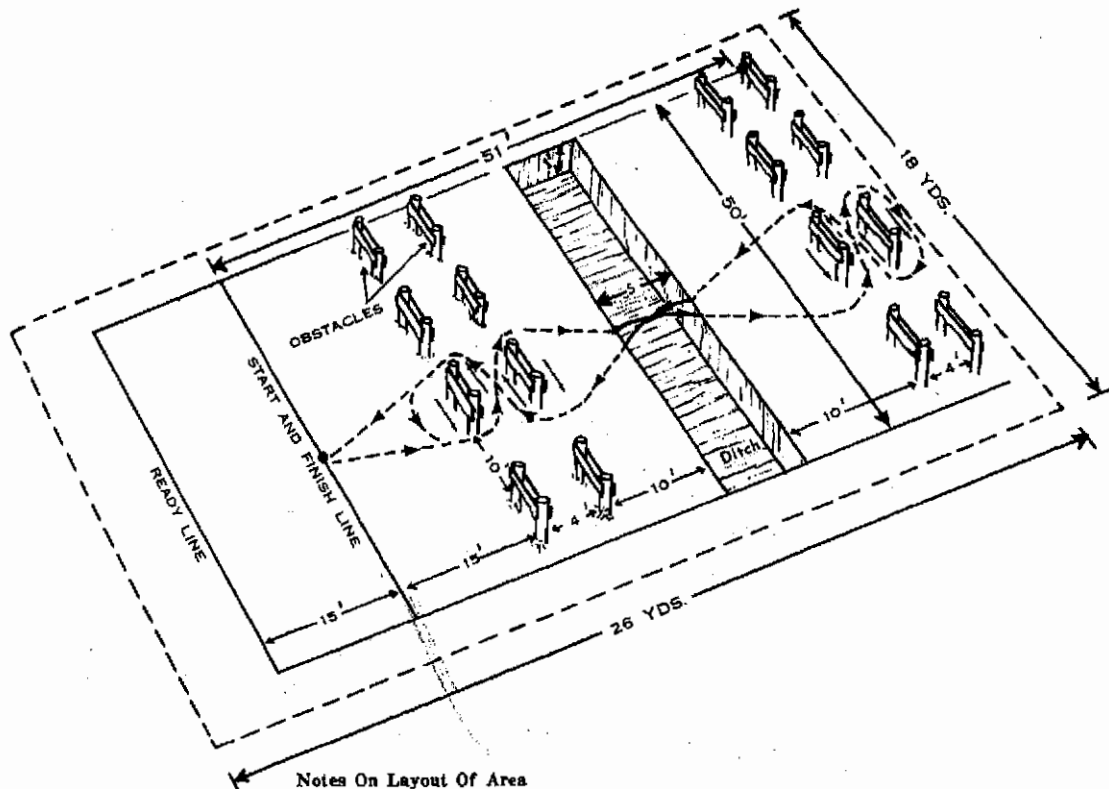
Figure 111. Horizontal ladder facility.

a minimum depth of 12 inches, should be provided under the entire ladder.

c. Run, Dodge, and Jump (fig 112). This course contains four lanes consisting of four wooden obstacles per lane and a shallow ditch across the center of all lanes. The overall size of the area required for construction and test administration is 18 yards wide by 26 yards long. The ditch is 5 feet in width and 1 foot in depth. Sandbags may be used to shoreup the sides of the ditch and to establish uniform width. The wooden obstacles are constructed to specification with directional arrows painted on both sides of the obstacles.

d. Running Track (fig 113). A quarter-mile track is designated by a series of wooden stakes to mark the inside edge of the track. A field or area 90 yards wide by 185 yards long is required. To lay out the track, locate a horizontal midline in the center of the area. This line is 279 feet, 9 3/4 inches in length. Mark a circle with a radius of 120 feet at both ends of this line. To form the track, connect the outermost points of the two circles with tangent lines.

e. Shuttle Run Course (fig 114). This course is marked by two parallel lines 10 meters apart. Lanes are laid out between these lines. Three



Notes On Layout Of Area

1. Dotted lines indicate minimum size of area.
2. Sand bags can be used to shore up sides of ditch and to establish uniform width of the ditch.
3. Obstacles are constructed as follows:

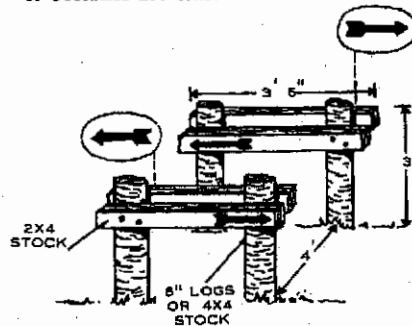


Figure 112. Run, dodge, and jump area.

lanes, each 6 feet wide, are marked. A circle, 1 foot in diameter, is drawn and centered at both ends of each lane so that the parallel lines evenly bisect the circles.

f. *Chinup Bars* (fig 115). Chinup bars are usually constructed in such manner that several lanes are connected. Four to six lanes are adequate. The upright wooden supports should be 6 × 6 inches square and extend 8 feet, 6 inches, above the ground. These supports must be rigid, therefore, they must be solidly set in the ground. The horizontal bar is a pipe with a 1½-inch outside diameter. The upright supports are set 5 feet apart and the bar passes through a hole 6 inches from the top of each support. The bar is secured

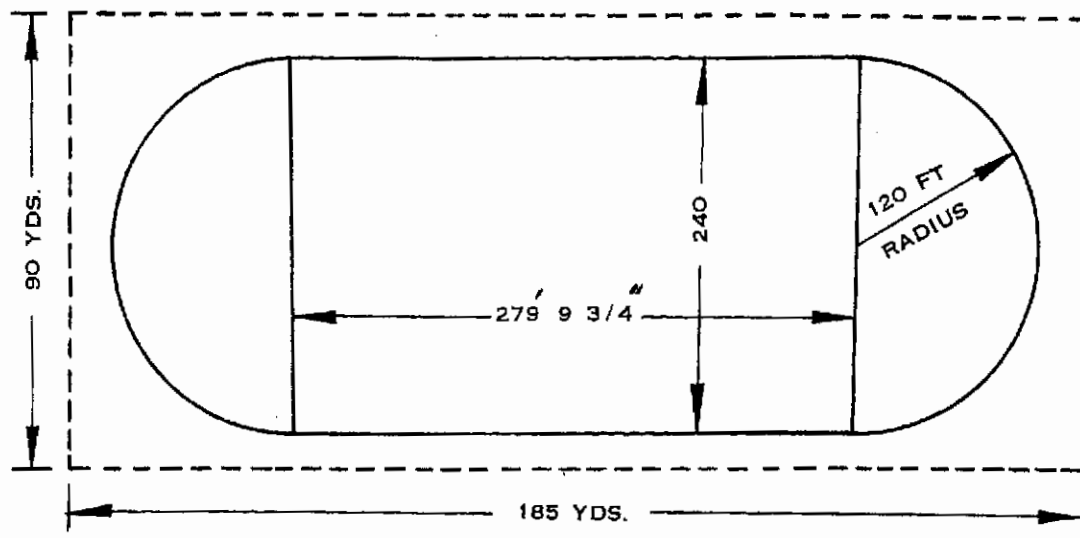
so that it will not turn. Step-up blocks are attached to the supports 1½ feet from the ground.

393. Equipment

The equipment needed to administer the test is divided as to the function of the equipment.

a. *Layout Equipment.* Some of the events are laid out on a temporary basis and must be reconstructed with each administration of the test, equipment such as a reel-type steel tape, stakes, lime, lime marker, and similar equipment must be provided.

b. *Event Equipment.* Certain equipment is required during the administration of the various



Notes On Layout Of Track

1. Dotted lines indicate minimum size of area.
2. The track is one-quarter mile at the inside edge of track.
3. To layout track locate a horizontal mid-line in the center of the area. This line is 279 feet, $9\frac{3}{4}$ inches long.
4. From the end points of this line mark circles with a radius of 120 feet.
5. To form the track connect the outermost points of the two circles with tangent lines.

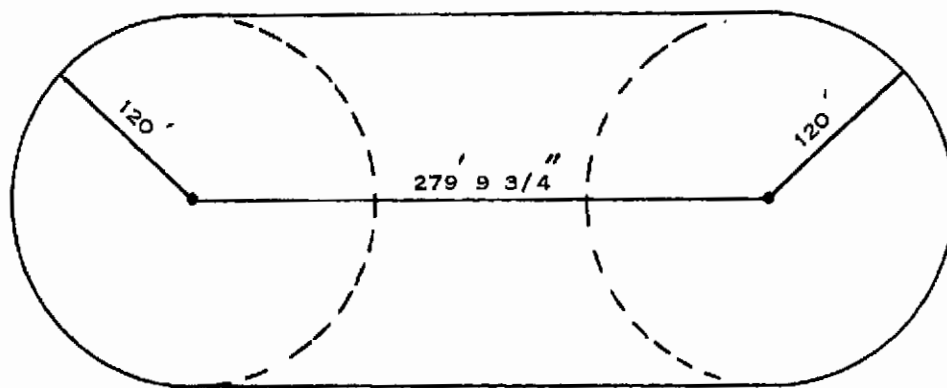


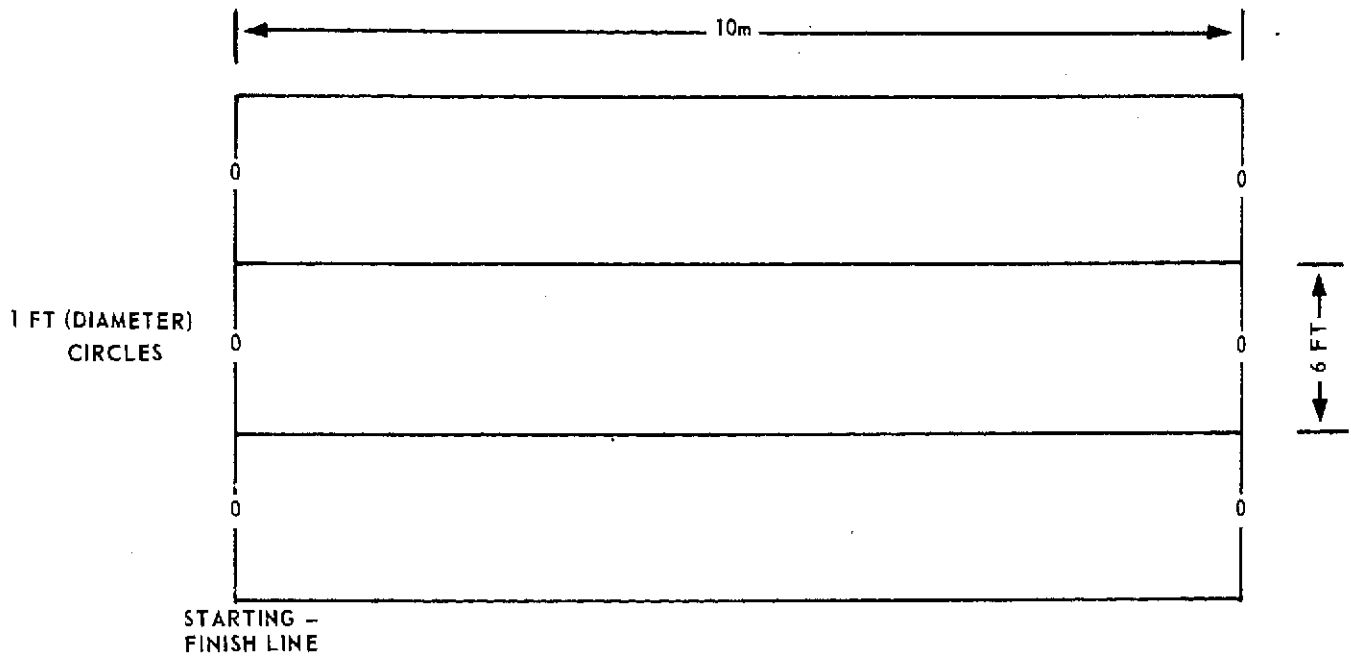
Figure 113. Running track (quarter mile).

tests to include such items as stopwatches, identification numbers, wooden blocks, and specialized items for the 15-meter swim test.

(1) *Stopwatches.* Any standard stopwatch may be used, either a so-called 1/5- or 1/10-second

watch. The watch must be of the type which will retain the minute count in addition to timing whole seconds.

(2) *Identification numbers.* Two sets of numbers are required for the 1-mile run. Each set to



NOTE: CHALK OR TAPE MAY BE USED TO MARK LANES.

Figure 114. Shuttle run course.

be numbered from 1 to 72. The background of each set must be a different color. For the 2-mile run one set of numbers from 1 to 100 is required. Numbers must be provided with a means of holding the number to the runner. Heavy cord or tape attached to each of the top corners form a neck loop and two side cords attached to the bottom corners are satisfactory. The side cords are each 20 inches long and are secured around the runner's waist, tied in the rear. The neck cord is made from material 24 inches in length.

(3) *Wooden blocks.* Three sets of two blocks each are required. Each block is $4 \times 4 \times 2$ inches. The two blocks in each set are to be painted in contrasting colors.

(4) *Special swim test equipment.* The swim test requires items of equipment peculiar to the Ranger/Special Forces Test (chap 27).

c. Scorer Equipment. Scorers require items of equipment to enable them to carry out their duties. A test event description must be available to each of the event supervisors for instruction of the examinees being tested. There should be colored pencils or pens for recording of scores and clipboards to facilitate recording the results on the scorecards.

d. Examinee Equipment. Each examinee must

have a scorecard, DA Form 705 (fig 109), and a lead pencil. Examinees will provide their own pencils.

394. Procedure on Day of Test

On the day of the test, the examinees are assembled at the test area. They must be oriented as to the purpose of the test, the filling out of their test scorecards, the organization for the test, the application of the scoring table, and the sequence of events.

a. Use the following directions in orientation of the examinees: The instructions which are printed in large type are to be read aloud to the examinees. Read all instructions slowly and distinctly. The directions printed in regular type, including those in parentheses, are for the chief examiner only and are *not* to be read aloud. The following instructions should be read to examinees just prior to their assignment to testing groups. **YOU ARE ABOUT TO BE GIVEN A TEST WHICH WILL MEASURE YOUR PHYSICAL FITNESS. WE URGE YOU TO LISTEN CLOSELY TO THE TEST INSTRUCTIONS AND TO DO THE BEST YOU CAN ON EACH OF THE EVENTS. EACH OF YOU WILL NOW RECEIVE A COPY OF THE TEST SCORECARD.**

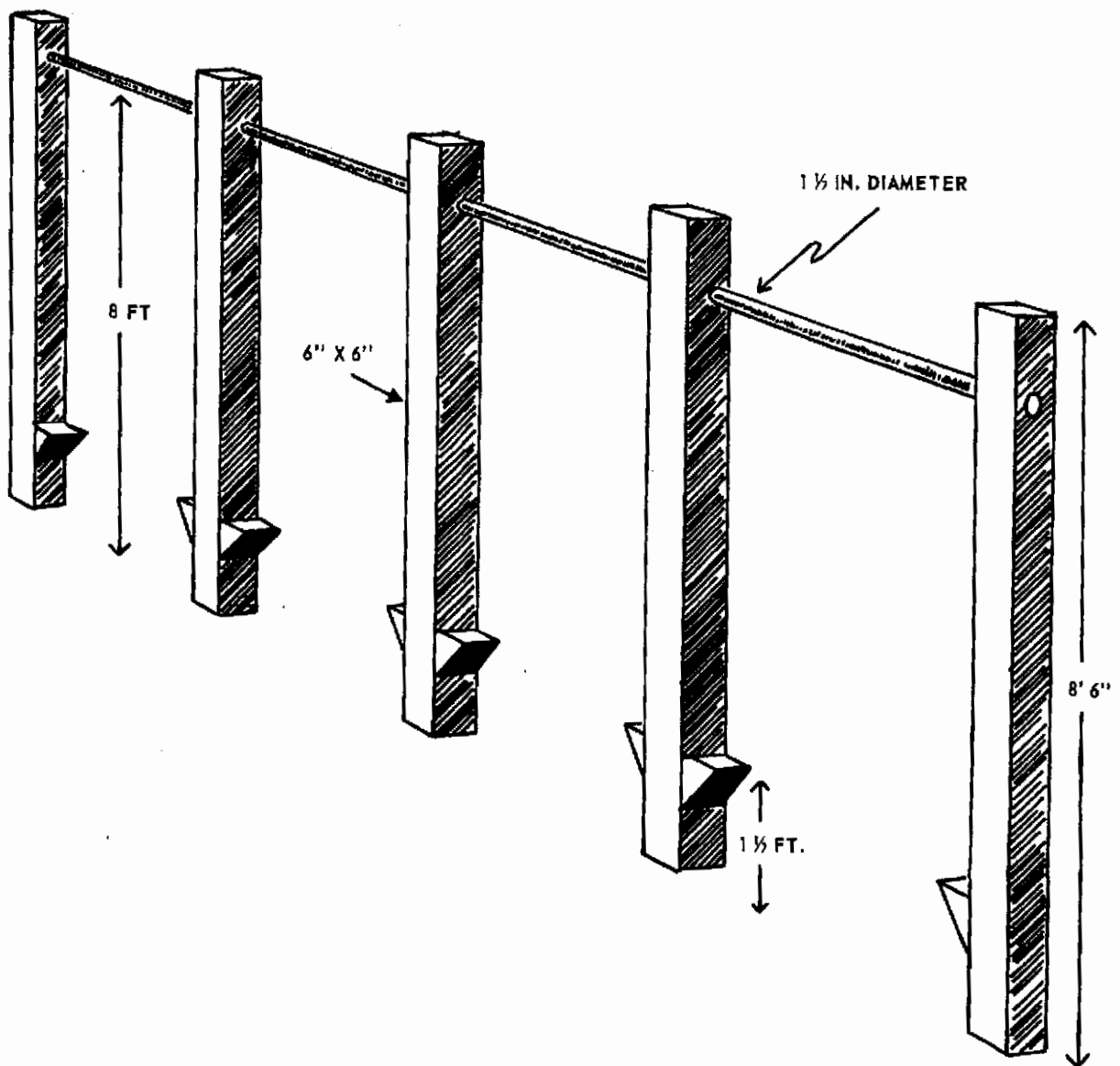


Figure 115. Chinup bars.

b. Hand out scorecards and then say: IN THE APPROPRIATE SPACES, PRINT THE INFORMATION AS REQUIRED ON THE SCORECARD. If men received scorecards prior to coming to the test area and required information has been placed on the cards, reference to completion of the card contained herein may be omitted.

c. Provide time to complete the required information and aid those who have difficulty. Then say: CHECK YOUR CARD TO MAKE CERTAIN YOU HAVE COMPLETED ALL INFORMATION AS REQUIRED.

d. Pause briefly to allow time for check, then say: YOU ARE TO CARRY THIS CARD WITH

YOU TO EACH EVENT. BEFORE YOU BEGIN EACH EVENT, HAND THE CARD TO THE SCORER. AFTER YOU COMPLETE THE EVENT HE WILL RECORD YOUR SCORE ON THE CARD AND HAND IT BACK TO YOU. At this point, explain the score table to insure the men understand how raw scores are converted to point scores. Then say: THERE WILL BE SEVERAL GROUPS AND YOU WILL BE ASSIGNED TO A GROUP. STAY WITH YOUR GROUP THROUGHOUT THE ENTIRE TEST.

e. Organize groups as required by the test to be administered and give final instructions to include what to do at the completion of the final event. Administer the test.

Section III. THE EVALUATION OF PHYSICAL FITNESS

395. Responsibility

The commander is responsible for the physical fitness of his command, and for the measurement and evaluation of its physical readiness.

396. Methods of Evaluation

a. The commander has several methods available to him of evaluating the physical condition of his command. The primary methods are: testing, inspection, observation, and medical examination.

(1) Physical fitness testing, utilizing standard Army tests, is the most efficient method of evaluating both individual and unit physical fitness.

(2) Formal inspection procedures, utilizing inspection officers and standardized rating criteria, may be used to assist in the evaluation of unit physical fitness.

(3) Routine observation of physical performance can serve as a general indicator of a unit's physical readiness; however, mere observation is not a reliable or accurate means of evaluation.

(4) Medical examination may be utilized to detect any individual disability or detrimental physical condition, and to guide in application of remedial, therapeutic, or limited exercise programs.

b. It is difficult to accurately measure all objectives of a physical fitness program. Time does not permit the measurement of all physical fitness components and skills during a physical fitness test. For that reason, tests are usually limited to a sampling of those physical traits. Intangible objectives such as confidence and aggressiveness present a problem to measurement. Personal observation will be necessary to evaluate objectives of this nature.

397. Basic Concept of Testing

The basic concept of physical fitness testing rests on the fact that regular administration of standardized physical fitness tests is the best known method of evaluating physical readiness. Physical fitness tests are also an invaluable aid in the construction of exercise and physical training programs, as tests reveal deficiencies in the program which indicate change is needed. In order for physical fitness testing to contribute to a successful physical training program there must be proper utilization of test standards, valid and accurate test results, proper use of tests, and an awareness of the limitations and value of testing.

a. Army physical fitness standards are constructed to statistically reflect the minimum level of physical readiness that is acceptable for military personnel. These standards, when applied to a command, serve as a statistical indicator of the level of unit or individual physical readiness. They are not the desired goal of the Army physical conditioning programs except in the sense of representing the desired level of achievement for military personnel. In some cases service schools, service agencies, and organizational units may require attainment of higher standards in accordance with their missions or course of instruction. Commanders may establish standards at levels above the minimum.

b. The success of any physical testing program depends upon obtaining valid and accurate test results. Since Army physical fitness tests are designed to measure the condition of the entire body, all personnel participating in the test must take all events in the test. In addition, all personnel participating in tests should exert a maximum effort in each event. The test events are designed so that conditioned men will suffer no ill effects from a maximum expenditure of effort.

c. Physical fitness tests are designed to be used as an evaluation device. They should not be given as an exercise program. Too frequent testing leads to a decrease in motivation which adversely affects performance on regularly scheduled tests.

d. Physical fitness testing has many specific values for the individual, physical training instructor, and commander. Some of the specific applications are as follows:

(1) Physical fitness tests serve to give the individual an indicator of his overall physical fitness while simultaneously revealing the relative condition of various body areas through individual event scores. Testing also provides a basis for motivation in comparison of individual test scores.

(2) The physical training instructor can derive a thorough evaluation of the effectiveness of his physical training program from test results. These results indicate the strong and weak areas of both the unit and the individual.

(3) The commander may use physical testing results in evaluation of the physical condition of his unit. Publication of unit and individual test scores can provide motivation and inspire unit pride.

398. Supervision of Test Administration

Supervision of a physical fitness testing program is necessary to insure that the program objectives are met. Proper supervision should provide for uniformity in testing, training of test judges, and control of test preparation and performance factors.

a. Preparation for a physical fitness test should be directed at securing the most accurate evaluation of the personnel participating in the test. Preparatory requirements include selection and training of judges and scorers, a check of available equipment and facilities, obtaining necessary transportation to the test site, briefing and orientation of administrative and participating personnel and confirmation of scheduling.

b. The commander should insure that testing is uniform with regard to events, judging, scoring, clothing, motivation, equipment, and facilities.

(1) The order of test events should be arranged so that personnel are not placed at a disadvantage by improper scheduling of strenuous events within the test order.

(2) All judges should be well-trained nonparticipants. They should be instructed in their re-

sponsibility to maintain impartial and uniform scoring standards.

(3) Prior to the test time should be allocated for the training of judges. A committee of judges should be formed to score all elements of a unit being tested. A comprehensive training program for judges should include instruction in test procedure, scoring, test event performance, and judicial responsibility.

(4) The same degree of command emphasis and motivation should be provided to all elements of the command.

c. Commanders should exercise stringent control of the factors that influence test performance. Men should not be tested in a fatigued or depressed state. In order to prevent this occurrence commanders should insure that—

(1) Personnel to be tested do not participate in physically tiring duties prior to the test, to include such activity as guard mount, walking to a distant test site, or strenuous training.

(2) Tests are not scheduled on Monday, pay-days, or a day following holidays.

(3) Test participants are in the proper state of motivation; i.e., not in an uninformed state, or during periods of low morale.

Section IV. USE AND INTERPRETATION OF TEST RESULTS

399. Purpose of Interpretation

a. the purpose of physical fitness testing is to establish an index by which the individual's physical readiness can be measured. An evaluation of this fitness is determined by converting raw scores for each test event. Methods for computing and interpreting test scores are explained in paragraph 400.

b. Properly interpreted test results reveal the following to the unit commander:

(1) *The physical condition of the individual soldier.* This is accomplished by comparing the score achieved with the specific standards which have been established for the various authorized tests.

(2) *The level of physical fitness of the entire unit.* By computing scores as outlined in paragraph 400, the commander can establish unit averages for each test event and the total score average. He can further compare levels of physical fitness with other units of his command or with units of other commands.

(3) *Deficiencies in his physical training program.* If scores are low, it is an indication the training has not been extensive enough, not vigor-

ous enough, not properly balanced, not progressive, or suffers from some other type deficiency.

(4) *The men who are below average in physical fitness.* Special attention can be devoted to this group. One method which has been employed successfully is to assign the platoon leaders the responsibility for improving the performance of men who are below average through remedial training (chap 9).

c. Commanders are cautioned not to determine individual and unit physical fitness by using only total scores. Detailed study of results on each test event is more important. An individual can have a relatively high total score, yet have limited strength and endurance in a particular body area. For example, an individual in a combat unit may have a total score of 391 points, which is considered to be above average; however, study of each test event score may reveal the individual scored only 20 rungs (38 points) on the horizontal ladder for his age group in the Advanced Physical Fitness Test. Although 391 points is considered to be a high score, the man is not totally fit. He must therefore concentrate on exercises to improve the strength of his arms and shoulder girdle. If simi-

lar results were found to be prevalent throughout a command, a change in the conditioning program to correct this deficiency may be indicated.

400. Methods for Interpretation of Test Scores

The results of test scores are meaningless unless they are intelligently interpreted to indicate the weakness and strength of the individual, the platoon, the company, or the battalion. There are various mathematical "tools" to aid in the interpretation of test scores.

a. Average Raw Score. In order to determine the raw score of a unit, the individual scores of that particular group should be averaged. To obtain the average raw score of a company, for example, do the following:

(1) Total the number of men of the company participating in a particular event, e.g., horizontal ladder.

(2) Total the number of rungs completed for the company.

(3) Divide the total number of rungs by the total number of men performing the ladder event. This resulting figure is the average raw score in the horizontal ladder event for the company (200 men do 11,000 rungs; divide 11,000 by 200 equals 55 rungs).

b. Average Point Score. The raw score is converted to a point score according to the scoring table for each of the participating individuals on each of the events. The recommended method to find the average point score is to proceed exactly as for determining the raw score. For example, 15,800 points were scored in a company total of 11,000 rungs. These points divided by the 200 men who participated in the ladder event equals 79 points for the company.

c. Comparison of Unit's Graph. For purposes of determining strength and weakness of given units, and generally understanding the physical fitness of his men, the platoon leader, company commander, or battalion commander can effectively make a comparison of his unit by—

(1) First, determining the point score average of his unit on each event as outlined in paragraph 400b above.

(2) Second, determining the overall point score average of his unit by adding the averages of each event and dividing by the number of events.

(3) Third, comparing test results. The table in figure 116 is a sample of a comparison of companies for the battalion commander. From this

table it is apparent that all companies are deficient in circulo-respiratory endurance as evidenced by low average scores on the 2-mile run event. The battalion commander will recognize the need for additional running activities in the program. Similar graphs could be prepared indicating platoon results for the company commander.

d. Physical Fitness Progress Chart. To effectively portray improvement, a chart similar to that illustrated in figure 117 may be used. This table is a sample company progress chart, showing the improvement from the first to the second administration of the physical fitness test. To compute the entries for the chart, the following method is recommended:

(1) On the first administration of the physical fitness test, determine the point score averages of the platoon, company, or battalion, by methods outlined in *b* above, for each of the events. Record this average point score on the table for each event and for each unit.

(2) On the next administration of the test, determine average point scores as on the first test and again record the results on the table.

(3) Divide the point score averages of the first test by the point score averages of the second test.

(4) Subtract this figure from 100.

(5) This result is the percentage of improvement from the first to the second test in that particular event. Record this percentage of improvement on the table for each event and for each unit. For example, 60 is the first test average and 75 is the second test average:

$$75/60 = 1.25$$

$$1.25 - 1.00 = .25 \text{ or}$$

25% improvement from the first
to the second test.

e. Value of Progress Chart. A number of important deductions can be obtained from such a chart by the unit commander. Referring to the sample progress chart in figure 117, the company commander knows, for example, that—

(1) There was some overall improvement between the two tests, but 5.2 percent is much too low a percentage to indicate improved physical fitness of the company.

(2) The company average, as indicated on the bottom line of the chart, shows the inverted crawl and the horizontal ladder improvement to be less than the other events. Consequently, the physical training program for the company should be reviewed to see if proper balance is being maintained.

(3) The company improved as a whole from

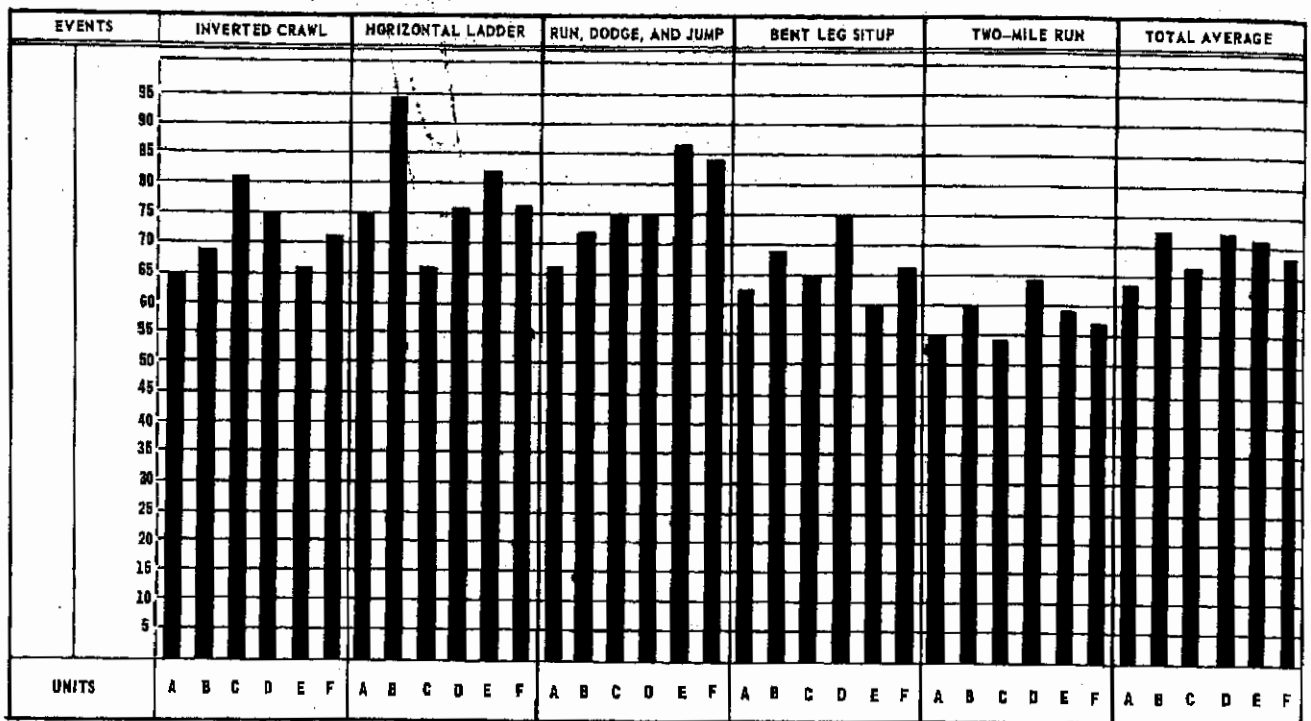


Figure 116. Comparison of unit test performance.

PLATOON	INVERTED CRAWL			HORIZONTAL LADDER			BENT LEG SIT UP			RUN, DODGE, AND JUMP			TWO - MILE RUN			TOTAL AVERAGE PERCENTAGE IMPROVEMENT OF PLATOONS
	AVERAGE SCORE		IMP %	AVERAGE SCORE		IMP %	AVERAGE SCORE		IMP %	AVERAGE SCORE		IMP %	AVERAGE SCORE		IMP %	
	1ST	2ND		1ST	2ND		1ST	2ND		1ST	2ND		1ST	2ND		
1ST	62	68	9.5	66	70	6.0	65	73	12.2	66	73	7.1	63	69	9.8	8.9
2ND	73	79	7.9	64.1	68	6.1	72	74	2.1	78	81	3.6	59	62	4.0	4.7
3RD	74	74	0.0	73	75	2.2	72	74	2.2	76	76	0.0	77	79	2.4	1.4
4TH	78	80	2.2	65	67	1.9	78	82	4.2	79	83	5.5	59	64	9.6	4.7
COMPANY AVERAGE	71.8	75.2	4.7	67.0	70.0	4.5	71.8	75.8	5.6	74.7	78.3	4.8	64.5	68.5	6.2	5.2*

*OVERALL AVERAGE IMPROVEMENT OF COMPANY

Figure 117. Improvement between first and second test.

the first to the second test, with the first platoon high and the third platoon low.

(4) The company showed greatest improvement on the 2-mile run, averaging 6.2 percent improvement.

(5) The third platoon was consistently low on both tests and showed the least amount of improvement. This platoon should spend additional time in remedial conditioning to raise their overall physical condition.

f. Individual Progress. The company and the battalion commanders are interested in the physical condition of their men as a unit, but the platoon leader is specifically concerned about the fitness of the individual man. Total test scores are sometimes misleading for they do not indicate specific weakness and strength. Recording scores of each event facilitates analysis of each individual and provides the platoon leader greater detail concerning each man.

401. After Test Action

a. Scoring tables are printed to facilitate con-

version of raw scores to point scores as the test events are completed.

b. At the completion of a test the following action should be completed in relation to score-cards:

(1) Raw scores are converted to point scores by use of the scoring tables. For example, 21.5 seconds in the inverted crawl equals 79 points for the 17-25 year age group in the Advanced Physical Fitness Test.

(2) Point scores are totaled for the five events to determine individual total test scores.

(3) Total scores are entered on a unit score sheet and posted in the area.

(4) Unit average scores are computed and compared.

(5) The percentage of improvement between the present and the previous administration of the test is computed for each unit.

(6) Individual scorecards are forwarded to the personnel section and placed in the individual's record file.

CHAPTER 25

UNIT ORGANIZATION PHYSICAL FITNESS TESTS

Section I. INTRODUCTION

402. General

Personnel, when assigned to TOE or TDA units, are administered a test appropriate to their unit assignment. Two of the seven APFE tests are prescribed for the testing of unit personnel. Exceptions to this occur under specific situations. Personnel assigned to these units who are over 40 years of age, and who volunteer to be tested, participate in the Minimum Physical Fitness Test (chap 27). The second exception occurs when facilities are not available to administer the prescribed test or severe weather makes it necessary to administer the Inclement Weather/Limited Facilities Physical Fitness Test (chap 27).

403. Tests

a. The two tests specified for unit personnel are as follows:

(1) *The Advanced Physical Fitness Test.*

(a) *Participation.* This test is administered to personnel under 40 years of age assigned to combat and combat support units.

(b) *Test events.*

1. Inverted crawl.
2. Run, dodge, and jump.
3. Horizontal ladder.
4. Bent leg situps.
5. Two-mile run.

(2) *The Staff and Specialist Physical Fitness Test.*

(a) *Participation.* This test is administered to personnel under 40 years of age assigned to combat service support units or to TDA organizations, to include personnel assigned to Army schools as staff, faculty and students. Students undergoing Airborne, Ranger, and Special Forces training are exempted as their physical fitness is determined by other tests (chap 27).

(b) *Test events.*

1. Pushups.
2. Run, dodge, and jump.
3. Horizontal ladder.
4. Bent leg situps.
5. One-mile run.

b. The Advanced and Staff and Specialist tests are explained in detail in paragraphs 404 through 417.

Section II. THE ADVANCED PHYSICAL FITNESS TEST

404. Participation

a. *Use.* The Advanced Physical Fitness Test is administered to personnel under 40 years of age assigned to duty in combat and combat support units.

b. *Test Events* (fig 118). There are five events: inverted crawl, run, dodge and jump, horizontal ladder, bent leg situp, and the 2-mile run.

c. *Scoring Table.* The scoring table (fig 119) is to be reproduced locally. This table is used for conversion of raw scores to point scores.

d. *Standards.*

(1) *Combat and combat support units.* Personnel assigned to combat and combat support units should meet combat ready standards. Per-

sonnel in these units are scored in accordance with their age as specified in the table below.

(2) *Combat ready standards.* To meet combat ready standards, the participants must score 60 points per-event and achieve a minimum cumulative score of 300 points. Minimum raw scores necessary to achieve a minimum acceptable standard of 60 points on each event are as follows:

Event	Age Group	Raw Score
Inverted crawl	17 — 25	29 seconds
	26 — 30	30 seconds
	31 — 35	31 seconds
	36 — 39	32 seconds
Bent leg situp	17 — 25	80 repetitions
	26 — 30	29 repetitions
	31 — 35	28 repetitions
	36 — 39	27 repetitions

Event	Age Group	Raw Score
Horizontal ladder	17 — 25	39 bars
	26 — 30	32 bars
	31 — 35	27 bars
	36 — 39	21 bars
Run, dodge, and jump	17 — 25	24.5 seconds
	26 — 30	25.0 seconds
	31 — 35	25.5 seconds
	36 — 39	26.0 seconds
Two-mile run	17 — 25	20 minutes 33 seconds
	26 — 30	20 minutes 44 seconds
	31 — 35	20 minutes 55 seconds
	36 — 39	21 minutes 06 seconds

e. Uniform. Fatigue trousers, T-shirt, and combat boots.

405. Administration

This test can be administered to 200 participants in 2½ hours by 18 administrators.

a. Personnel and Area. There will be one test supervisor who will also act as event supervisor for the 2-mile run event, and one event supervisor for each of the other events. The inverted crawl event will have 10 lanes and 10 scorers; the horizontal ladder event will have four lanes and four scorers; the bent leg situp event will have five stations and five scorers; and the run, dodge, and jump event will have four lanes and four scorers. The 2-mile run will be the last event taken; scorers from the other events will be used to administer this event after the other events have been completed.

b. Equipment. Five stopwatches, 17 clipboards and pens, 100 identification numbers.

c. Organization. Participants are arranged into three groups of equal size. All groups will take the inverted crawl as the first event. After the first event has been completed, group I moves to the horizontal ladder event; group II moves to the bent-leg situp event; and group III moves to the run, dodge, and jump event. When each group has completed its second event, group I moves to the bent leg situp event, group II moves to the run, dodge, and jump event, and group III moves to the horizontal ladder event. Upon completion of the third event, each group moves to the event (other than the 2-mile run) which has not been taken. Upon completion of the fourth event, all groups reassemble for the 2-mile run. The last event to be taken will always be the 2-mile run.

406. Inverted Crawl

a. Purpose. To test arm and leg coordination as well as overall strength and endurance (fig 120).

b. Equipment. One stopwatch, 10 clipboards and pens.

c. Facilities. Ten lanes, six feet wide by 20 yards long. Overall dimensions, to include the above area and additional space needed for test administration require an area 32 yards wide by 40 yards long.

d. Personnel. Eleven personnel—one event supervisor and 10 lane scorers.

e. Instructions. The event supervisor will read the following: THE STARTING POSITION FOR THIS EVENT IS THE SAME AS THAT USED FOR THE CRAB WALK, THAT IS, THE MAN SUPPORTS HIS BODY WITH BOTH HANDS AND BOTH FEET, FACING SKYWARD, TOES BEHIND THE STARTING LINE. THE ARMS SHOULD BE STRAIGHT AND THE LEGS SHOULD BE EXTENDED TO THE STARTING LINE. IN THE STARTING POSITION THE TOES OF BOTH FEET MUST TOUCH THE STARTING LINE. ON THE COMMAND *READY*, TAKE YOUR POSITION AT THE LINE, KEEPING YOUR HANDS AND FEET IN PLACE, AND THEN SIT DOWN. ON THE COMMAND *GET SET*, RAISE YOUR BODY, AND ON THE COMMAND *GO* BEGIN CRAWLING OR MOVING WITH YOUR FEET LEADING. NEGOTIATE THE FIRST 20 YARDS, TOUCH THE END LINE WITH ONE OR THE OTHER FOOT, AND RETURN TO THE STARTING LINE WITH YOUR HANDS LEADING. YOU WILL BE FINISHED WHEN BOTH FEET HAVE CLEARED THE FINISH LINE, OR, THE LINE FROM WHICH YOU STARTED. WATCH THIS DEMONSTRATION. (Demonstration) ARE THERE ANY QUESTIONS?

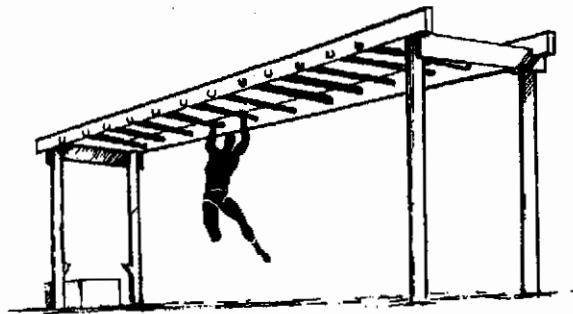
f. Administration. The participant will "cover down" on a lane and listen to the instructions. After the instructions are read and questions are answered, the command, *FIRST ORDER TO THE STARTING LINE*, is given. At this time the first participants in each lane assume the starting position and the other individuals in the lane remain 5 to 10 yards back of the first participants. On the command *GO* the participants with their respective lane scorers, move down the lane. The lane scorer moves to a position from which he can insure that the participant in his lane touches



1 INVERTED CRAWL



2 RUN, DODGE & JUMP



3 HORIZONTAL LADDER



4 BENT LEG SITUP



5 TWO-MILE RUN

Figure 118. The advanced physical fitness test.

the halfway marker; then he moves back to record, to the nearest half second, the time that the participant crosses the finish line.

g. Timing Techniques. The event supervisor will keep time from the command GO, until the last participant crosses the finish line. When the first man nears the finish line the event supervisor will count off the time in half seconds, i.e., "twenty-one-hut, twenty-two-hut, twenty-three-hut, twenty-four-hut."

h. Scorer's Duties. Each lane scorer insures that the participant negotiates the event properly, and records the time to the nearest half-second that it takes the participant to complete the event.

407. Run, Dodge, and Jump

a. Purpose. To test agility, coordination, and explosive power (fig 121).

b. Equipment. One stopwatch, four clipboards and pens.

c. Facilities. The course consists of four lanes containing four wooden obstacles per lane and a shallow ditch across the center of all lanes. The overall size of the area required for test administration and the construction of the course is 27 yards wide by 26 yards long.

d. Personnel. Five personnel—one event supervisor and four lane scorers.

e. Instructions. The event supervisor reads the following:

THE RUN, DODGE, AND JUMP TESTS YOUR ABILITY TO JUMP A FIVE-FOOT DITCH AND RAPIDLY CHANGE DIRECTIONS WHILE RUNNING. ON THE STARTING COMMAND GO, BEGIN RUNNING FROM THE STARTING LINE AS FAST AS POSSIBLE. RUN BETWEEN THE FIRST TWO OBSTA-

INVERTED CRAWL					RUN, DOGGE, JUMP					HORIZONTAL LADDER					BENT LEG SITUPS					
POINTS	17-25	26-30	31-35	36-39	POINTS	17-25	26-30	31-35	36-39	POINTS	17-25	26-30	31-35	36-39	POINTS	17-25	26-30	31-35	36-39	
100	16	17	18	19	50	32	33	34	35	100	84	80	75	69	50	80	49	48	47	36
99					49	32.5	33.5	34.5	35.5	99	83	79	74	68	49	79	26	21	15	49
98	16.5	17.5	18.5	19.5	48					98	82	78	73	67	48					48
97					47	33	34	35	36	97	81	77	72	66	47	28	23	20	14	47
96	17	18	19	20	46					96	79.80	76	71	65	46	27	24	19	13	46
95					45	33.5	34.5	35.5	36.5	95	78	75	70	64	45					45
94	17.5	18.5	19.5	20.5	44	34	35	36	37	94	77	74	69	63	44	26	23	18	12	44
93					43					93	76	72	67	61	43	25				43
92	18	19	20	21	42	34.5	35.5	36.5	37.5	92	75	71	66	60	42	24	21	17	11	42
91					41					91	74.74	70	65	59	41	23				41
90	18.5	19.5	20.5	21.5	40	35	36	37	38	90	72	69	64	58	40	22	21	16	10	40
89					39	35.5	36.5	37.5	38.5	89	71	68	63	57	39					39
88	19	20	21	22	38	36	37	38	39	88	70	66	61	55	38	21	20	15	9	38
87					37					87	69	65	60	54	37					37
86	19.5	20.5	21.5	22.5	36	36.5	37.5	38.5	39.5	86	68	64	59	53	36	20	19	14	8	36
85	20	21	22	23	35	37	38	39	40	85	67	63	58	52	35	19	18	13	7	35
84					34	37.5	38.5	39.5	40.5	84	66	62	57	51	34	18				34
83	20.5	21.5	22.5	23.5	33					83	65	60	55	49	33	17	12	6		33
82					32	38	39	40	41	82	63.64	59	54	48	32	17				32
81	21	22	23	24	31	39.5	39.5	40.5	41.5	81	62	58	53	47	31	16	11	5		31
80					30	39	40	41	42	80	61	57	52	46	30	16				30
79	21.5	22.5	23.5	24.5	29	39.5	40.5	41.5	42.5	79	60	56	51	45	29	15	10	4		29
78	22	23	24	25	28	40	41	42	43	78	59	54	49	43	28	15	14	9	3	28
77					27	40.5	41.5	42.5	43.5	77	58	53	48	42	27					27
76	22.5	23.5	24.5	25.5	26	41	42	43	44	76	57	52	47	41	26	14	13	8	2	26
75	23	24	25	26	25	41.5	42.5	43.5	44.5	75	56	51	46	40	25	13				25
74	23.5	24.5	25.5	26.5	24	42	43	44	45	74	55	49	44	38	24	12	7	1		24
73					23	42.5	43.5	44.5	45.5	73	53.54	48	43	37	23	12				23
72	24	25	26	27	22	43	44	45	46	72	52	47	42	36	22	11	6			22
71	24.5	25.5	26.5	27.5	21	43.5	44.5	45.5	46.5	71	51	46	41	35	21	11	10	5		21
70	25	26	27	28	20	44	45	46	47	70	50	45	40	34	20	10				20
69					19	44.5	45.5	46.5	47.5	69	49	43	38	32	19	9	4			19
68	25.5	26.5	27.5	28.5	18	45	46	47	48	68	48	42	37	31	18	9				18
67	26	27	28	29	17	45.5	46.5	47.5	48.5	67	47	41	36	30	17	8	3			17
66	26.5	27.5	28.5	29.5	16	46	47	48	49	66	46	39	34	28	16	8	7	2		16
65	27	28	29	30	15	46.5	47.5	48.5	49.5	65	45	38	33	27	15	7				15
64	27.5	28.5	29.5	30.5	14	47	48	49	50	64	44.44	37	32	26	14	6	1			14
63	28	29	30	31	13	47.5	48.5	49.5		63	42	36	31	25	13	6	5			13
62	28.5	29.5	30.5	31.5	12	48	49	50		62	41	34	29	23	12	5				12
61					11	48.5	49.5			61	40	33	28	22	11	4				11
60	29	30	31	32	10	49	50			60	39	32	27	21	10	4				10
59	29.5	30.5	31.5	32.5	9	49.5				59	38	31	26	20	9	3				9
58	30	31	32	33	8	50				58	37				8	3	2			8
57					7					57	36	30	25	19	7					7
56	30.5	31.5	32.5	33.5	6					56	35				6	2	1			6
55					5					55	34	29	24	18	5					5
54	31	32	33	34	4					54	33				4	1				4
53					3					53	32	28	23	17	3					3
52	31.5	32.5	33.5	34.5	2					52	31				2					2
51					1					51	30	27	22	16	1					1

1 First four events

Figure 119.① Score table, advanced physical fitness test.

AGE GROUP POINTS					AGE GROUP POINTS					AGE GROUP POINTS					AGE GROUP POINTS					AGE GROUP POINTS						
17-25	26-30	31-35	36-39	TIME	17-25	26-30	31-35	36-39	TIME	17-25	26-30	31-35	36-39	TIME	17-25	26-30	31-35	36-39	TIME	17-25	26-30	31-35	36-39	TIME		
100				14:35-14:41	80	81	82	83	16:57-17:05	60	61	62	63	20:23-20:33	40	41	42	43	23:37-23:45	20	21	22	23	26:27-26:45		
99	100			14:42-14:48	79	80	81	82	17:06-17:14	59	60	61	62	20:34-20:44	39	40	41	42	23:46-23:54	19	20	21	22	26:46-26:54		
98	99	100		14:49-14:55	78	79	80	81	17:15-17:23	58	59	60	61	20:45-20:55	38	39	40	41	23:55-24:03	18	19	20	21	26:55-27:03		
97	98	99	100	14:56-15:02	77	78	79	80	17:24-17:32	57	58	59	60	20:56-21:06	37	38	39	40	24:04-24:12	17	18	19	20	27:04-27:12		
96	97	98	99	15:03-15:09	76	77	78	79	17:33-17:41	56	57	58	59	21:07-21:17	36	37	38	39	24:13-24:21	16	17	18	19	27:13-27:21		
95	96	97	98	15:10-15:16	75	76	77	78	17:42-17:50	55	56	57	58	21:18-21:28	35	36	37	38	24:22-24:30	15	16	17	18	27:22-27:30		
94	95	96	97	15:17-15:23	74	75	76	77	17:51-17:59	54	55	56	57	21:29-21:39	34	35	36	37	24:31-24:39	14	15	16	17	27:31-27:39		
93	94	95	96	15:24-15:30	73	74	75	76	18:00-18:10	53	54	55	56	21:40-21:48	33	34	35	36	24:40-24:48	13	14	15	16	27:40-27:48		
92	93	94	95	15:31-15:37	72	73	74	75	18:11-18:21	52	53	54	55	21:49-21:57	32	33	34	35	24:49-24:57	12	13	14	15	27:49-27:57		
91	92	93	94	15:38-15:44	71	72	73	74	18:22-18:32	51	52	53	54	21:58-22:06	31	32	33	34	24:58-25:06	11	12	13	14	27:58-28:06		
90	91	92	93	15:45-15:51	70	71	72	73	18:33-18:43	50	51	52	53	22:07-22:15	30	31	32	33	25:07-25:15	10	11	12	13	28:07-28:15		
89	90	91	92	15:52-15:58	69	70	71	72	18:44-18:54	49	50	51	52	22:16-22:24	29	30	31	32	25:16-25:24	9	10	11	12	28:16-28:24		
88	89	90	91	15:59-16:05	68	69	70	71	18:55-19:05	48	49	50	51	22:25-22:33	28	29	30	31	25:25-25:33	8	9	10	11	28:25-28:33		
87	88	89	90	16:06-16:12	67	68	69	70	19:06-19:16	47	48	49	50	22:34-22:42	27	28	29	30	25:34-25:42	7	8	9	10	28:34-28:42		
86	87	88	89	16:13-16:19	66	67	68	69	19:17-19:27	46	47	48	49	22:43-22:51	26	27	28	29	25:43-25:51	6	7	8	9	28:43-28:51		
85	86	87	88	16:20-16:26	65	66	67	68	19:28-19:38	45	46	47	48	22:52-23:00	25	26	27	28	25:52-26:00	5	6	7	8	28:52-28:58		
84	85	86	87	16:27-16:33	64	65	66	67	19:39-19:49	44	45	46	47	23:01-23:09	24	25	26	27	26:01-26:09	4	5	6	7	29:01-29:07		
83	84	85	86	16:34-16:40	63	64	65	66	19:50-20:00	43	44	45	46	23:10-23:18	23	24	25	26	26:10-26:18	3	4	5	6	29:08-29:16		
82	83	84	85	16:41-16:47	62	63	64	65	20:01-20:11	42	43	44	45	23:19-23:27	22	23	24	25	26:19-26:27	2	3	4	5	29:17-29:25		
81	82	83	84	16:48-16:56	61	62	63	64	20:12-20:22	41	42	43	44	23:28-23:36	21	22	23	24	26:28-26:36	1	2	3	4	29:26-29:34		
																				1	2	3		29:35-29:43		
																					1	2			29:44-29:52	
																						1				29:53-30:00

2 Two-mile run

Figure 119(2)—continued.

CLES FOLLOWING THE DIRECTIONAL ARROWS. JUMP THE DITCH AND RUN BETWEEN THE LAST TWO OBSTACLES, CIRCLING COMPLETELY AROUND THE LAST OBSTACLE. ON THE RETURN FOLLOW THE DIRECTIONAL ARROWS, CONTINUING TO WEAVE IN AND OUT BETWEEN THE OBSTACLES, JUMP THE DITCH, NEGOTIATE THE LAST TWO OBSTACLES, CIRCLE THE LAST OBSTACLE, AND START YOUR SECOND TRIP. FOLLOW THE SAME ROUTE AS ON YOUR FIRST TRIP. AT THE END OF YOUR SECOND COMPLETE ROUND TRIP, YOU WILL FINISH BY CROSSING THE SAME LINE FROM WHERE YOU STARTED. MAKE YOUR RUN AS FAST AS POSSIBLE. YOU CANNOT USE YOUR HANDS TO ASSIST BY GRASPING THE OBSTACLES AND YOU

MUST JUMP THE DITCH. DIRECTIONAL ARROWS APPEAR ON BOTH SIDES OF THE OBSTACLES, AND YOU MUST GO THE WAY THE ARROWS POINT. YOU WILL BE SCORED ON YOUR ABILITY TO JUMP THE DITCH, AND RAPIDLY DODGE AND RUN AROUND THE OBSTACLES. IF YOU INTENTIONALLY TOUCH ANY OF THE OBSTACLES, FAIL TO CLEAR THE DITCH, OR RUN OUT OF THE PATTERN, YOU WILL BE STOPPED AND REQUIRED TO RUN THE COURSE AGAIN. SHOULD YOU AGAIN COMMIT ONE OF THESE OFFENSES, YOU WILL BE DISQUALIFIED AND RECEIVE NO SCORE. TIME ENDS WHEN YOU CROSS THE FINISH LINE ON YOUR LAST TRIP. WHEN YOU FINISH THE EVENT, MOVE TO THE REAR OF THE FILE IN YOUR LANE.



Figure 121. Run, dodge, and jump.

d. *Personnel.* Five personnel—one event supervisor and four lane scorers.

e. *Instructions.* The event supervision reads the following:

THE HORIZONTAL LADDER TESTS COORDINATION AND THE STRENGTH AND ENDURANCE OF THE SHOULDER GIRDLE AREA. ON MY SIGNAL, *GET READY*, STEP UP ONTO THE SUPPORTS AND GRASP THE FIRST RUNG WITH BOTH HANDS USING THE FORWARD GRIP. ON THE COMMAND *GO*, SWING YOUR FEET OFF THE SUPPORT AND AT THE SAME TIME BEGIN FORWARD PROGRESS GRASPING THE NEXT RUNG AND PROPELLING YOUR BODY FORWARD, YOU MUST ALTERNATE YOUR HANDS, GRASPING EACH RUNG OF THE LADDER, TURN AROUND AND COME BACK. CONTINUE TO TRAVERSE THE LADDER UNTIL YOU HEAR THE COMMAND *STOP* AT THE END OF A ONE-MINUTE PERIOD. THE TIME ELAPSED WILL BE ANNOUNCED AT FIFTEEN-SECOND INTERVALS. YOU WILL

BE SCORED ON THE NUMBER OF RUNGS TRAVERSED DURING THE ONE-MINUTE PERIOD. IF YOU TIRE AND DESIRE TO REST BEFORE THE EXPIRATION OF THE ONE-MINUTE PERIOD YOU MAY DO SO, BUT YOU MUST CONTINUE TO SUSPEND YOUR WEIGHT FROM THE BAR WITHOUT *DROPPING OFF*. IN ORDER TO RECEIVE CREDIT FOR THE LAST RUNG, YOU MUST ACTUALLY HAVE YOUR BODY WEIGHT FULLY SUSPENDED FROM THE RUNG, RATHER THAN MERELY TOUCHING IT WITH ONE HAND. IF YOU ACCIDENTLY LOSE YOUR GRIP AND FALL OFF DURING THE FIRST TRIP DOWN THE LADDER, TO INCLUDE FALLING DURING THE ACT OF TURNING AROUND, YOU WILL BE STOPPED AND PERMITTED TO GO TO THE END OF THE LINE TO ATTEMPT THE EVENT A SECOND TIME. ON THE SECOND ATTEMPT, THE RUNG COUNT STARTS AT ZERO. IF YOU FALL OFF A SECOND TIME, AT ANY PLACE ON THE LADDER, NO FURTHER ATTEMPTS ARE PERMITTED AND

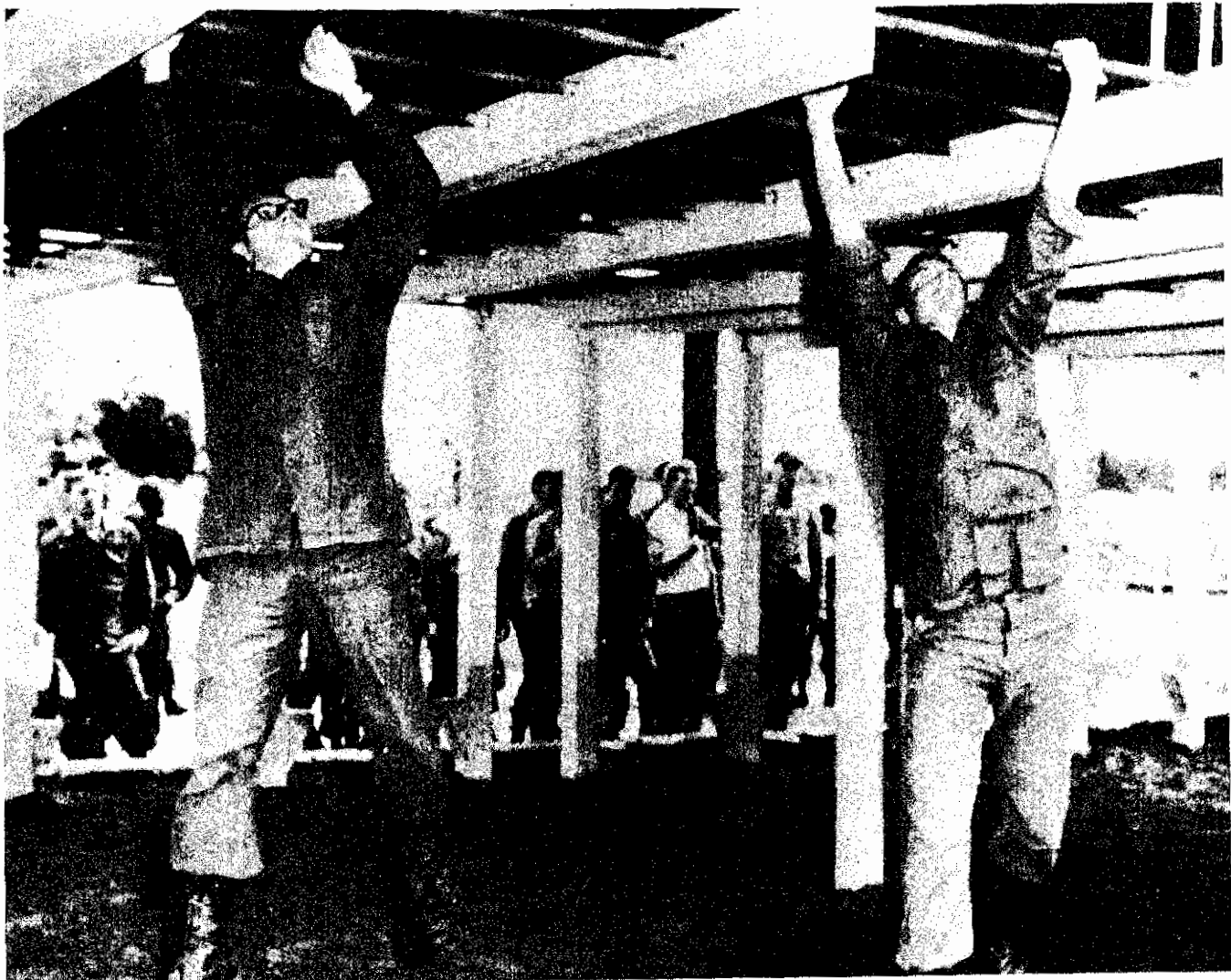


Figure 122. Horizontal ladder.

YOUR RAW SCORE WILL EQUAL THE NUMBER OF RUNGS GAINED ON YOUR SECOND ATTEMPT. YOU WILL BE STOPPED AND REQUIRED TO NEGOTIATE THE EVENT AGAIN IF YOU USE THE SUPPORTS AT EITHER END OF THE LADDER TO ASSIST YOU IN TURNING AROUND OR USE THE STARTING BLOCKS TO REST, OR AS A STOP TO SECURE A BETTER GRIP. ON THE SECOND ATTEMPT, SHOULD YOU AGAIN USE THE SUPPORTS OR THE FOOT RESTS, YOU WILL BE STOPPED AND RECEIVE THE SCORE ACHIEVED TO THAT POINT. WHEN YOU FINISH THE EVENT, GO TO THE REAR OF YOUR LANE. WATCH THE DEMONSTRATION. (Demonstration) ARE THERE ANY QUESTIONS?

f. Administration. After reading the instructions, answer any questions and then give the command, FIRST ORDER ON THE BLOCKS.

Run this order and successive orders until all participants in the group have completed the event.

g. Timing Techniques. The event supervisor serves as the timer. Time is called at each 15-second interval, and for every second of the last 5 seconds.

h. Scorer's Duties. At the conclusion of the demonstration, step up to your lane and gather the scorecards from your men. Keep the cards in the same order that the men will traverse the ladder. When you have all of the cards, move to a position outside the ladder area and face the ladder. Count the number of rungs traversed in 1 minute or less. The first time down the ladder count 14 rungs; each succeeding traverse of the ladder is 13 rungs. Enter the total number of rungs traversed on the card and return the scorecard to the participant.

Note. If the participant is unable to suspend all of his weight on one arm as required in the alternation of hands,



1. OUTDOORS



2. INDOORS

Figure 123. Bent log situp.

allow him to place both hands on the same rung. He must, however, alternate his lead hand when he reaches out for each new rung.

409. Bent Leg Setup

a. Purpose. This event measures the strength of the abdominal muscles (fig 123).

b. Equipment. One stopwatch, five clipboards and pens.

c. Facilities. Five stations, 6 feet wide and 5 yards long, are required.

d. Personnel. Six personnel—one event supervisor and five scorers.

e. Instructions. The event supervisor reads the following:

THIS EVENT MEASURES YOUR ABDOMINAL MUSCLE STRENGTH. ANOTHER PARTICIPANT WILL HOLD YOUR FEET BY THE ANKLES ON THE GROUND DURING THE EXERCISE. THE STARTING POSITION IS SUPINE (ON YOUR BACK), KNEES BENT AT APPROXIMATELY A FORTY-FIVE-DEGREE ANGLE, FINGERS INTERLACED AND PLACED BEHIND THE HEAD WITH ELBOWS TOUCHING THE GROUND. AT THE COMMAND GO, BEGIN BY CURLING YOUR BODY FORWARD TO THE VERTICAL POSITION. AFTER YOU HAVE ATTAINED THE VERTICAL POSITION, ALLOW YOUR BODY TO RETURN TO THE STARTING POSITION. ONE REPETITION IS CONSIDERED COMPLETE ONLY AFTER YOU HAVE RETURNED TO THE STARTING POSITION. DURING ALL PHASES OF THE EVENT YOUR FEET MUST BE HELD ON THE GROUND, YOUR FINGERS MUST REMAIN INTERLACED BEHIND YOUR HEAD, AND YOUR KNEES MUST REMAIN BENT AT APPROXIMATELY A FORTY-FIVE-DEGREE ANGLE. ARCHING OF THE LOWER BACK PRIOR TO EXECUTING THE SITUP IS NOT PERMITTED. THE VERTICAL POSITION MUST BE ATTAINED TO RECEIVE CREDIT FOR A CORRECT REPETITION. DO AS MANY REPETITIONS OF THIS EXERCISE AS POSSIBLE DURING A ONE-MINUTE TIME FRAME. THE GRADER WILL COUNT THE NUMBER OF REPETITIONS YOU PERFORM CORRECTLY. IF ONE IS NOT DONE CORRECTLY, HE WILL REPEAT THE NUMBER OF THE LAST CORRECT REPETITION. WATCH THIS DEMONSTRATION. (Demonstration) ARE THERE ANY QUESTIONS?

f. Administration. After reading the instruc-

tions and answering any questions, each scorer insures that the first man at his station is in the correct starting position and that the second man in line is in a kneeling position on the ground holding the participant's feet by the ankles firmly on the ground. At the command GO, the scorer, standing at the participant's side, counts the number of correctly performed repetitions. After completion of each 1-minute period, the participant goes to the end of the line, the holder becomes the participant, and the next man in line becomes the holder. This procedure is followed until all participants have been tested.

g. Timing Techniques. The event supervisor will also serve as the timer. At the signal GO, the timer starts a stopwatch. He calls out the time at the 30-second interval, and every second for the last 10 seconds. One minute is allowed for each order.

h. Scorer's Duties. Each scorer will observe the performance of the participant at his station and count the number of correct repetitions. The scorers will record the number of correct repetitions on the scorecard.

410. Two-Mile Run

a. Purpose. To test circulo-respiratory and leg muscle endurance (fig 124).

b. Equipment. Two stopwatches, 100 vests with numbers, course markers (if necessary), a turn-around point (may be a post, or building) $\frac{1}{2}$ to 1 mile from the starting line, and 14 clipboards and pens.

c. Facilities. A large training area on which a $\frac{1}{2}$ - or 1-mile track has been staked out, or a level road over flat terrain, may be used. The route is designated by stakes which mark the starting point, finish point, and $\frac{1}{4}$ -mile intervals.

Note. Option—A $\frac{1}{4}$ -mile oval track may be used if other areas cannot be prepared.

d. Personnel. Eighteen personnel—one event supervisor, four organizers who also serve as lane scorers, six lane scorers, two check personnel at the turn-around point, and five safety supervisors.

e. Instructions. The event supervisor reads the following:

THE TWO-MILE RUN TESTS YOUR ENDURANCE AND YOUR ABILITY TO MAKE A PROLONGED RUN. YOU WILL BE RUNNING AS PART OF A GROUP OF 100 MEN. AT THE START, ALL PARTICIPANTS WILL LINE UP BEHIND THE STARTING LINE. TIME WILL NOT BEGIN UNTIL THE LAST MAN



Figure 124. Running events: one-half mile, one mile, two miles.

CROSSES THE STARTING LINE. WHEN GIVEN THE COMMAND GO, EACH PARTICIPANT WILL BEGIN RUNNING, SETTING HIS OWN PACE. EACH MAN WILL RUN TO THE TURN-AROUND POINT (ONE-HALF, OR ONE MILE AWAY) AND RETURN, USING THE STARTING LINE AS THE FINISH LINE. YOU WILL BE SCORED ON YOUR ABILITY TO COVER THE COURSE IN THE SHORTEST POSSIBLE TIME. THE NUMBER ON YOUR CHEST IS TO AID THE SCORER IN IDENTIFYING YOU. MAKE CERTAIN THAT THE NUMBER IS VISIBLE BOTH WHEN YOU REACH THE HALFWAY POINT AND WHEN YOU FINISH. ONCE YOU HAVE COMPLETED THE EVENT, TURN IN YOUR NUMBER AND MOVE TO THE AREA OF YOUR EQUIPMENT FOR THE COOLING-OFF PERIOD. DO NOT REMAIN NEAR THE SCORERS OR THE FINISH LINE, AS YOU MAY INTERFERE WITH THE SCORING. ARE THERE ANY QUESTIONS?

f. Administration. After reading the instructions, answer any questions. Then have half of the

unit line up in 10 files of 8 to 10 participants each (depending on the size of the unit). Issue each man one numbered vest in order (i.e., first man in the first file gets number 1, and the last man in this file gets number 8 or 10, depending upon the number of participants). The first man in each file lines up behind the starting line; others assigned to that file cover on him. The scorecards of participants are collected by the scorers (approximately 8 to 10 scorecards per scorer). When the scorers and the participants are ready, the GO signal is given. After the first group of runners leave the starting line, the remaining half of the unit is prepared for the run by being arranged in files off the course. The safety supervisors will insure that the runners stay on the course and watch for injured participants. At the halfway point, there will be four check personnel who will observe and mark off the numbers of participants as they reach the halfway marker. The participant will not call off his number as he passes the marker. Rounding the marker, the participants return on the same course, keeping to their right or on the opposite side of the course so as not to interfere

with the participants still running to the halfway marker. As participants near the finish line, the event supervisor will begin calling off time in minutes and seconds. As the participants finish, scorers will record their times in minutes and seconds. The organizers will then collect the numbered vests, issue them to the next group, and collect their scorecards.

g. Timing Techniques. The event supervisor serves as the timer for the event. He will use two stopwatches simultaneously in case one watch stops running. As the participants near the finish

line, the event supervisor will begin calling off the time in minutes and seconds; i.e., Fifteen-Thirty, Fifteen-Thirty-One, Fifteen-Thirty-Two.

h. Scorer's Duties. When the participants are assembled on the course ready to run, step up to the starting line and gather the scorecards from the participants. As you take the scorecard, record each man's number in the upper right-hand corner of the card. As the participants finish the event, record their scores in minutes and seconds in the appropriate column.

Section III. THE STAFF AND SPECIALIST PHYSICAL FITNESS TEST

411. Participation

a. Use. This test is administered to personnel under 40 years of age assigned to combat service support units or to TDA organizations, to include personnel assigned to Army schools as staff, faculty, and students. Airborne, Ranger, and Special Forces students are exempted (chap 27).

b. Test Events (fig 125). There are five events: pushups, run, dodge, and jump, horizontal ladder, bent leg situp, and the 1-mile run.

c. Scoring Table. The scoring table (fig 126) is to be reproduced locally. This table is used for conversion of raw scores to point scores.

d. Standards. To meet minimum acceptable standards, the participants must complete all five events and achieve a cumulative score of 300 or more points.

e. Uniform. Fatigue trousers, T-shirt, and combat boots.

412. Administration

This test can be administered to 200 participants in 2½ to 3 hours by 23 administrators.

a. Personnel and Area. There will be one test supervisor who will perform the duties of event supervisor for the 1-mile run event and one event supervisor for each of the other events. The pushup event will have five stations and five scorers; the horizontal ladder event will have four lanes and four scorers; the bent leg situp event will have five stations and five scorers; and the run, dodge, and jump event will have four lanes and four scorers. The 1-mile run event will be the last event administered; scorers from the other events will be used to administer this event after all other events have been completed.

b. Equipment. Five stopwatches, 23 clipboards

and pens, two sets of different colored identification numbers (36 per set).

c. Organization. Participants are arranged into four groups of equal size. Group I will move to the situp event; group II will move to the horizontal ladder event; group III will move to the run, dodge, and jump event; and group IV will move to the pushup event. Upon completion of the first event, each group rotates to a different event in a "round robin" manner until each group has completed all four events. Upon completion of the fourth event, all groups reassemble for the 1-mile run. The last event to be taken will always be the 1-mile run.

Note. The push-up and horizontal ladder events should never be given consecutively.

413. Pushups

a. Purpose. To measure the strength of the shoulder girdle muscles (fig 127).

b. Equipment. One stopwatch, five clipboards and pens.

c. Facilities. Five stations, 6 feet wide and 5 yards long, are required.

d. Personnel. Six personnel—one event supervisor and five lane scorers.

e. Instructions. The event supervisor reads the following:

THE PUSHUP EVENT MEASURES THE STRENGTH OF YOUR SHOULDER GIRDLE MUSCLES. YOU ARE TO ASSUME THE FRONT LEANING REST POSITION AT THE STARTING POSITION. THE ARMS AND BACK MUST BE STRAIGHT. ON THE COMMAND GO, YOU ARE TO BEGIN YOUR PUSHUPS BY BENDING THE ELBOWS AND LOWERING YOUR CHEST TO THE SCORER'S

PUSHUPS					RUN, DODGE, JUMP					HORIZONTAL LADDER					SITUPS																									
POINTS	17-25	26-30	31-35	36-39	POINTS	17-25	26-30	31-35	36-39	POINTS	17-25	26-30	31-35	36-39	POINTS	17-25	26-30	31-35	36-39	POINTS	17-25	26-30	31-35	36-39																
100	51	49	47	44	50					100	20.5	21.0	21.5	22.5	50					100	80	75	74	73	50	25	20	19	17	100	48	47	45	43	50	23	22	20	18	
99					49	22	20	18	15	99					49					99	79	74	73	72	49					99					49					
98	50	48	46	43	48					98					48	26.0	26.5	27.0	28.0	98	78	73	72	71	48	24	19	18	16	98	47	46	44	42	48	22	21	19	17	
97	48	47	45	42	47					97					47					97	77	72	71	70	47					97					47					
96					46	21	19	17	14	96					46					96	76	71	70	69	46	23	18	17	15	96	46	45	43	41	46	21	20	18	16	
95	48	46	44	41	45					95	21.0	21.5	22.0	23.0	45	26.5	27.0	27.5	28.5	95	75	70	69	68	45					95					45					
94					44					94					44					94	74	69	68	67	44	22	17	16	14	94	45	44	42	40	44	20	19	17	15	
93	47	45	43	40	43	20	18	16	13	93					43					93	73	68	67	66	43					93					43					
92	46	44	42	39	42					92					42	27.0	27.5	28.0	29.0	92	72	67	66	65	42	21	16	15	13	92	44	43	41	39	42	19	18	16	14	
91					41					91					41					91	71	66	65	64	41					91					41					
90	45	43	41	38	40	19	17	15	12	90	21.5	22.0	22.5	23.5	40					90	70	65	64	63	40	20	15	14	12	90	43	42	40	38	40	18	17	15	13	
89	44	42	40	37	39					89					39	27.5	28.0	28.5	29.5	89	69	64	63	62	39					89					39					
88					38					88					38					88	68	63	62	61	38	19	14	13	11	88	42	41	39	37	38	17	16	14	12	
87	43	41	39	36	37	18	16	14	11	87					37					87	67	62	61	60	37					87					37					
86	42	40	38	35	36					86					36	28.0	28.5	29.0	30.0	86	66	61	60	59	36	18	13	12	10	86	41	40	38	36	36	16	15	13	11	
85					35					85	22.0	22.5	23.0	24.0	35					85	65	60	59	58	35					85					35					
84	41	39	37	34	34	17	15	13	10	84					34					84	64	59	58	57	34	17	12	11	9	84	40	39	37	35	34	15	14	12	10	
83					33					83					33	28.5	29.0	29.5	30.5	83	63	58	57	56	33					83					33					
82	40	38	36	33	32	16	14	12	9	82					32					82	62	57	56	55	32	16	11	10	8	82	39	38	36	34	32	14	13	11	9	
81	39	37	35	32	31					81					31	29.0	29.5	30.0	31.0	81	61	56	55	54	31					81					31					
80	38	36	34	31	30					80	22.5	23.0	23.5	24.5	30					80	60	55	54	53	30	18	10	9	7	80	38	37	35	33	30					
79					29	15	13	11	8	79					29	29.5	30.0	30.5	31.5	79	59	54	53	52	29					79					29	13	12	10	8	
78	37	35	33	30	28					78					28					78	58	53	52	51	28	14	9	8	6	78	37	36	34	32	28					
77					27					77					27	30.0	30.5	31.0	32.0	77	57	52	51	50	27					77					27	12	11	9	7	
76	36	34	32	29	26	14	12	10	7	76					26					76	56	51	50	49	26	13	8	7	5	76	36	35	33	31	26					
75	35	33	31	28	25					75	23.0	23.5	24.0	25.0	25	30.5	31.0	31.5	32.5	75	55	50	49	48	25					75					25					
74					24					74					24					74	54	49	48	47	24	12	7	6	4	74	35	34	32	30	24	11	10	8	6	
73	34	32	30	27	23	13	11	9	6	73					23	31.0	31.5	32.0	33.0	73	53	48	47	46	23					73					23					
72					22					72					22					72	52	47	46	45	22	11	6	5	3	72	34	33	31	29	22					
71	33	31	29	26	21	12	10	8	5	71					21	31.5	32.0	32.5	33.5	71	51	46	45	44	21					71					21	10	9	7	5	
70					20					70	23.5	24.0	24.5	25.5	20					70	50	45	44	43	20	10	5	4	2	70	33	32	30	28	20					
69	32	30	28	25	19	11	9	7	4	69					19	32.0	32.5	33.0	34.0	69	49	44	43	42	19					69					19	9	8	6	4	
68					18					68					18					68	48	43	42	41	18	9	4	3	1	68	32	31	29	27	18					
67	31	29	27	24	17	10	8	6	3	67					17	32.5	33.0	33.5	34.5	67	47	42	41	39-40	17					67					17					
66					16					66					16					66	45-46	40-41	39-40	37-38	16	8	3	2		66	31	30	28	26	16	8	7	5	3	
65	30	28	26	23	15	9	7	5	2	65	24.0	24.5	25.0	26.0	15	33.0	33.5	34.0	35.0	65	43-44	38-39	37-38	35-36	15					65					15					
64					14					64					14					64	41-42	36-37	35-36	33-34	14	7	2	1		64	30	29	27	25	14	7	6	4	2	
63	29	27	25	22	13	8	6	4	1	63					13					63	39-40	34-35	33-34	31-32	13					63					13					
62	28	26	24	21	12					62					12					62	37-38	32-33	31-32	29-30	12	6	1			62	29	28	26	24	12	6	5	3	1	
61	27	25	23	20	11	7	5	3		61					11	34.0	34.5	35.0	36.0	61	35-36	30-31	29-30	27-28	11					61					11					
60	26	24	22	19	10					60	24.5	25.0	25.5	26.5	10					60	33-34	28-29	27-28	25-26	10	5				60	28	27	25	23	10	5	4	2		
59					9	6	4	2		59					9	34.5	35.0	35.5	36.5	59	32	27	26	24	9					59					9					
58	25	23	21	18	8					58					8					58	31	26	25	23	8	4				58	27	26	24	22	8	4	3	1		
57					7	5	3	1		57					7	35.0	35.5	36.0	37.0	57	30	25	24	22	7					57					7					
56					6					56	25.0	25.5	26.0	27.0	6					56	29	24	23	21	6	3				56	26	25	23	21	6	3	2			
55	24	22	20	17	5	4	2			55					5	35.5	36.0	36.5	37.5	55	28	23	22	20	5					55					5					
54					4					54					4					54	27	22	21	19	4	2				54	25	24	22	20	4	2	1			
53					3	3	1			53					3	36.0	36.5	37.0	38.0	53	26	21	20	18	3					53					3	1				
52	23	21	19	16	2	2				52	25.5	26.0	26.5	27.5	2					52					2	1				52	24	23	21	19	2					
51					1	1				51					1	36.5	37.0	37.5	38.5	51					1						51					1				



1 PUSHUPS



2 RUN, DODGE & JUMP



3 HORIZONTAL LADDER



4 BENT LEG SITUP



5 ONE-MILE RUN

Figure 125. Staff and specialist physical fitness test.

HAND. YOUR BODY MUST REMAIN STRAIGHT FROM HEAD TO TOE AS YOUR CHEST TOUCHES THE SCORER'S HAND. YOU WILL THEN RETURN TO THE STARTING POSITION BY LOCKING THE ELBOWS. THIS WILL CONSTITUTE ONE REPETITION. THE SCORER WILL COUNT THE NUMBER OF REPETITIONS CORRECTLY EXECUTED AT THE END OF EACH REPETITION. A REPETITION WILL NOT COUNT IF YOU DO NOT KEEP YOUR BODY STRAIGHT, IF YOUR CHEST DOES NOT TOUCH THE SCORER'S HAND, OR IF YOU DO NOT COMPLETELY STRAIGHTEN YOUR ELBOWS. IF ANY OF THESE VIOLATIONS OCCUR THE SCORER WILL REPEAT THE NUMBER OF

YOUR LAST CORRECT REPETITION. YOU WILL BE GIVEN ONE MINUTE IN WHICH TO EXECUTE AS MANY REPETITIONS AS POSSIBLE. WATCH THIS DEMONSTRATION. (Demonstration) ARE THERE ANY QUESTIONS?

f. *Administration.* After reading the instructions, answer any questions and give the command GO. Run this group and then proceed with the next group.

g. *Timing Techniques.* The event supervisor will serve as timer. When he gives the command GO, he will start the stopwatch. The time should be called out at 30-second interval and on every second for the last 10 seconds of the 1-minute period.

AGE GROUP/POINTS					AGE GROUP/POINTS					AGE GROUP/POINTS					AGE GROUP/POINTS					AGE GROUP/POINTS					
17-25	26-30	31-35	36-39	TIME	17-25	26-30	31-35	36-39	TIME	17-25	26-30	31-35	36-39	TIME	17-25	26-30	31-35	36-39	TIME	17-25	26-30	31-35	36-39	TIME	
100				6:00-6:02	80	82	84	86	7:00-7:02	60	62	64	66	8:17-8:20	40	42	44	46	9:37-9:40	20	22	24	26	10:57-11:00	
99				6:03-6:05	79	81	83	85	7:03-7:05	59	61	63	65	8:21-8:24	39	41	43	45	9:41-9:44	19	21	23	25	11:01-11:04	
98	100			6:06-6:08	78	80	82	84	7:06-7:08	58	60	62	64	8:25-8:28	38	40	42	44	9:45-9:48	18	20	22	24	11:05-11:08	
97	99			6:09-6:11	77	79	81	83	7:09-7:11	57	59	61	63	8:29-8:32	37	39	41	43	9:49-9:52	17	19	21	23	11:09-11:12	
96	98	100		6:12-6:14	76	78	80	82	7:12-7:15	56	58	60	62	8:33-8:36	36	38	40	42	9:53-9:56	16	18	20	22	11:13-11:16	
95	97	99		6:15-6:17	75	77	79	81	7:16-7:19	55	57	59	61	8:37-8:40	35	37	39	41	9:57-10:00	15	17	19	21	11:17-11:20	
94	96	98	100	6:18-6:20	74	76	78	80	7:20-7:23	54	56	58	60	8:41-8:44	34	36	38	40	10:01-10:04	14	16	18	20	11:21-11:24	
93	95	97	99	6:21-6:23	73	75	77	79	7:24-7:28	53	55	57	59	8:45-8:48	33	35	37	39	10:05-10:08	13	15	17	19	11:25-11:28	
92	94	96	98	6:24-6:26	72	74	76	78	7:29-7:32	52	54	56	58	8:49-8:52	32	34	36	38	10:09-10:12	12	14	16	18	11:29-11:32	
91	93	95	97	6:27-6:29	71	73	75	77	7:33-7:36	51	53	55	57	8:53-8:56	31	33	35	37	10:13-10:16	11	13	15	17	11:33-11:36	
90	92	94	96	6:30-6:32	70	72	74	76	7:37-7:40	50	52	54	56	8:57-9:00	30	32	34	36	10:17-10:20	10	12	14	16	11:37-11:40	
89	91	93	95	6:33-6:35	69	71	73	75	7:41-7:44	49	51	53	55	9:01-9:04	29	31	33	35	10:21-10:24	9	11	13	15	11:41-11:44	
88	90	92	94	6:36-6:38	68	70	72	74	7:45-7:48	48	50	52	54	9:05-9:08	28	30	32	34	10:25-10:28	8	10	12	14	11:45-11:48	
87	89	91	93	6:39-6:41	67	69	71	73	7:49-7:52	47	49	51	53	9:09-9:12	27	29	31	33	10:29-10:32	7	9	11	13	11:49-11:52	
86	88	90	92	6:42-6:44	66	68	70	72	7:53-7:56	46	48	50	52	9:13-9:16	26	28	30	32	10:33-10:36	6	8	10	12	11:53-11:56	
85	87	89	91	6:45-6:47	65	67	69	71	7:57-8:00	45	47	49	51	9:17-9:20	25	27	29	31	10:37-10:40	5	7	9	11	11:57-12:00	
84	86	88	90	6:48-6:50	64	66	68	70	8:01-8:04	44	46	48	50	9:21-9:24	24	26	28	30	10:41-10:44	4	6	8	10	12:01-12:04	
83	85	87	89	6:51-6:53	63	65	67	69	8:05-8:08	43	45	47	49	9:25-9:28	23	25	27	29	10:45-10:48	3	5	7	9	12:05-12:08	
82	84	86	88	6:54-6:56	62	64	66	68	8:09-8:12	42	44	46	48	9:29-9:32	22	24	26	28	10:49-10:52	2	4	6	8	12:09-12:12	
81	83	85	87	6:57-6:59	61	63	65	67	8:13-8:16	41	43	45	47	9:33-9:36	21	23	25	27	10:53-10:56	1	3	5	7	12:13-12:16	
																				2	4	6		12:17-12:20	
																				1	3	5		12:21-12:24	
																					2	4			12:25-12:28
																				1	3				12:29-12:32
																					2				12:33-12:36
																				1					12:37-12:40

2 One-mile run

Figure 126(2) continued.

h. Scorer's Duties. The event supervisor will serve as timer and read the instructions to the participants. The scorers will position themselves so that they can control the participant's activities. This can best be accomplished by lying on the right side of the participant. The scorer should place his right hand, palm down, on the ground beneath the participant's chest. The right forearm should remain flat on the ground to prevent interference with the participant's correct execution of the pushup. Use the left arm to check for locking of the elbow and to point out incorrect movement, i.e., failing to keep the back straight. The scorer should count the number of correct repetitions and repeat the number of the last correctly per-

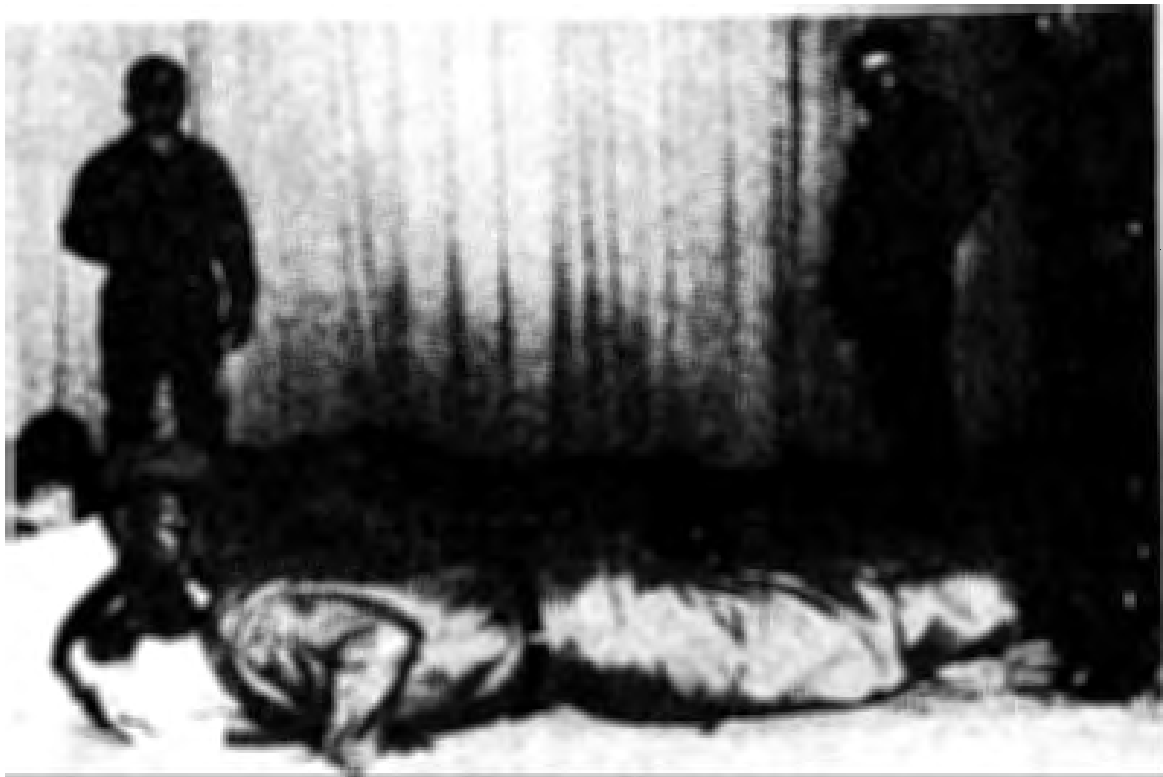
formed movement when an incorrect repetition is performed. Participants may rest at any time in the down position. To begin again, they must assume the front leaning rest position.

414. Run, Dodge, and Jump

a. Purpose. To test explosive power, agility, and coordination, (fig 121).

b. Equipment. One stopwatch, four clipboards and pens.

c. Facilities. The course consists of four lanes containing four wooden obstacles per lane and a shallow ditch across the center of all lanes. The overall size of the area required for test adminis-



1. INDOORS



Figure 127. Pushups.

DER UNTIL YOU HEAR THE COMMAND STOP AT THE END OF A ONE-MINUTE PERIOD. THE TIME ELAPSED WILL BE ANNOUNCED AT FIFTEEN-SECOND INTERVALS. YOU WILL BE SCORED ON THE NUMBER OF RUNGS TRAVERSED DURING THE ONE-MINUTE PERIOD. IF YOU TIRE AND DESIRE TO REST BEFORE THE EXPIRATION OF THE ONE-MINUTE PERIOD YOU MAY DO SO, BUT YOU MUST CONTINUE TO SUSPEND YOUR WEIGHT FROM THE BAR WITHOUT DROPPING OFF. IN ORDER TO RECEIVE CREDIT FOR THE LAST RUNG, YOU MUST ACTUALLY HAVE YOUR BODY WEIGHT FULLY SUSPENDED FROM THE RUNG RATHER THAN MERELY TOUCHING IT WITH ONE HAND. IF YOU ACCIDENTLY LOSE YOUR GRIP AND FALL OFF DURING THE FIRST TRIP DOWN THE LADDER, TO INCLUDE FALLING DURING THE ACT OF TURNING AROUND, YOU WILL BE STOPPED AND PERMITTED TO GO TO THE END OF THE LINE TO ATTEMPT THE EVENT A SECOND TIME. ON THE SECOND ATTEMPT, THE RUNG COUNT STARTS AT ZERO. IF YOU FALL OFF A SECOND TIME, AT ANY PLACE ON THE LADDER, NO FURTHER ATTEMPTS ARE PERMITTED AND YOUR RAW SCORE WILL EQUAL THE NUMBER OF RUNGS GAINED ON YOUR SECOND ATTEMPT. YOU WILL BE STOPPED AND REQUIRED TO RESTART THE EVENT IF YOU USE THE SUPPORTS AT EITHER END OF THE LADDER TO ASSIST YOU IN TURNING AROUND OR USE THE STARTING BLOCKS TO REST, OR AS A STOP TO SECURE A BETTER GRIP. ON THE SECOND ATTEMPT, SHOULD YOU AGAIN USE THE SUPPORTS OR THE FOOT RESTS, YOU WILL BE STOPPED AND RECEIVE THE SCORE ACHIEVED TO THAT POINT. WHEN YOU FINISH THE EVENT GO TO THE REAR OF YOUR LANE. WATCH THE DEMONSTRATION. (Demonstration) ARE THERE ANY QUESTIONS?

f. Administration. After reading the instructions, answer any questions and then give the command, FIRST ORDER ON THE BLOCKS. Run this order and successive orders until all participants have completed the event.

g. Timing Techniques. The event supervisor serves as the timer. Time is called at each 15-second interval and for every second of the last 5 seconds.

h. Scorer's Duties. At the conclusion of the

demonstration, step up to your lane and gather the scorecards from your men. Keep the cards in the same order that the men will traverse the ladder. When you have all of the scorecards, move to a position outside the ladder area and face the ladder. Count the number of rungs traversed in 1 minute or less. The first time down the ladder counts 14 rungs; each succeeding traverse of the ladder is 13 rungs. Enter the total number of rungs traversed on the scorecard and return it to the participant.

Note. If the participant is unable to suspend all of his weight on one arm as required in the alternation of hands, allow him to place both hands on the same rung. He must, however, alternate his lead hand when he reaches out for each new rung.

416. Bent Leg Situps

a. Purpose. This event measures the strength of the abdominal muscles (fig 123).

b. Equipment. One stopwatch, five clipboards and pens.

c. Facilities. Five stations, 6 feet wide and 5 yards long, are required.

d. Personnel. Six personnel—one event supervisor and five scorers.

e. Instructions. The event supervisor reads the following:

THIS EVENT MEASURES YOUR ABDOMINAL MUSCLE STRENGTH. ANOTHER PARTICIPANT WILL HOLD YOUR FEET BY THE ANKLES ON THE GROUND DURING THE EXERCISE. THE STARTING POSITION IS SUPINE (ON YOUR BACK), KNEES BENT AT APPROXIMATELY A FORTY-FIVE-DEGREE ANGLE, FINGERS INTERLACED AND PLACED BEHIND THE HEAD WITH ELBOWS TOUCHING THE GROUND. AT THE COMMAND GO BEGIN BY CURLING YOUR BODY FORWARD TO THE VERTICAL POSITION. AFTER YOU HAVE ATTAINED THE VERTICAL POSITION, ALLOW YOUR BODY TO RETURN TO THE STARTING POSITION. ONE REPETITION IS CONSIDERED COMPLETE ONLY AFTER YOU HAVE RETURNED TO THE STARTING POSITION. DURING ALL PHASES OF THE EVENT YOUR FEET MUST BE HELD ON THE GROUND, YOUR FINGERS MUST REMAIN INTERLACED BEHIND YOUR HEAD, AND YOUR KNEES MUST REMAIN BENT AT APPROXIMATELY A FORTY-FIVE-DEGREE ANGLE. ARCHING OF THE LOWER BACK PRIOR TO EXECUTING THE SITUP IS NOT

tration and the construction of the course is 27 yards wide by 26 yards long.

d. Personnel. Five personnel—one event supervisor and four lane scorers.

e. Instructions. The event supervisor reads the following:

THE RUN, DODGE, AND JUMP TESTS YOUR ABILITY TO JUMP A FIVE-FOOT DITCH AND RAPIDLY CHANGE DIRECTIONS WHILE RUNNING. ON THE STARTING COMMAND GO, BEGIN RUNNING FROM THE STARTING LINE AS FAST AS POSSIBLE. RUN BETWEEN THE FIRST TWO OBSTACLES FOLLOWING THE DIRECTIONAL ARROWS. JUMP THE DITCH AND RUN BETWEEN THE LAST TWO OBSTACLES, CIRCLING COMPLETELY AROUND THE LAST OBSTACLE. ON THE RETURN FOLLOW THE DIRECTIONAL ARROWS, CONTINUING TO WEAVE IN AND OUT BETWEEN THE OBSTACLES, JUMP THE DITCH, NEGOTIATE THE LAST TWO OBSTACLES, CIRCLE THE LAST OBSTACLE, AND START YOUR SECOND TRIP. FOLLOW THE SAME ROUTE AS ON YOUR FIRST TRIP. AT THE END OF YOUR SECOND COMPLETE ROUND TRIP, YOU WILL FINISH BY CROSSING THE SAME LINE FROM WHERE YOU STARTED. MAKE YOUR RUN AS FAST AS POSSIBLE. YOU CANNOT USE YOUR HANDS TO ASSIST BY GRASPING THE OBSTACLES AND YOU MUST JUMP THE DITCH. DIRECTIONAL ARROWS APPEAR ON BOTH SIDES OF THE OBSTACLES, AND YOU MUST GO THE WAY THE ARROWS POINT. YOU WILL BE SCORED ON YOUR ABILITY TO JUMP THE DITCH AND RAPIDLY DODGE AND RUN AROUND THE OBSTACLES. IF YOU INTENTIONALLY TOUCH ANY OF THE OBSTACLES, FAIL TO CLEAR THE DITCH, OR RUN OUT OF THE PATTERN, YOU WILL BE STOPPED AND REQUIRED TO RUN THE COURSE AGAIN. SHOULD YOU AGAIN COMMIT ONE OF THESE OFFENSES, YOU WILL BE DISQUALIFIED AND RECEIVE NO SCORE. TIME ENDS WHEN YOU CROSS THE FINISH LINE ON YOUR LAST TRIP. WHEN YOU FINISH THE EVENT, MOVE TO THE REAR OF THE FILE IN YOUR LANE. WATCH THIS DEMONSTRATION. (Demonstration) ARE THERE ANY QUESTIONS?

f. Administration. After reading the instructions, answer any questions and then give the command, FIRST ORDER ON THE STARTING LINE. Run this order, and successive orders, until all participants have completed the event.

g. Timing Techniques. The event supervisor serves as the timer. Time is called in half-seconds as the first participant approaches the finish line (example: nineteen—hut, twenty—hut, twenty-one—hut). Continue to call time until all men in the order have finished.

h. Scorer's Duties. At the conclusion of the demonstration, step up to your lane and take the scorecard of the first man in line. Remain at the starting point and observe the participant's progress through the course to determine successful completion. Record each participant's time to the nearest half-second as he crosses the finish line. If the participant touches the obstacles, falls or steps into the ditch, or runs an incorrect pattern while negotiating the obstacles, stop him, point out his error, and instruct him to go to the end of the line to rerun the event. When he completes the event, record his score and return the scorecard to him.

415. Horizontal Ladder

a. Purpose. To test the ability to coordinate the forward movement of the body in hand-over-hand motion, and to measure arm and shoulder strength and endurance (fig 122).

b. Equipment. One stopwatch, four clipboards and pens.

c. Facilities. Four lane ladders are required and should be constructed to the specifications as indicated in the directions. Ladder dimensions are height 9 feet, length 20 feet and width 20 feet. The area needed for the construction of the ladder and for test administration is 11 yards wide and 25 yards long.

d. Personnel. Five personnel—one event supervisor and four lane scorers.

e. Instructions. The event supervisor reads the following:

THE HORIZONTAL LADDER TESTS COORDINATION AND THE STRENGTH AND ENDURANCE OF THE SHOULDER GIRDLE AREA. ON THE COMMAND, GET READY, STEP UP ONTO THE SUPPORTS AND GRASP THE FIRST RUNG WITH BOTH HANDS USING THE FORWARD GRIP. ON THE COMMAND GO, SWING YOUR FEET OFF THE SUPPORT AND AT THE SAME TIME BEGIN FORWARD PROGRESS GRASPING THE NEXT RUNG AND PROPELLING YOUR BODY FORWARD. YOU MUST ALTERNATE YOUR HANDS GRASPING EACH RUNG OF THE LADDER, TURN AROUND AND COME BACK. CONTINUE TO TRAVERSE THE LAD-

PERMITTED. THE VERTICAL POSITION MUST BE ATTAINED TO RECEIVE CREDIT FOR A CORRECT REPETITION. DO AS MANY REPETITIONS OF THIS EXERCISE AS POSSIBLE DURING A ONE-MINUTE TIME FRAME. THE GRADER WILL COUNT THE NUMBER OF REPETITIONS YOU PERFORM CORRECTLY. IF ONE IS NOT DONE CORRECTLY, HE WILL REPEAT THE NUMBER OF THE LAST CORRECT REPETITION. WATCH THIS DEMONSTRATION. (Demonstration) ARE THERE ANY QUESTIONS?

f. Administration. After reading the instructions and answering any questions, each scorer insures that the first man at his station is in the correct starting position and that the second man is in a line kneeling position on the ground holding the participant's feet by the ankles firmly on the ground. At the command GO, the scorer, standing at the participant's side, counts the number of correctly performed repetitions. After completion of each 1-minute period, the participant goes to the end of the line, the holder becomes the participant, and the next man in line becomes the holder. This procedure is followed until all participants have been tested.

g. Timing Techniques. The event supervisor will also serve as the timer. At the signal GO, the timer starts the stopwatch. He calls out the time at the 30-second interval and every second for the last 10 seconds. One minute is allowed for each order.

h. Scorer's Duties. Each scorer will observe the performance of the participant at his station and count the number of correct repetitions. The graders will record the number of correct repetitions on the scorecard.

417. One-Mile Run

a. Purpose. The One-Mile Run event tests the ability to make a prolonged run. The endurance of both the circulo-respiratory and muscular systems are measured (fig 124).

b. Equipment. Two stopwatches, two sets of identification numbers, and 12 clipboards and pens are required. The first set is to be numbered from 1 through 36, and the second set from 37 through 72. Each set must consist of a different color background. The size of the background material is 8 inches by 8 inches. Numbers must have a means of being worn by the runners. Heavy cord or tape, attached as neck loop and waist ties, is satisfactory.

c. Facilities. A $\frac{1}{4}$ -mile circular track.

d. Personnel. Seventeen personnel—one event supervisor, 12 scorers, and four organizers. Two scoring teams are required to administer this event. Each team consists of six scorers, and two organizers. The event supervisor will serve as timer.

e. Instructions. The event supervisor reads the following:

THE ONE-MILE RUN TESTS YOUR ENDURANCE AND YOUR ABILITY TO MAKE A PROLONGED RUN. YOU WILL RUN IN A GROUP OF 36 MEN. ANOTHER GROUP OF 36 MEN WILL START AT THE SAME TIME ON THE OPPOSITE SIDE OF THE TRACK. AT THE START, ALL RUNNERS WILL BE TO THE REAR OF THE STARTING LINE; TIME BEGINS WHEN THE LAST MAN CROSSES THE STARTING LINE. AT THE COMMAND GO, EACH MAN WILL START RUNNING AROUND THE QUARTER-MILE TRACK. EACH MAN WILL SET HIS OWN PACE. YOU WILL START AT THIS LINE, AND AFTER RUNNING FOUR LAPS AROUND THE TRACK, YOU WILL FINISH AT THIS SAME LINE. AS YOU COMPLETE EACH LAP, AN OFFICIAL WILL ANNOUNCE THE NUMBER OF LAPS REMAINING TO BE RUN. TRY TO PACE YOURSELF; DO NOT BECOME COMPLETELY EXHAUSTED ON THE FIRST LAP. YOU WILL BE SCORED ON YOUR ABILITY TO RUN THE MILE IN THE SHORTEST POSSIBLE TIME. THE NUMBER YOU ARE WEARING IS TO AID THE SCORER IN IDENTIFYING YOU. MAKE SURE THAT YOUR NUMBER IS VISIBLE EACH TIME YOU COMPLETE A LAP AND WHEN YOU CROSS THE FINISH LINE. WHEN YOU COMPLETE THE FINAL LAP, TURN IN YOUR NUMBER AND STAY IN THE IMMEDIATE VICINITY OF YOUR EQUIPMENT DURING THE COOLING OFF PERIOD. REMAIN ALERT FOR THE SIGNAL TO FALL IN AND MOVE FROM THE AREA. DO NOT REMAIN NEAR THE SCORERS OR THE FINISH LINE, AS YOU MAY INTERFERE WITH THE SCORING. ARE THERE ANY QUESTIONS?

f. Administration. After reading the instructions, answer any questions and then have two organizers prepare the participants for running. The organizers will form the participants into two groups of 36 men each. Numbers from 1 to 36 are issued to the 36 men who run on one side of the track. Contrasting colored numbers are issued to 36 men who run on the opposite side of the track. Men are assembled on each side of the

track in six files of six men each. The first man in each file should be to the rear of the starting line. When assembling the men on the track, consecutive numbers should be placed in the same file. The event supervisors direct scorers to collect the scorecards from the men in their lane. When all runners are ready, the event supervisor gives the GO signal. As soon as these first two groups start, the organizers get the next two groups of 36 men ready. Numbers from 37 to 72 are issued to this group. If there are more than two orders to run, the numbers are collected from the first order and used for the third order. As soon as the first order is finished, the numbers are collected by the organizers and distributed to the third order. If there is a fourth order, the numbers from the second order are utilized.

g. Timing Techniques. The event supervisor serves as the timer. He calls the time as the men complete each quarter mile and as they finish the mile. Time is called in minutes and seconds: e.g., "seven-twenty-nine, seven-thirty."

h. Scorer's Duties. When the participants are

assembled on the track ready to run, step up to your lane at the starting line and gather the scorecards from the participants in your lane. As you take each man's scorecard, record his number on the upper right-hand corner of the card. When you have all the scorecards, copy these numbers in a column on a separate piece of paper. As the men complete each lap, make a mark opposite their number and tell them the number of laps remaining to be run. As your participants cross the finish line, note the time in which each man completes his run and record this time in minutes and seconds opposite the appropriate number. For example, your recording on the separate piece of paper will look something like this:

<i>Identification Number</i>	<i>Laps</i>	<i>Time</i>
7	X X X	7:20
8	X X X	8:10
9	X X X	6:54
10	X X X	7:03
11	X X X	9:00
12	X X X	7:09

When all your men have finished, transfer their running time from the piece of paper to the proper column on their scorecards.

CHAPTER 26

PHYSICAL FITNESS TESTS FOR BCT, MBT, AIT, AND CST

Section I. BASIC PHYSICAL FITNESS TEST

418. General

Two tests are prescribed for the measurement of the new soldiers physical fitness. The Basic Physical Fitness Test (BPFT) is used in his initial individual training during Basic Combat Training (BCT), or during Modified Basic Training (MBT). As the soldier progresses to Advanced Individual Training (AIT) or Combat Support Training (CST), he is measured by the Advanced Physical Fitness Test (APFT). These tests are explained in this chapter as they apply to BCT, MBT, AIT or CST.

419. Participation in the BPFT

a. *Use.* The Basic Physical Fitness Test is used to measure the physical fitness of trainees under 40 years of age who are undergoing Basic Combat Training (BCT) and Modified Basic Training (MBT).

b. *Test Events* (fig 128). The five test events are the inverted crawl, run, dodge and jump, horizontal ladder, bent leg situps, and 1-mile run.

c. *Scoring Table.* The scoring table (fig 129) is to be reproduced locally. This table is used for conversion of raw scores to point scores.

d. *Standards.* To meet minimum acceptable standards the participants must complete all five events and achieve a cumulative score of 300 or more points.

e. *Uniform.* Fatigue trousers, T-shirt, and combat boots.

420. Administration of the BPFT

This test can be administered to 200 participants in 2½ hours by 17 administrators.

a. *Personnel and Area.* There will be one test supervisor who will also perform the duties of event supervisor for the 1-mile run event, and one event supervisor for each of the other four events. The inverted crawl event will have 10 lanes and 10 scorers; the run, dodge, and jump event will

have four lanes and four scorers; the horizontal ladder event will have four lanes and four scorers; and the bent leg situp event will have five stations and five scorers. The 1-mile run will be the last event; scorers from the other events will be used to administer this event after all other events have been completed.

b. *Equipment.* Five stopwatches, 17 clipboard and pens, and two sets of different colored identification numbers (86 per set).

c. *Organization.* Participants are arranged into three groups of equal size. All groups will take the inverted crawl as the first event. After the first event has been completed, group I moves to the horizontal ladder event; group II moves to the bent leg situp event; and group III moves to the run, dodge, and jump event. When each group has completed its second event, group I moves to the bent leg situp event; group II moves to the run, dodge, and jump event; and group III moves to the horizontal ladder event. Upon completion of the third event, each group moves to the event (other than the 1-mile run) which has not been taken. Upon completion of the fourth event, all groups reassemble for the 1-mile run. The last event to be taken will always be the 1-mile run.

421. Test Events of the BPFT

The five events of the Basic Physical Fitness Test are explained as follows:

a. *Inverted Crawl.*

(1) *Purpose.* To test arm and leg coordination as well as overall strength and endurance (fig. 120).

(2) *Equipment.* One stopwatch, 10 clipboards and pens.

(3) *Facilities.* Ten lanes, 6 feet wide by 20 yards long. Overall dimensions, to include the above area and additional space needed for test administration, require an area 32 yards wide by 40 yards long.

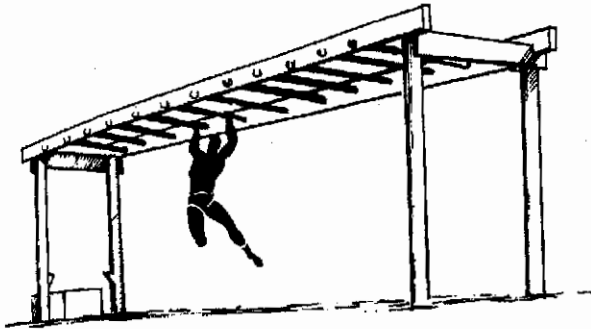
(4) *Personnel.* Eleven personnel—one event supervisor and 10 lane scorers.



1 INVERTED CRAWL



2 RUN, DODGE & JUMP



3 HORIZONTAL LADDER



4 BENT LEG SITUP



5 ONE-MILE RUN

Figure 128. The basic physical fitness test.

(5) *Instructions.* The event supervisor will read the following:

THE STARTING POSITION FOR THIS EVENT IS THE SAME AS THAT USED FOR THE CRAB WALK, I.E., THE MAN SUPPORTS HIS BODY (FACING SKYWARD) WITH BOTH HANDS AND BOTH FEET, TOES BEHIND THE STARTING LINE. THE ARMS SHOULD BE STRAIGHT AND THE LEGS SHOULD BE EXTENDED TO THE STARTING LINE. IN THE STARTING POSITION, THE TOES OF BOTH FEET MUST TOUCH THE STARTING LINE. ON THE COMMAND *READY*, TAKE YOUR POSITION AT THE LINE, KEEPING YOUR HANDS AND FEET IN PLACE, AND THEN SIT DOWN. ON THE COMMAND *GET SET*, RAISE YOUR BODY, AND ON THE COMMAND *GO*, BEGIN

CRAWLING OR MOVING WITH YOUR FEET LEADING. NEGOTIATE THE FIRST 20 YARDS, TOUCH THE END LINE WITH ONE OR THE OTHER FOOT, AND RETURN TO THE STARTING LINE WITH THE HANDS LEADING. YOU WILL BE FINISHED WHEN BOTH FEET HAVE CLEARED THE FINISH LINE (SAME AS THE STARTING LINE). WATCH THIS DEMONSTRATION. (Demonstration) ARE THERE ANY QUESTIONS?

(6) *Administration.* The participant will "cover down" on a lane and listen to the instructions. After the instruction are read and questions are answered, the command, *FIRST ORDER TO THE STARTING LINE*, is given. At this time the first participants in each lane assume the starting position and the other individuals in the lane remain 5 to 10 yards back of the first partici-

POINTS	INVERTED CRAWL	RUN, DODGE, JUMP	HORIZONTAL LADDER	BENT LEG SITUPS	ONE-MILE RUN	POINTS	INVERTED CRAWL	RUN, DODGE, JUMP	HORIZONTAL LADDER	BENT LEG SITUPS	ONE-MILE RUN	POINTS	INVERTED CRAWL	RUN, DODGE, JUMP	HORIZONTAL LADDER	BENT LEG SITUPS	ONE-MILE RUN	POINTS	INVERTED CRAWL	RUN, DODGE, JUMP	HORIZONTAL LADDER	BENT LEG SITUPS	ONE-MILE RUN						
100	16	20.5	84	50	5:55-5:56	80		22.5	61		6:43-6:45	60	29	24.5	36	28	7:57-8:00	40	35		19		9:04-9:07	20	44		9		11:27-11:39
99	16.5		83	49	5:57-5:58	79	21.5	59.60	38	38	6:46-6:48	59	29.5		35		8:01-8:03	39	35.5	27.5		18	9:08-9:12	19	44.5	32		8	11:40-11:54
98			82	48	5:59-6:00	78	22		58	34	6:49-6:51	58	30		34	27	8:04-8:06	38	36		18		9:13-9:16	18	45		8	11:55-12:09	
97			81	47	6:01-6:02	77			57	37	6:52-6:54	57			33		8:07-8:09	37				17	9:17-9:21	17	45.5	32.5		7	12:10-12:27
96	17		80		6:03-6:04	76	22.5		56	36	6:55-6:57	56	30.5	25	32	26	8:10-8:12	36	36.5	28		17	9:22-9:26	16	46		7	12:28-12:46	
95		21	79	46	6:05-6:06	75	23	54.55	36	31	6:59-7:00	55			31		8:13-8:15	35	37			16	9:27-9:32	15	46.5	33			12:47-13:08
94	17.5		77.78		6:07-6:08	74	23.5		53	30	7:01-7:04	54	31		30	25	8:16-8:17	34	37.5		16		9:33-9:37	14	47		6	13:09-13:33	
93			76	45	6:09-6:10	73			52	35	7:05-7:08	53			29		8:18-8:20	33		28.5		15	9:38-9:43	13	47.5	33.5		5	13:34-14:00
92	18		75		6:11-6:12	72	24		51		7:09-7:12	52	31.5	25.5	28		8:21-8:23	32	38		15		9:44-9:49	12	48		5		
91			74	44	6:13-6:14	71	24.5		50	34	7:13-7:16	51			27	24	8:24-8:26	31	38.5	29		14	9:50-9:56	11	48.5	34			
90	18.5	21.5	73		6:15-6:16	70	25	23.5	48.49	33	7:17-7:20	50	32		26		8:27-8:29	30	39		14		9:57-10:03	10	49		4	3	
89			71.72	43	6:17-6:18	69			47	33	7:21-7:24	49	32.5		25	23	8:30-8:32	29	39.5	29.5		13	10:04-10:10	9	49.5	34.5			
88	19		70		6:19-6:21	68	25.5		46		7:25-7:28	48		26	24		8:33-8:36	28	40		13		10:11-10:17	8	50		3	2	
87			69	42	6:22-6:24	67	26	44.45	32	32	7:29-7:32	47	33		23	22	8:37-8:39	27	40.5	30		12	10:18-10:25	7		35			
86	19.5		68		6:25-6:27	66	26.5		43		7:33-7:36	46					8:40-8:43	26	41		12		10:26-10:34	6			2	1	
85	20	22	67	41	6:28-6:30	65	27	24	42	31	7:37-7:40	45	33.5	26.5	22	21	8:44-8:47	25	41.5	30.5		11	10:35-10:43	5		35.5			
84			65.66		6:31-6:33	64	27.5		41		7:41-7:44	44	34				8:48-8:50	24	42		11		10:44-10:53	4			1		
83	20.5		64	40	6:34-6:36	63	28	39.40	30	30	7:45-7:48	43			21	20	8:51-8:54	23	42.5	31		10	10:54-11:03	3		36			
82			63		6:37-6:39	62	28.5		38		7:49-7:52	42	34.5	27			8:55-8:58	22	43		10		11:04-11:14	2					
81	21		62	39	6:40-6:42	61			37	29	7:53-7:56	41			20	19	8:59-9:03	21	43.5	31.5		9	11:15-11:26	1		36.5			

Figure 129. Score table, basic physical fitness test.

pants. On the command GO the participants, with their respective lane scorers, move down the lane. The lane grader moves to a position from which he can insure that the participant in his lane touches the halfway marker; then he moves back to record, to the nearest half second, the time that the participant crosses the finish line.

(7) *Timing techniques.* The event supervisor will keep time from the word GO, until the last participant crosses the finish line. When the first man nears the finish line the event supervisor will count off the time in half seconds i.e., "twenty-one-hut, twenty-two-hut, twenty-three-hut, twenty-four-hut."

(8) *Scorer's duties.* Each lane scorer insures that the participant negotiates the event properly, and records the time to the nearest half-second that it takes the participant to complete the event.

b. Run, Dodge, and Jump.

(1) *Purpose.* To test explosive power, agility, and coordination, (fig 121).

(2) *Equipment.* One stopwatch, four clipboards and pens.

(3) *Facilities.* The course consists of four lanes containing four wooden obstacles per lane and a shallow ditch across the center of all lanes. The overall size of the area required for test administration and the construction of the course is 27 yards wide by 26 yards long.

(4) *Personnel.* Five personnel—one event supervisor and four lane scorers.

(5) *Instructions.* The event supervisor reads the following:

THE RUN, DODGE, AND JUMP TESTS YOUR ABILITY TO JUMP A FIVE-FOOT DITCH AND RAPIDLY CHANGE DIRECTIONS WHILE RUNNING. ON THE STARTING COMMAND GO, BEGIN RUNNING FROM THE STARTING LINE AS FAST AS POSSIBLE. RUN BETWEEN THE FIRST TWO OBSTACLES FOLLOWING THE DIRECTIONAL ARROWS. JUMP THE DITCH AND RUN BETWEEN THE LAST TWO OBSTACLES, CIRCLING COMPLETELY AROUND THE LAST OBSTACLE. ON THE RETURN FOLLOW THE DIRECTIONAL ARROWS, CONTINUING TO WEAVE IN AND OUT BETWEEN THE OBSTACLES, JUMP THE DITCH, NEGOTIATE THE LAST TWO OBSTACLES, CIRCLE THE LAST OBSTACLE, AND START YOUR SECOND TRIP. FOLLOW THE SAME ROUTE AS ON YOUR FIRST TRIP. AT THE END OF YOUR SECOND COMPLETE ROUND TRIP, YOU WILL FINISH BY CROSSING THE SAME LINE FROM WHERE YOU STARTED.

MAKE YOUR RUN AS FAST AS POSSIBLE. YOU CANNOT USE YOUR HANDS TO ASSIST BY GRASPING THE OBSTACLES AND YOU MUST JUMP THE DITCH. DIRECTIONAL ARROWS APPEAR ON BOTH SIDES OF THE OBSTACLES, YOU MUST GO THE WAY THE ARROW POINTS. YOU WILL BE SCORED ON YOUR ABILITY TO JUMP THE DITCH AND RAPIDLY DODGE AND RUN AROUND THE OBSTACLES. IF YOU INTENTIONALLY TOUCH ANY OF THE OBSTACLES, FAIL TO CLEAR THE DITCH, OR RUN OUT OF THE PATTERN, YOU WILL BE STOPPED AND REQUIRED TO RERUN THE COURSE. SHOULD YOU AGAIN COMMIT ONE OF THESE OFFENSES, YOU WILL BE DISQUALIFIED AND RECEIVE NO SCORE. TIME ENDS WHEN YOU CROSS THE FINISH LINE ON YOUR LAST TRIP. WHEN YOU FINISH THE EVENT, MOVE TO THE REAR OF THE FILE IN YOUR LANE. WATCH THIS DEMONSTRATION. (Demonstration) ARE THERE ANY QUESTIONS?

(6) *Administration.* After reading the instructions, answer any questions and then give the command, FIRST ORDER ON THE STARTING LINE. Run this order and successive orders until all participants have completed the event.

(7) *Timing techniques.* The event supervisor serves as the timer. Time is called in half-seconds as the first participant approaches the finish line (example: "nineteen—hut, twenty—hut, twenty-one—hut"). Continue to call time until all men in the order have finished.

(8) *Scorer's duties.* At the conclusion of the demonstration, step up to your lane and take the scorecard of the first man in line. Remain at the starting point and observe the participant's progress through the course to determine successful completion. Record each participant's time to the nearest half-second as he crosses the finish line. If the participant touches the obstacles, falls or steps into the ditch, or runs the incorrect pattern while negotiating the obstacles, stop him, point out his error, and instruct him to go to the end of the line for a rerun of the event. When he completes the event, record his score and return the scorecard to him.

c. Horizontal Ladder.

(1) *Purpose.* To test the ability to coordinate the forward movement of the body in hand-over-hand motion, and to measure arm and shoulder strength and endurance (fig 122).

(2) *Equipment.* One stopwatch, four clipboards and pens.

(3) *Facilities.* Four lane ladders are required and should be constructed to the specifications as indicated in the directions. Ladder dimensions are height 9 feet, length 20 feet and width 20 feet. The area needed for the construction of the ladder and for test administration is 11 yards wide and 25 yards long.

(4) *Personnel.* Five personnel—one event supervisor and four lane scorers.

(5) *Instructions.* The event supervisor reads the following:

THE HORIZONTAL LADDER TESTS COORDINATION AND THE STRENGTH AND ENDURANCE OF THE SHOULDER GIRDLE AREA AND THE GENERAL BODY COORDINATION. ON MY SIGNAL *GET READY*, STEP UP ONTO THE SUPPORTS AND GRASP THE FIRST RUNG WITH BOTH HANDS USING THE FORWARD GRIP. ON THE COMMAND *GO*, SWING YOUR FEET OFF THE SUPPORT AND AT THE SAME TIME BEGIN FORWARD PROGRESS GRASPING THE NEXT RUNG AND PROPELLING YOUR BODY FORWARD. YOU MUST ALTERNATE YOUR HANDS GRASPING EACH RUNG OF THE LADDER, TURN AROUND, AND COME BACK. CONTINUE TO TRAVERSE THE LADDER UNTIL YOU HEAR THE COMMAND *STOP* AT THE END OF A ONE-MINUTE PERIOD. THE TIME ELAPSED WILL BE ANNOUNCED AT FIFTEEN-SECOND INTERVALS. YOU WILL BE SCORED ON THE NUMBER OF RUNGS TRAVERSED DURING THE ONE-MINUTE PERIOD. IF YOU TIRE AND DESIRE TO REST BEFORE THE EXPIRATION OF THE ONE-MINUTE PERIOD YOU MAY DO SO, BUT YOU MUST CONTINUE TO SUSPEND YOUR WEIGHT FROM THE BAR WITHOUT DROPPING OFF. IN ORDER TO RECEIVE CREDIT FOR THE LAST RUNG, YOU MUST ACTUALLY HAVE YOUR BODY WEIGHT FULLY SUSPENDED FROM THE RUNG RATHER THAN MERELY TOUCHING IT WITH ONE HAND. IF YOU ACCIDENTLY LOSE YOUR GRIP AND FALL OFF DURING THE FIRST TRIP DOWN THE LADDER, TO INCLUDE FALLING DURING THE ACT OF TURNING AROUND, YOU WILL BE STOPPED AND PERMITTED TO GO TO THE END OF THE LINE TO ATTEMPT THE EVENT A SECOND TIME. ON THE SECOND ATTEMPT, THE RUNG COUNT STARTS AT ZERO. IF YOU FALL OFF A SECOND TIME, AT ANY PLACE ON THE LADDER, NO FURTHER ATTEMPTS ARE PERMITTED AND YOUR RAW SCORE WILL EQUAL THE NUMBER OF RUNGS GAINED ON YOUR SECOND

ATTEMPT. YOU WILL BE STOPPED AND REQUIRED TO RESTART THE EVENT IF YOU USE THE SUPPORTS AT EITHER END OF THE LADDER TO ASSIST YOU IN TURNING AROUND OR USE THE STARTING BLOCKS TO REST, OR AS A STOP TO SECURE A BETTER GRIP. ON THE SECOND ATTEMPT, SHOULD YOU AGAIN USE THE SUPPORTS OR THE FOOT RESTS, YOU WILL BE STOPPED AND RECEIVE THE SCORE ACHIEVED TO THAT POINT. WHEN YOU FINISH THE EVENT, GO TO THE REAR OF YOUR LANE. WATCH THE DEMONSTRATION. (Demonstration) ARE THERE ANY QUESTIONS?

(6) *Administration.* After reading the instructions, answer any questions and then give the command, *FIRST ORDER ON THE BLOCKS*. Run this order and successive orders until all participants in the group have completed the event.

(7) *Timing techniques.* The event supervisor serves as the timer. Time is called at each 15-second interval and for every second of the last 5 seconds.

(8) *Scorer's duties.* At the conclusion of the demonstration, step up to your lane and gather the scorecards from your men. Keep the cards in the same order that the men will traverse the ladder. When you have all of the scorecards, move to a position outside the ladder area and face the ladder. Count the number of rungs traversed in 1 minute or less. The first time down the ladder counts 14 rungs; each succeeding traverse of the ladder is 13 rungs. Enter the total number of rungs traversed and return the scorecard to the participant.

Notes. If the participant is unable to suspend all of his weight on one arm as required in the alternation of hands, allow him to place both hands on the same rung. He must, however, alternate his lead hand when he reaches out for each new rung.

d. Bent Leg Situps.

(1) *Purpose.* This event measures the strength of the abdominal muscles (fig 123).

(2) *Equipment.* One stopwatch, five clipboards and pens.

(3) *Facilities.* Five stations, 6 feet wide and 5 yards long, are required.

(4) *Personnel.* Six personnel—one event supervisor and five scorers.

(5) *Instructions.* The event supervisor reads the following:

THIS EVENT MEASURES YOUR ABDOMINAL MUSCLE STRENGTH. ANOTHER PARTICIPANT WILL HOLD YOUR FEET BY THE

ANKLES ON THE GROUND DURING THE EXERCISE. THE STARTING POSITION IS SUPINE (ON YOUR BACK), KNEES BENT AT APPROXIMATELY A FORTY-FIVE DEGREE ANGLE, FINGERS INTERLACED AND PLACED BEHIND THE HEAD WITH ELBOWS TOUCHING THE GROUND. AT THE COMMAND GO, BEGIN BY CURLING YOUR BODY FORWARD TO THE VERTICAL POSITION. AFTER YOU HAVE ATTAINED THE VERTICAL POSITION, ALLOW YOUR BODY TO RETURN TO THE STARTING POSITION. ONE REPETITION IS CONSIDERED COMPLETE ONLY AFTER YOU HAVE RETURNED TO THE STARTING POSITION. DURING ALL PHASES OF THE EVENT YOUR FEET MUST BE HELD ON THE GROUND. YOUR FINGERS MUST REMAIN INTERLACED BEHIND YOUR HEAD, AND YOUR KNEES MUST REMAIN BENT AT APPROXIMATELY A FORTY-FIVE DEGREE ANGLE. ARCHING OF THE LOWER BACK PRIOR TO EXECUTING THE SITUP IS NOT PERMITTED. THE VERTICAL POSITION MUST BE ATTAINED TO RECEIVE CREDIT FOR A CORRECT REPETITION. DO AS MANY REPETITIONS OF THIS EXERCISE AS POSSIBLE DURING A ONE-MINUTE TIME PERIOD. THE GRADER WILL COUNT THE NUMBER OF REPETITIONS YOU PERFORM CORRECTLY. IF ONE IS NOT DONE CORRECTLY, HE WILL REPEAT THE NUMBER OF THE LAST CORRECT REPETITION. WATCH THIS DEMONSTRATION. (Demonstration) ARE THERE ANY QUESTIONS?

(6) *Administration.* After reading the instructions and answering any questions, each grader insures that the first man at his station is in the correct starting position and that the second man in line is in a kneeling position on the ground holding the participant's feet by the ankles firmly on the ground. At the command GO, the scorer, standing at the participant's side, counts the number of correctly performed repetitions. After completion of each 1-minute period, the participant goes to the end of the line, the holder becomes the participant, and the next man in line becomes the holder. This procedure is followed until all participants have been tested.

(7) *Timing techniques.* The event supervisor will also serve as the timer. At the signal GO, the timer starts the stopwatch. He calls out the time at the 30-second interval and every second for the last 10 seconds. One minute is allowed for each order.

(8) *Scorer's duties.* Each scorer will observe

the performance of the participant at his station and count the number of correct repetitions. The scorers will record the number of correct repetitions on the scorecard.

e. One-Mile Run.

(1) *Purpose.* The 1-mile run event tests the ability to make a prolonged run. The endurance of both the circulo-respiratory and muscular systems are measured (fig 124).

(2) *Equipment.* Two stopwatches, two sets of identification numbers, and 12 clipboards and pens are required. The first set is to be numbered from 1 through 36 and the second set from 37 through 72. Each set must consist of a different color background. The size of the background material is 8 inches by 8 inches. Numbers must have a means of being worn by the runners. Heavy cord or tape, attached by neck loops and waist ties, is satisfactory.

(3) *Facilities.* A $\frac{1}{4}$ -mile circular track.

(4) *Personnel.* Seventeen personnel—one event supervisor, 12 scorers, and four organizers. Two scoring teams are required to administer this event. Each team consists of six scorers and two organizers. The event supervisor will serve as timer.

(5) *Instructions.* The event supervisor reads the following:

THE ONE-MILE RUN TESTS YOUR ENDURANCE AND YOUR ABILITY TO MAKE A PROLONGED RUN. YOU WILL RUN IN A GROUP OF 36 MEN. ANOTHER GROUP OF 36 MEN WILL START AT THE SAME TIME ON THE OPPOSITE SIDE OF THE TRACK. AT THE START, ALL RUNNERS WILL BE TO THE REAR OF THE STARTING LINE; TIME BEGINS WHEN THE LAST MAN CROSSES THE STARTING LINE. AT THE COMMAND GO, EACH MAN WILL START RUNNING AROUND THE QUARTER-MILE TRACK. EACH MAN WILL SET HIS OWN PACE. YOU WILL START AT THIS LINE, AND, AFTER RUNNING FOUR LAPS AROUND THE TRACK, YOU WILL FINISH AT THIS SAME LINE. AS YOU COMPLETE EACH LAP, AN OFFICIAL WILL ANNOUNCE THE NUMBER OF LAPS REMAINING TO BE RUN. TRY TO PACE YOURSELF, DO NOT BECOME COMPLETELY EXHAUSTED ON THE FIRST LAP. YOU WILL BE SCORED ON YOUR ABILITY TO RUN THE MILE IN THE SHORTEST POSSIBLE TIME. THE NUMBER YOU ARE WEARING IS TO AID THE SCORER IN IDENTIFYING YOU. MAKE SURE THAT YOUR NUMBER IS VISIBLE EACH TIME YOU COM-

LETE A LAP AND WHEN YOU CROSS THE FINISH LINE. WHEN YOU COMPLETE THE FINAL LAP, TURN IN YOUR NUMBER AND STAY IN THE IMMEDIATE VICINITY OF YOUR EQUIPMENT DURING THE COOLING OFF PERIOD. REMAIN ALERT FOR THE SIGNAL TO FALL IN AND MOVE FROM THE AREA. ARE THERE ANY QUESTIONS?

(6) *Administration.* After reading the instructions, answer any questions and then have two organizers prepare the participants for running. The organizers will form the participants into two groups of 36 men each. Numbers in one color from 1 to 36 are issued to the 36 men who run on one side of the track. Contrasting colored numbers are issued to 36 men who run on the opposite side. Men are assembled on each side of the track in six files of six men each. The first man in each file should be to the rear of the starting line. When assembling the men on the track, consecutive numbers should be placed in the same file. The event supervisors direct scorers to collect the cards from the men in their lane. When all runners are ready, the event supervisor gives the GO signal. As soon as these first two groups of runners start the organizers get the next two groups of 36 men ready. Numbers from 37 to 72 are issued to these two groups again contrasting colors are used. If there are more than two orders to run, the numbers are collected from the first order and used for the third order. As soon as the first order is finished, the numbers are collected by the organizers and distributed to the third

order. If there is a fourth order, the numbers from the second order are utilized.

(7) *Timing techniques.* The event supervisor serves as the timer. He calls the time as the men in his group complete each quarter mile and as they finish the mile. Time is called in minutes and seconds, i.e., seven-twenty-nine, seven-thirty.

(8) *Scorer's duties.* When the participants are assembled on the track ready to run, step up to your lane at the starting line and gather the scorecards from the participants in your lane. As you take each man's scorecard, record his number on the upper right-hand corner of the card. When you have all the scorecards, copy these numbers in a column on a separate piece of paper. As the men complete each lap, make a mark opposite their number and tell them the number of laps remaining to be run. As your participants cross the finish line, note the time in which each man completes his run and record this time in minutes and seconds opposite the appropriate number. For example, your recording on the separate piece of paper will look something like this:

Identification Number	Laps	Time
7	X X X	7:28
8	X X X	8:19
9	X X X	6:54
10	X X X	7:08
11	X X X	9:09
12	X X X	7:09

When all of your men have finished, transfer their times from the piece of paper to the proper column of their scorecards.

Section II. ADVANCED PHYSICAL FITNESS TEST

422. Participation in the APFT

a. *Use.* The Advanced Physical Fitness Test is administered to trainees under 40 years of age in advanced individual training (AIT) and combat support training (CST). In addition to administration of this test in US Army Training Centers (USATC), CONARC schools conducting MOS producing AIT courses will administer the test to trainees undergoing such training. A practice test normally will be administered about mid-point in the cycle. Weak areas disclosed by the practice test will receive emphasis in subsequent training. The record test will be administered in the last or next to last week of training.

b. *Test Events.* (fig 118). The five test events are the inverted crawl, run, dodge and jump, horizontal ladder, bent leg situps, and 2-mile run.

c. *Scoring Table.* The scoring table (fig 119) is

to be reproduced locally. All AIT/CST trainees will be scored on the 17-25 age group tables. These tables are used for the conversion of raw scores to point scores.

d. *Standards.* To meet minimum standards, the participants must score 60 points per event and achieve a minimum cumulative score of 300 points. The following raw scores are necessary to achieve the minimum acceptable standard of 60 points on each event:

(1) Inverted crawl	29 seconds.
(2) Run, dodge, and jump	24.5 seconds.
(3) Horizontal ladder	39 bars
(4) Bent leg situps	30 repetitions.
(5) Two-mile run	20 min, 33 sec.

e. *Uniform.* Fatigue trousers, T-shirt and combat boots.

23. Administration of the APFT

This test can be administered to 200 participants in 2½ hours by 17 administrators.

a. Personnel and Area. There will be one test supervisor who will also act as event supervisor for the 2-mile run event, and one event supervisor for each of the other events. The inverted crawl event will have 10 lanes and 10 scorers; the horizontal ladder event will have four lanes and four scorers; the bent leg situp event will have five stations and five scorers; and the run, dodge, and jump event will have four lanes and four scorers. The 2-mile run will be the last event taken; scorers from the other events will be used to administer this event after the other events have been completed.

b. Equipment. Five stopwatches, 17 clipboards and pens, 100 identification numbers, and 1 scorecard per trainee.

c. Organization. Participants are arranged into three groups of equal size. All groups will take the inverted crawl as the first event. After the first event has been completed, group I moves to the horizontal ladder event; group II moves to the bent-leg situp event; and group III moves to the run, dodge, and jump event. When each group has completed its second event, group I moves to the bent leg situp event, group II moves to the run, dodge, and jump event, and group III moves to the horizontal ladder event. Upon completion of the third event, each group moves to the event (other than the 2-mile run) which has not been taken. Upon completion of the fourth event, all groups reassemble for the 2-mile run. The last event to be taken will always be the 2-mile run.

d. Waivers.

(1) USATC commander and service school commandants are authorized to waive portions of the APFT for trainees who have previously been granted waivers of the BPFT for physical disabilities under provisions of appropriate Army or CONARC regulations, or who, subsequent to completion of BCT, incur such physical disabilities.

(2) Trainees who fail to attain passing scores on the APFT will receive intensive remedial training in the events in which test performance was poorest and be retested. The APFT retest will encompass all APFT events rather than events failed. Trainees who raise their scores to passing levels in retests will be graduated with their unit. Those individuals failing retests who have not been granted waivers will be afforded intensive remedial training and retested as often as necessary until they achieve required minimum scores on each event.

(3) USATC commanders and service school commandants are authorized to waive successful completion of no more than two APFT events if circumstances indicate that trainee was making maximum effort and the trainee's overall performance during ATT/CST clearly indicates that he is physically capable of performing duties required by MOS for which trained. Waiver authority will be exercised on an individual case basis. Waiver entry will be made on Training Record Form and waiver attached thereto.

(4) USATC commanders and service school commandants are authorized to waive administration of APFT when, in the judgment of a medical officer, a trainee is temporarily unable to take or successfully complete the test due to recent illness or injury. Waiver entry will be made on Training Record Form and waiver attached thereto.

(5) Waiver authority granted above will not be delegated below the USATC and service school headquarters level.

424. Test Events of the APFT

The test events are the same as those required of personnel in combat and combat support units (chap 25). Men who are in the final stage of AIT or CST will soon finish their individual training and receive a unit assignment. For that reason they must be in such physical condition to take their places within these units, thus the test and standards are the same as for personnel within these units. Test event descriptions for the APFT are located in paragraphs 406-410.

CHAPTER 27

SPECIAL PURPOSE PHYSICAL FITNESS TESTS

Section I. INTRODUCTION

425. Use and Composition of Tests

Four tests in the Army Physical Fitness Evaluation (APFE) are in the special purpose category. These tests are used under special circumstances or for the testing of specific groups of personnel.

426. The Tests

a. Inclement Weather/Limited Facility Physical Fitness Test. This test is administered to personnel under 40 years of age when inclement weather or a lack of facilities precludes administration of the Advanced Physical Fitness Test, the Staff and Specialist Physical Fitness Test, or the Basic Physical Fitness Test.

b. The Minimum Physical Fitness Test (Volun-

tary). This test is administered to personnel regardless of duty assignment, who are 40 years of age and over and who volunteer to be tested. To be eligible to take this test personnel must be physiologically fit as determined by the annual medical examination.

c. Airborne Trainee Physical Fitness Qualification Test. This test is administered to personnel volunteering to attend airborne training to determine their physical fitness for entrance to airborne courses of instruction.

d. Ranger/Special Forces Physical Fitness Qualification Test. This test is administered to personnel volunteering to attend Ranger/Special Forces training to determine their physical fitness for entrance to these courses of instruction.

Section II. THE INCLEMENT WEATHER/LIMITED FACILITY PHYSICAL FITNESS TEST

427. Participation

a. Use. This test is administered to personnel under 40 years of age when inclement weather or a lack of facilities precludes administration of the Advanced Physical Fitness Test, the Staff and Specialist Physical Fitness Test, or the Basic Physical Fitness Test.

b. Test Events (fig. 130). There are five events: pushups, shuttle run, squat thrust, bent leg situps, and bend and reach (modified).

c. Scoring Table. The scoring table (fig 131) is to be reproduced locally. This table is used for conversion of raw scores to point scores.

d. Standards. To meet minimum acceptable standards, participants taking this test in lieu of the advanced test must score 60 points per event and achieve a minimum cumulative score of 300 points. Personnel taking the test in lieu of the Staff and Specialist Test must complete all events and score 300 or more points. Trainees taking the test in lieu of the Basic Physical Fitness Test during BCT or MBT must complete all events and

score 300 or more total points. The following raw scores are necessary to achieve the minimum acceptable standard of 60 points in each event:

Event	Age Group	Raw Score
Pushups	17 — 25	25 repetitions
"	26 — 30	23 "
"	31 — 35	21 "
"	36 — 39	19 "
Bend and reach (modified)	17 — 25	83 "
"	26 — 30	78 "
"	31 — 35	73 "
"	36 — 39	68 "
Bent Leg situps	17 — 25	27 "
"	26 — 30	24 "
"	31 — 35	22 "
"	36 — 39	20 "
Squat thrust	17 — 25	34 "
"	26 — 30	31 "
"	31 — 35	28 "
"	36 — 39	25 "
Shuttle run	17 — 25	25.0 seconds
"	26 — 30	25.5 "
"	31 — 35	26.0 "
"	36 — 39	26.5 "

e. *Uniform.* Fatigue trousers, T-shirt, and combat boots.

428. Administration

a. *Facility.* The test will be administered indoors. It can be given to 200 participants in 8 hours by 25 administrators. The number of stations used is, of necessity, a function of the space available and directly affects the required time. This test is constructed so that it can be given indoors with a minimum of equipment.

b. *Equipment.* Five stopwatches, 25 clipboards and pens, and three sets of two wooden blocks each. Blocks are 4 x 4 x 2 inches in size; the two blocks in each set are painted in contrasting colors.

c. *Organization.* The participants will be arranged into five groups of equal size. Each group will start on a different event. Example: Group I begins on the push-ups event; group II begins on the bent-leg sit-ups event, and so on. When all groups have completed the first event, they rotate in "round robin" manner to the other events. This procedure is followed until each group has completed all five events. A description of the test events is included in following paragraphs.

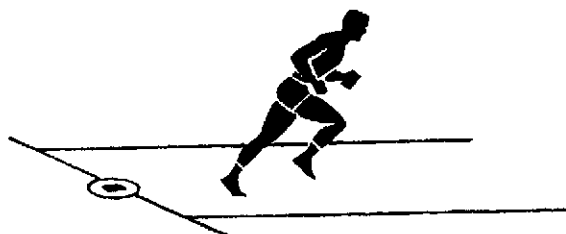
429. Pushups

a. *Purpose.* To measure the strength of the shoulder girdle muscles (fig 127).

b. *Equipment.* One stopwatch, three clipboards and pens.



1 PUSHUPS



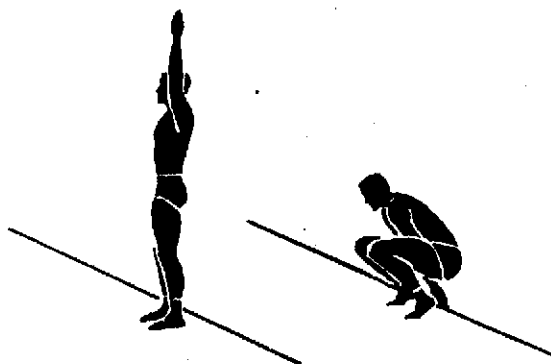
2 80-METER SHUTTLE RUN



3 SQUAT THRUST



4 BENT LEG SITUP



5 BEND AND REACH (MODIFIED)

Figure 130. The inclement weather/limited facilities physical fitness test.

SHUTTLE RUN

POINTS	17-25	26-30	31-35	36-39	POINTS	17-25	26-30	31-35	36-39	POINTS	17-25	26-30	31-35	36-39	POINTS	17-25	26-30	31-35	36-39	POINTS	17-25	26-30	31-35	36-39
100	21.0	21.5	22.0	22.5	80	23.0	23.5	24.0	24.5	60	25.0	25.5	26.0	26.5	40					20	32.0	32.5	33.0	33.5
99					79					59					39	28.0	28.5	29.0	29.5	19				
98					78					58					38					18	32.5	33.0	33.5	34.0
97					77					57	25.5	26.0	26.5	27.0	37					17	33.0	33.5	34.0	34.5
96					76					56					36					16	33.5	34.0	34.5	35.0
95	21.5	22.0	22.5	23.0	75	23.5	24.0	24.5	25.0	55					35	28.5	29.0	29.5	30.0	15	34.0	34.5	35.0	35.5
94					74					54	26.0	26.5	27.0	27.5	34					14	34.5	35.0	35.5	36.0
93					73					53					33	29.0	29.5	30.0	30.5	13	35.0	35.5	36.0	36.5
92					72					52					32					12	35.5	36.0	36.5	37.0
91					71					51					31					11	36.0	36.5	37.0	37.5
90	22.0	22.5	23.0	23.5	70	24.0	24.5	25.0	25.5	50	26.5	27.0	27.5	28.0	30	29.5	30.0	30.5	31.0	10	36.5	37.0	37.5	38.0
89					69					49					29					9	37.0	37.5	38.0	38.5
88					68					48					28					8	37.5	38.0	38.5	39.0
87					67					47					27	30.0	30.5	31.0	31.5	7	38.0	38.5	39.0	39.5
86					66					46	27.0	27.5	28.0	28.5	26					6				40.0
85	22.5	23.0	23.5	24.0	65	24.5	25.0	25.5	26.0	45					25	30.5	31.0	31.5	32.0	5				
84					64					44					24					4				
83					63					43					23	31.0	31.5	32.0	32.5	3				
82					62					42	27.5	28.0	28.5	29.0	22					2				
81					61					41					21	31.5	32.0	32.5	33.0	1				

2 Shuttle run score table

Figure 181g—continued.

c. *Facilities.* Three stations, 6 feet wide and 5 yards long, are required.

d. *Personnel.* Four personnel—one event supervisor and three lane scores.

e. *Instructions.* The event supervisor reads the following:

THE PUSHUP MEASURES THE STRENGTH OF YOUR SHOULDER GIRDLE MUSCLES. YOU ARE TO ASSUME THE FRONT LEANING REST POSITION AS THE STARTING POSITION. THE ARMS AND BACK MUST BE STRAIGHT. ON MY COMMAND GO, YOU ARE TO BEGIN YOUR PUSHUPS BY BENDING

THE ELBOWS AND LOWERING YOUR CHEST TO THE SCORER'S HAND. YOUR BODY MUST REMAIN STRAIGHT FROM HEAD TO TOE AS YOUR CHEST TOUCHES THE SCORER'S HAND. YOU WILL THEN RETURN TO THE STARTING POSITION BY LOCKING THE ELBOWS. THIS WILL CONSTITUTE ONE REPETITION. THE SCORER WILL COUNT THE NUMBER OF REPETITIONS CORRECTLY EXECUTED AT THE END OF EACH REPETITION. IF YOU DO NOT KEEP YOUR BODY STRAIGHT, IF YOUR CHEST DOES NOT TOUCH THE SCORER'S HAND, OR IF YOU DO NOT COM-

PLETELY STRAIGHTEN YOUR ELBOWS, THAT REPETITION WILL NOT COUNT AND THE SCORER WILL REPEAT THE NUMBER OF YOUR LAST CORRECT REPETITION. YOU WILL BE GIVEN ONE MINUTE IN WHICH TO EXECUTE AS MANY REPETITIONS AS POSSIBLE. WATCH THIS DEMONSTRATION. (Demonstration) ARE THERE ANY QUESTIONS?

f. Administration. After reading the instructions, answer any questions and give the command GO. Run this group and then proceed to the next group.

g. Timing Techniques. The event supervisor will serve as timer. When he gives the command GO, he will start the stopwatch. The time should be called out at the 30-second interval and every second for the last 10 seconds of the 1-minute period.

h. Scorer's Duties. The event supervisor will read the instructions to the participants. The scorers will position themselves so that they can control the participants' activities. This can best be accomplished by lying on the right side of the participant. The scorer should place his right hand, palm down, on the ground beneath the participant's chest. The right forearm should remain flat on the ground to prevent interference with the participant's correct execution of the push-up. Use the left arm to check for locking of the elbow and to point out incorrect movement, i.e., failing to keep the back straight, etc. The scorer should count the number of correct repetitions and repeat the number of the last correctly performed movement when an incorrect repetition is performed. Participants may rest at any time in the down position. However, to begin again, they must assume the front leaning rest position.

430. 80-Meter Shuttle Run

a. Purpose. To measure, explosive power, coordination, and agility (fig 132).

b. Equipment. One stopwatch, three clipboards and pens, and three sets of two wooden blocks, each. The blocks are 4 x 4 x 2 inch in size, and the two blocks in each set are painted in contrasting colors.

c. Facilities. Two parallel lines 10 meters apart. Three lines 6 feet wide are laid out between these two parallel lines. A circle 1 foot in diameter is drawn centered at the end of each lane so that one of the parallel lines evenly bisects that circle (fig. 114).

d. Personnel. Five personnel—two event supervisors and three lane scorers.

e. Instructions. The event supervisor will read the following instructions to the participants: YOU WILL START THIS EVENT BY STANDING ON THE STARTING LINE WHICH BISECTS THE CIRCLE NEAREST YOU. YOU WILL NOTICE TWO DIFFERENT-COLORED BLOCKS IN THE CIRCLE AT THE END OF YOUR LANE TEN METERS AWAY. ON THE COMMAND GO, YOU WILL RUN TO THE CIRCLE CONTAINING THE TWO BLOCKS OF WOOD, PICK ONE UP, RETURN, AND PLACE IT IN THE STARTING CIRCLE. DO NOT TOSS OR THROW THE BLOCK INTO THE CIRCLE. RETURN TO THE DISTANT CIRCLE AND PICK UP THE OTHER BLOCK, RETURN TO THE STARTING CIRCLE, AND DEPOSIT IT WITHIN THE CIRCLE. WHEN THE SECOND BLOCK HAS BEEN PLACED IN THE STARTING CIRCLE, PICK UP THE FIRST BLOCK THAT WAS DEPOSITED AND RETURN IT TO THE ORIGINAL CIRCLE. REPEAT THIS ACTION WITH THE REMAINING BLOCK OF WOOD. AFTER THE SECOND BLOCK OF WOOD IS RETURNED TO THE ORIGINAL CIRCLE, RUN AS FAST AS POSSIBLE TO THE STARTING LINE. AT THIS TIME YOU WILL HAVE COMPLETED THIS EVENT. REMEMBER, YOU MUST PLACE BOTH BLOCKS IN THE APPROPRIATE CIRCLE. IF THIS IS NOT DONE, YOU WILL BE DISQUALIFIED AND GIVEN ONE MORE CHANCE TO SUCCESSFULLY COMPLETE THIS EVENT. YOU WILL BE GRADED ACCORDING TO TIME ELAPSED FROM THE SIGNAL GO UNTIL YOU CROSS THE FINISH LINE. IF YOU BECOME CONFUSED WHILE RUNNING THE EVENT, YOU MAY STOP AND ALLOW YOURSELF TO BE DISQUALIFIED. YOU WILL BE GIVEN ONE MORE CHANCE TO RUN THE EVENT. IF YOU START RUNNING BEFORE THE COMMAND GO IS GIVEN, YOU WILL BE DISQUALIFIED AND GIVEN ONE MORE CHANCE TO RUN THE EVENT. WATCH THE DEMONSTRATION. (Demonstration) ARE THERE ANY QUESTIONS?

f. Administration. The event supervisor reads the instructions to all prior to their starting the event. The event should be demonstrated following the reading of the instructions. To avoid confusion, the starting circles must contain two blocks of wood, each a different color.

g. Timing Techniques. The event supervisor will also be the timer. With the signal to GO he will

start the stopwatch. As the participants near completion of the event, the timer will call the time in whole and half-seconds, e.g., "21-HUT, 22-HUT, 23-HUT." Raw scores will be recorded as elapsed time.

h. Scorer's Duties. Each lane scorer will insure that participants follow the instructions for this event. The supervisor at the turn-around point will assist the scorers in insuring that the blocks of wood are placed correctly in each circle. The grader will decide if there is cause for disqualification. He will explain corrective action to the participant and have him wait his turn to run again. As the participant successfully completes the course the scorer records the time on the scorecard to the nearest half-second.

431. Squat Thrust

a. Purpose. This event measures coordination

and the strength and endurance of the leg muscles (fig 133).

b. Equipment. One stopwatch, five clipboards and pens.

c. Facilities. Five lanes, 6 feet wide by 5 yards long, are required. Overall dimensions to include the above area and additional space needed for test administration, require an area 10 yards wide by 5 yards long.

d. Personnel. Six personnel—one event supervisor and five lane scorers.

e. Instructions. The event supervisor will read the following:

THE SQUAT THRUST TESTS YOUR LEG MUSCLE STRENGTH AND ENDURANCE. THE STARTING POSITION IS BODY ERECT WITH FEET TOGETHER. YOU ARE TO ASSUME THE STARTING POSITION WITH



Figure 132. 30-Meter shuttle run (indoors).



1. OUTDOORS



2. INDOORS

Figure 183. Squat thrust.

HEELS TOUCHING THE STARTING LINE. WHEN I GIVE THE COMMAND GO YOU ARE TO EXECUTE AS MANY REPETITIONS OF THE SQUAT THRUST AS YOU CAN IN A TWO-MINUTE PERIOD. TIME WILL BE MEASURED FROM THE COMMAND GO UNTIL I SAY STOP. TO EXECUTE THE SQUAT THRUST FROM THE STARTING POSITION, BEND YOUR KNEES AND PLACE YOUR HANDS ON THE GROUND, PALMS DOWN SHOULDER WIDTH APART, WITH ARMS INSIDE THE KNEES. THRUST YOUR LEGS TO THE REAR, BODY STRAIGHT FROM HEAD TO HEELS. TO RECOVER, MOVE YOUR LEGS FORWARD ASSUMING A SQUAT POSITION WITH ARMS INSIDE OF THE KNEES AND THEN STAND, THEREBY ASSUMING THE STARTING POSITION. ONE REPETITION IS AS FOLLOWS: DOWN IN THE SQUAT POSITION, LEGS TO THE REAR, BACK TO THE SQUAT, AND RETURN TO THE STARTING POSITION. THE BODY MUST BE STRAIGHT FROM HEAD TO HEELS DURING THE THRUST. YOU MUST ASSUME THE SQUAT POSITION PRIOR TO THE THRUST AND BEFORE RETURNING TO THE STARTING POSITION AT THE END OF THE MOVEMENT. WATCH THIS DEMONSTRATION. (Demonstration) ARE THERE ANY QUESTIONS?

f. Administration. After reading the instructions, answer any questions and then give the command, FIRST ORDER ON THE STARTING LINE. Run the orders successively until all participants have completed the event.

g. Timing Techniques. The event supervisor serves as the timer. Time is called at each 30-second interval, and for every second of the last 10 seconds for the 2-minute period.

h. Scorer's Duties. At the conclusion of the demonstration, step up to your lane and take the first participant's scorecard. Have the participant assume the starting position. At the command GO, count the number of repetitions completed by the participant. Insure that he executes a squat position before and after each thrust and that he keeps his body in a straight line from head to heels during the thrust. A repetition is considered completed only when the participant has returned to the starting position. Record his score on the scorecard.

432. Bent Leg Sit-Ups

a. Purpose. This event measures the strength of the abdominal muscles (fig 123).

b. Equipment. One stopwatch, three clipboards and pens.

c. Facilities. Three stations, 6 feet wide and 5 yards long, are required.

d. Personnel. Four personnel—one event supervisor and three scorers.

e. Instructions. The event supervisor reads the following:

THIS EVENT MEASURES YOUR ABDOMINAL MUSCLE STRENGTH. ANOTHER PARTICIPANT WILL HOLD YOUR FEET ON THE GROUND BY THE ANKLES DURING THE EXERCISE. THE STARTING POSITION IS SUPINE (ON YOUR BACK), KNEES BENT AT APPROXIMATELY A 45-DEGREE ANGLE, FEET ON THE GROUND A COMFORTABLE DISTANCE APART, FINGERS INTERLACED AND PLACED BEHIND THE HEAD WITH ELBOWS TOUCHING THE GROUND. AT THE COMMAND GO BEGIN BY CURLING YOUR BODY FORWARD TO A VERTICAL POSITION. AFTER YOU HAVE ATTAINED THE VERTICAL POSITION, LOWER YOUR UPPER BODY TO THE STARTING POSITION. ONE REPETITION IS CONSIDERED COMPLETE ONLY AFTER YOU HAVE RETURNED TO THE STARTING POSITION. DURING ALL PHASES OF THE EVENT YOUR FEET MUST BE HELD ON THE GROUND, YOUR FINGERS MUST REMAIN INTERLACED BEHIND YOUR HEAD, AND YOUR KNEES MUST REMAIN BENT AT APPROXIMATELY A 45-DEGREE ANGLE. ARCHING OF THE LOWER BACK PRIOR TO EXECUTING THE SIT-UP IS NOT PERMITTED. THE VERTICAL POSITION MUST BE ATTAINED TO RECEIVE CREDIT FOR A CORRECT REPETITION. DO AS MANY REPETITIONS OF THIS EXERCISE AS POSSIBLE DURING A 1-MINUTE TIME PERIOD. THE GRADER WILL COUNT THE NUMBER OF REPETITIONS YOU PERFORM CORRECTLY. IF A REPETITION IS NOT DONE CORRECTLY, HE WILL REPEAT THE NUMBER OF THE LAST CORRECT REPETITION. WATCH THIS DEMONSTRATION. (Demonstration) ARE THERE ANY QUESTIONS?

f. Administration. After reading the instructions and answering any questions, each grader insures that the first man at his station is in the correct starting position and that the second man in line is in a kneeling position holding the participant's feet by the ankles firmly on the ground. At the command GO, the grader, standing at the par-



Figure 134. Bend and reach (modified)

participant's side, counts the number of correctly performed repetitions. At the completion of his order, the participant goes to the end of the line, the holder becomes the participant, and the next man in line becomes the holder. This procedure is followed until all participants have been tested.

g. Timing Techniques. The event supervisor will also serve as the timer. At the signal GO, the timer starts the stopwatch. He calls out the time at the 30-second interval and every second for the last 10 seconds. One minute is allowed for each order.

h. Scorer's Duties. Each scorer will observe the performance of the participant at his station and count the number of correct repetitions. The scorers will record the number of correct repetitions on the scorecard.

433. Bend and Reach—(Modified)

a. Purpose. To measure leg and back muscle endurance and general body flexibility (fig 134).

b. Equipment. One stopwatch, five clipboards and pens.

c. Facilities. A straight line drawn allowing 6 feet per station. Five stations will, therefore, require 30 feet.

d. Personnel. Six personnel—one event supervisor and five lane scorers.

e. Instructions. The event supervisor will read the following instructions to participants:

THE STARTING POSITION FOR THIS EVENT IS AS FOLLOWS: PLACE THE REAR PORTION OF YOUR BOOT HEELS ON THE LINE, FEET SPREAD MORE THAN SHOULDER WIDTH APART, HANDS ON HIPS, AND HEAD AND EYES TO THE FRONT. ON THE SIGNAL GO KEEP YOUR HEAD AND EYES TO THE FRONT, BEGIN BENDING AT THE KNEES, AND SIMULTANEOUSLY MOVE THE HANDS OFF YOUR HIPS, ARMS

STRAIGHT, AND REACH DOWNWARD BETWEEN YOUR LEGS UNTIL YOUR FINGERS TOUCH THE AREA TO THE REAR OF THE LINE. HAVING TOUCHED WITH THE FINGERS RECOVER TO THE STARTING POSITION WITH HANDS ON HIPS. THIS WILL CONSTITUTE ONE REPETITION. YOU WILL BE GIVEN TWO-MINUTES TO PERFORM AS MANY REPETITIONS AS POSSIBLE. CREDIT WILL NOT BE GIVEN IF YOU DO NOT RETURN TO AN UPRIGHT STARTING POSITION, OR IF YOU FAIL TO TOUCH THE LINE OR THE AREA BEHIND THE LINE EACH TIME. THE GRADER WILL COUNT THE NUMBER OF CORRECT REPETITIONS YOU PERFORM. IF YOU FAIL TO PERFORM THE MOVEMENT CORRECTLY, THE GRADER WILL CALL OUT THE NUMBER OF THE LAST CORRECTLY EXECUTED REPETITION AND YOU WILL NOT RECEIVE CREDIT FOR THE INCORRECT ONE

WATCH THIS DEMONSTRATION. (Demonstration) ARE THERE ANY QUESTIONS?

f. Administration. Participants are assigned to various stations. The instructions are read and demonstrated. One grader is assigned to each station. The event is administered according to the instructions.

g. Timing Techniques. At the command GO, the event supervisor, acting as the timer, starts the stopwatch. During the two-minute period he calls the elapsed time every 30 seconds until the last 10 seconds, when he counts off every second. Credit is given for the last repetition only if the participant has completely returned to the starting position.

h. Scorer's Duties. Each scorer will count the number of repetitions correctly performed and insure proper conduct of the event by the participants. The scorers will record the number of correct repetitions performed.

Section III. THE MINIMUM PHYSICAL FITNESS TEST (VOLUNTARY)

434. Participation

a. Use. This test is administered on a voluntary basis to personnel 40 years of age and over regardless of duty assignment.

b. Test Events (fig 135). There are five events: run, dodge and jump, pushups, bent leg situps (modified), squat thrust, and 1/2-mile run.

c. Scoring Table. The scoring table (fig 136) is to be reproduced locally. This table is used for conversion of raw scores to point scores.

d. Standards. To meet minimum acceptable standards, the participants must complete all five events and achieve a minimum cumulative score of 300 points.

e. Uniform. Fatigue trousers, T-shirt, and combat boots.

435. Administration

a. Area. This test is conducted out-of-doors and can be administered to 200 participants in 8 hours by 24 administrators. There will be one test supervisor and one event supervisor for each of the five events. The bent-leg sit-ups will have five stations and five scorers; the push-ups event will have five stations and five scorers; the run, dodge, and jump event will have four lanes and four scorers; and the squat thrust event will have five stations and five scorers. The 1/2-mile run will be

the last event; scorers from the other events will be used to administer this event after all other events have been completed.

b. Equipment. Five stopwatches, 25 clipboards and pens, and 40 identification numbers.

c. Organization. Participants are arranged into four groups of equal size. Group I will move to the bent-leg sit-ups event; group II will move to the push-ups event; group III will move to the run, dodge, and jump event; and group IV will move to the squat thrust event. Upon completion of the first event, each group rotates to a different event in a "round robin" manner until each group has taken all four events. Upon completion of the fourth event, all groups will reassemble for the 1/2-mile run event. The last event to be taken will always be the 1/2-mile run. A description of the test events are included in following paragraphs.

436. Run, Dodge, and Jump

a. Purpose. To test explosive power, agility, and coordination, (fig 121).

b. Equipment. One stopwatch, four clipboards and pens.

c. Facilities. The course consists of four lanes containing four wooden obstacles per lane and a shallow ditch across the center of all lanes. The overall size of the area required for test adminis-



1 RUN, DODGE & JUMP



2 PUSHUPS



3 BENT LEG SITUP (MODIFIED)



4 SQUAT THRUST



5 ONE HALF-MILE RUN

Figure 135. The minimum physical fitness test.

tration and the construction of the course is 27 yards wide by 26 yards long.

d. *Personnel.* Five personnel—one event supervisor and four lane scorers.

e. *Instructions.* The event supervisor reads the following:

THE RUN, DODGE, AND JUMP TESTS YOUR ABILITY TO JUMP A FIVE-FOOT DITCH AND RAPIDLY CHANGE DIRECTIONS WHILE RUNNING. ON THE STARTING COMMAND GO, BEGIN RUNNING FROM THE STARTING LINE AS FAST AS POSSIBLE. RUN BETWEEN THE FIRST TWO OBSTACLES FOLLOWING THE DIRECTIONAL ARROWS, JUMP THE DITCH AND RUN BETWEEN THE LAST TWO OBSTACLES, CIR-

CLING AROUND THE LAST OBSTACLE. ON THE RETURN FOLLOW THE DIRECTIONAL ARROWS, CONTINUING TO WEAVE IN AND OUT BETWEEN THE OBSTACLES, JUMP THE DITCH, NEGOTIATE THE LAST TWO OBSTACLES, CIRCLE THE LAST OBSTACLE, AND START YOUR SECOND TRIP. FOLLOW THE SAME ROUTE AS ON YOUR FIRST TRIP. AT THE END OF YOUR SECOND COMPLETE ROUND TRIP, YOU WILL FINISH BY CROSSING THE SAME LINE FROM WHERE YOU STARTED. MAKE YOUR RUN AS FAST AS POSSIBLE. YOU CANNOT USE YOUR HANDS TO ASSIST BY GRASPING THE OBSTACLES AND YOU MUST JUMP THE DITCH. DIRECTIONAL ARROWS APPEAR ON BOTH SIDES OF THE OBSTACLES, AND

100	POINTS	23	34	34	27	1/2 MILE RUN	3:09-3:10	POINTS	80	27	29	SQUAT THRUST	4:03-4:05	POINTS	60	30	15	22	15	1/2 MILE RUN	5:31-5:35	POINTS	40	30	15	22	15	1/2 MILE RUN	7:11-7:15	POINTS	20	41.5					1/2 MILE RUN	8:51-8:55
99						3:11-3:12	79		79				4:06-4:09		59	30.5				5:36-5:40		39	36.5	7				7:16-7:20	19						8:56-9:00			
98						3:13-3:14	78	26.5	78	26			4:10-4:13		58	31				5:41-5:45		38	37					7:21-7:25	18	42								
97	23.5		33		26	3:15-3:16	77		77			21	4:14-4:17		57	31.5				5:46-5:50		37		6				7:26-7:30	17									
96						3:17-3:18	76	27	76	25	28		4:18-4:21		56	32	14			5:51-5:55		36	37.5					7:31-7:35	16	42.5								
95						3:19-3:20	75		75				4:22-4:25		55	32.5			14	5:56-6:00		35		5	16			7:36-7:40	15									
94	24					3:21-3:23	74	27.5	74	24	20		4:26-4:29		54	33		21		6:01-6:05		34	38	4				7:41-7:45	14	43								
93						3:24-3:26	73		73				4:30-4:33		53		13			6:06-6:10		33						7:46-7:50	13									
92						3:27-3:29	72	28	72	23			4:34-4:37		52					6:11-6:15		32	38.5	3	15			7:51-7:55	12	43.5								
91						3:30-3:32	71		71				4:38-4:41		51	33.5	12			6:16-6:20		31						7:56-8:00	11									
90	24.5					3:33-3:35	70		70	22	26		4:42-4:45		50			20		6:21-6:25		30	39	2				8:01-8:05	10	44								
89						3:36-3:38	69	28.5	69			19	4:46-4:50		49	34				6:26-6:30		29		1	14			8:06-8:10	9									
88						3:39-3:41	68		68	21			4:51-4:55		48		11			6:31-6:35		28	39.5					8:11-8:15	8	44.5								
87	25					3:42-3:44	67		67	20	25		4:56-5:00		47	34.5				6:36-6:40		27						8:16-8:20	7									
86						3:45-3:47	66	29	66			18	5:01-5:05		46		10	19		6:41-6:45		26	40					8:21-8:25	6	45								
85						3:48-3:50	65		65	19			5:06-5:10		45	35				6:46-6:50		25						8:26-8:30	5									
84	25.5					3:51-3:53	64		64	18	24	17	5:11-5:15		44					6:51-6:55		24	40.5					8:31-8:35	4									
83						3:54-3:56	63	29.5	63				5:16-5:20		43	35.5	9			6:56-7:00		23						8:36-8:40	3									
82						3:57-3:59	62		62	17	23	16	5:21-5:25		42			18		7:01-7:05		22	41					8:41-8:45	2									
81	26					4:00-4:02	61		61	16			5:26-5:30		41	36	8			7:06-7:10		21						8:46-8:50	1									

Figure 186. Scoring table, minimum physical fitness test.

YOU MUST GO THE WAY THE ARROWS POINT. YOU WILL BE SCORED ON YOUR ABILITY TO JUMP THE DITCH AND RAPIDLY DODGE AND RUN AROUND THE OBSTACLES. IF YOU INTENTIONALLY TOUCH ANY OF THE OBSTACLES, FAIL TO CLEAR THE DITCH, OR RUN OUT OF THE PATTERN, YOU WILL BE STOPPED AND REQUIRED TO RERUN THE COURSE. SHOULD YOU AGAIN COMMIT ONE OF THESE OFFENSES, YOU WILL BE DISQUALIFIED AND RECEIVE NO SCORE. TIME ENDS WHEN YOU CROSS THE FINISH LINE ON YOUR LAST TRIP. WHEN YOU FINISH THE EVENT, MOVE TO THE REAR OF THE FILE IN YOUR LANE. WATCH THIS DEMONSTRATION. (demonstration) ARE THERE ANY QUESTIONS?

f. Administration. After reading the instructions, answer any questions and then give the command, FIRST ORDER ON THE STARTING LINE. Run this order and successive orders until all participant's have completed the event.

g. Timing Techniques. The event supervisor serves as the timer. Time is called in half-seconds as the first participant approaches the finish line (example: "nineteen—hut, twenty—hut, twenty-one—hut"). Continue to call time until all men in the order have finished.

h. Scorer's Duties. At the conclusion of the demonstration, step up to your lane and take the scorecard of the first man in line. Remain at the starting point and observe the participant's progress through the course to determine successful completion. Record each participant's time to the nearest half-second as he crosses the finish line. If the participant touches the obstacles, falls or steps into the ditch, or runs the incorrect pattern while negotiating the obstacles, stop him, point out his error, and instruct him to go to the end of the line for a rerun of the event. When he completes the event, record his score and return his scorecard to him.

437. Pushups

a. Purpose. To measure the strength of the shoulder girdle muscles. (fig 127).

b. Equipment. One stopwatch, five clipboards and pens.

c. Facilities. Five stations, 6 feet wide and 5 yards long, are required.

d. Personnel. Six personnel—one event supervisor and five lane scorers.

e. Instructions. The event supervisor reads the following:

THE PUSHUPS EVENT MEASURES THE STRENGTH OF YOUR SHOULDER GIRDLE MUSCLES. YOU ARE TO ASSUME THE FRONT LEANING REST POSITION AS THE STARTING POSITION. THE ARMS AND BACK MUST BE STRAIGHT. ON MY COMMAND GO, YOU ARE TO BEGIN YOUR PUSHUPS BY BENDING THE ELBOWS AND LOWERING YOUR CHEST TO THE SCORER'S HAND. YOUR BODY MUST REMAIN STRAIGHT FROM HEAD TO TOE AS YOUR CHEST TOUCHES THE SCORER'S HAND. YOU WILL THEN RETURN TO THE STARTING POSITION BY LOCKING THE ELBOW. THIS WILL CONSTITUTE ONE REPETITION. THE SCORER WILL COUNT THE NUMBER OF REPETITIONS CORRECTLY EXECUTED AT THE END OF EACH REPETITION. IF YOU DO NOT KEEP YOUR BODY STRAIGHT IF YOUR CHEST DOES NOT TOUCH THE SCORER'S HAND, OR IF YOU DO NOT COMPLETELY STRAIGHTEN YOUR ELBOW THAT REPETITION WILL NOT COUNT AND THE SCORER WILL REPEAT THE NUMBER OF YOUR LAST CORRECT REPETITION. YOU WILL BE GIVEN ONE MINUTE IN WHICH TO EXECUTE AS MANY REPETITIONS AS POSSIBLE. WATCH THIS DEMONSTRATION. (Demonstration) ARE THERE ANY QUESTIONS?

f. Administration. After reading the instructions, answer any questions and give the command GO. Run this and successive groups until a personnel complete the event.

g. Timing Techniques. The event supervisor will serve as timer. When he gives the command GO he will start the stopwatch. The time should be called out at the 30-second interval and on every second for the last 10 seconds of the 1-minute period.

h. Scorer's Duties. The scorers will position themselves so that they can control the participants' activities. This can best be accomplished by lying on the right side of the participant. The scorer should place his right hand, palm down, on the ground beneath the participant's chest. The right forearm should remain flat on the ground to prevent interference with the participant's correct execution of the pushup. Use the left arm to check for locking of the elbow and to point out incorrect movement, i.e., failure to keep the back straight, etc. The scorer should count the number of correct repetitions and repeat the number of

the last correctly performed movement when an incorrect repetition is performed. Participants may rest at any time in the down position. However, to begin again, they must assume the front leaning rest position.

438. Bent Leg Sit-Ups (Modified)

a. Purpose. This event measures the strength of the abdominal muscles (fig 137).

b. Equipment. One stopwatch, five clipboards and pens.

c. Facilities. Five stations, 6 feet wide and 5 yards long, are required.

d. Personnel. Six personnel—one event supervisor and five scorers.

e. Instructions. The event supervisor reads the following:

THIS EVENT MEASURES YOUR ABDOMINAL MUSCLE STRENGTH. ANOTHER PARTICIPANT WILL HOLD YOUR FEET BY THE ANKLES ON THE GROUND DURING THE EXERCISE. THE STARTING POSITION IS SUPINE (ON YOUR BACK), KNEES BENT AT APPROXIMATELY A FORTY-FIVE DEGREE ANGLE, ARMS AND HANDS FULLY EXTENDED PAST THE HEAD WITH THE HANDS TOUCHING THE GROUND. AT THE COMMAND GO BEGIN BY CURLING YOUR BODY FORWARD TO THE VERTICAL POSITION AND AT THE SAME TIME SWING YOUR ARMS OVERHEAD AND FORWARD ON THE OUTSIDE OF THE KNEES. WHEN YOU HAVE ATTAINED THE VERTICAL POSITION LOWER YOUR BODY TO THE STARTING POSITION. ONE REPETITION IS CONSIDERED COMPLETE ONLY AFTER YOU HAVE RETURNED TO THE STARTING POSITION. DURING ALL PHASES OF THE EVENT YOUR FEET MUST BE HELD ON THE GROUND, YOUR ARMS AND HANDS MUST REMAIN FULLY EXTENDED, AND YOUR KNEES MUST REMAIN BENT AT APPROXIMATELY A FORTY-FIVE DEGREE ANGLE. ARCHING OF THE LOWER BACK PRIOR TO EXECUTING THE SITUP IS NOT PERMITTED. THE VERTICAL POSITION MUST BE ATTAINED TO RECEIVE CREDIT FOR A CORRECT REPETITION. DO AS MANY REPETITIONS OF THIS EXERCISE AS POSSIBLE DURING A ONE-MINUTE TIME FRAME. THE SCORER WILL COUNT THE NUMBER OF REPETITIONS YOU PERFORM CORRECTLY. IF A REPETITION IS NOT DONE CORRECTLY, HE WILL REPEAT

THE NUMBER OF THE LAST CORRECT REPETITION. WATCH THIS DEMONSTRATION. (Demonstration) ARE THERE ANY QUESTIONS?

f. Administration. After reading the instructions and answering any questions, each scorer insures that the first man at his station is in the correct starting position and that the second man in line is in a kneeling position on the ground holding the participant's feet by the ankles firmly on the ground. At the command GO, the scorer, standing at the participant's side, counts the number of correctly performed repetitions. After completion of each 1-minute period, the participant goes to the end of the line, the holder becomes the participant, and the next man in line becomes the holder. This procedure is followed until all participant's have been tested.

g. Timing Techniques. The event supervisor will also serve as the timer. At the signal GO, the timer starts the stopwatch. He calls out the time at the 30-second interval and every second for the last 10 seconds. One minute is allowed for each order.

h. Scorer's Duties. Each scorer will observe the performance of the participant at his station and count the number of correct repetitions. The scorers will record the number of correct repetitions on the scorecard.

439. Squat Thrust

a. Purpose. This event measures coordination and the strength and endurance of the leg muscles (fig 133).

b. Equipment. One stopwatch, five clipboards and pens.

c. Facilities. Five lanes, 6 feet wide by 5 yards long, are required. Overall dimensions, to include the above area and additional space needed for test administration, require an area 10 yards long.

d. Personnel. Six personnel—one event supervisor and five lane scorers.

e. Instructions. The event supervisor will read the following:

THE SQUAT THRUST TESTS YOUR LEG MUSCLE STRENGTH AND ENDURANCE. THE STARTING POSITION IS BODY ERECT WITH FEET TOGETHER. YOU ARE TO ASSUME THE STARTING POSITION WITH HEELS TOUCHING THE STARTING LINE. WHEN I GIVE THE COMMAND GO YOU ARE

TO EXECUTE AS MANY REPETITIONS OF THE SQUAT THRUST AS YOU CAN IN A ONE-MINUTE PERIOD. TIME WILL BE MEASURED FROM THE TIME I COMMAND GO, UNTIL I SAY STOP. TO EXECUTE THE SQUAT THRUST FROM THE STARTING POSITION, BEND YOUR KNEES AND PLACE YOUR HANDS ON THE GROUND, SHOULDER WIDTH APART, WITH ARMS INSIDE THE KNEES. THRUST YOUR LEGS TO THE REAR, BODY STRAIGHT FROM HEAD TO HEELS. TO RECOVER, MOVE YOUR LEGS FORWARD ASSUMING A SQUAT POSITION WITH ARMS INSIDE OF THE KNEES, THEN ASSUME THE STARTING POSITION. ONE REPETITION IS AS FOLLOWS: DOWN IN SQUAT POSITION, THRUST LEGS TO REAR, BACK TO SQUAT POSITION, AND RETURN TO STARTING POSITION. DURING THE THRUST THE BODY MUST BE STRAIGHT FROM HEAD TO HEELS. A SQUAT IS EXE-

CUTED PRIOR TO THE THRUST AND BEFORE RETURNING TO THE STARTING POSITION AT THE END OF THE MOVEMENT. WATCH THIS DEMONSTRATION. (Demonstration) ARE THERE ANY QUESTIONS?

f. Administration. After reading the instructions, answer any questions and then give the command, FIRST ORDER ON THE STARTING LINE. Run the orders successively until all participants have completed the event.

g. Timing Techniques. The event supervisor serves as the timer. Time is called at the 30-second interval, and for every second of the last 10 seconds.

h. Scorer's Duties. At the conclusion of the demonstration, step up to your lane and take the first participant's scorecard. Have the participant assume the starting position. At the command GO, count the number of repetitions completed by the participant. Insure that he executes a $\frac{3}{4}$ squat



Figure 137. Bent leg situp (modified).

each time and keeps his body in a straight line from head to heels. A repetition is considered completed only when the participant has returned to the starting position. Record his score on the scorecard.

440. 1/2-Mile Run

a. Purpose. To test the endurance necessary to run a comparatively short distance (fig 124).

b. Equipment. Two stopwatches, two sets of different-colored identification numbers (20 per set), six clipboards and pens.

c. Facilities. 1/4-mile track.

d. Personnel. Seven personnel—one event supervisor, six lane scorers.

e. Instructions. The event supervisor will read the following:

THE HALF MILE RUN TESTS YOUR ENDURANCE FOR A SHORT DISTANCE. YOU WILL RUN IN A GROUP OF EIGHTEEN TO TWENTY INDIVIDUALS. YOU WILL BE SCORED ON YOUR ABILITY TO RUN THE HALF MILE IN MINIMUM TIME. THIS (pointing to the starting line) WILL BE THE START AND FINISH LINE. TIME WILL BEGIN AS THE LAST MAN CROSSES THE STARTING LINE. TIME WILL BE ANNOUNCED BY THE EVENT SUPERVISOR AS YOU COMPLETE ONE LAP. YOU MUST DO TWO LAPS. AS YOU FINISH, MOVE OFF THE TRACK, TURN IN YOUR NUMBERED

VEST, AND MOVE TO YOUR EQUIPMENT. ARE THERE ANY QUESTIONS?

f. Administration. After reading the instructions, answer any questions. Arrange the participants into two groups of eighteen to twenty men, one on each side of the track. The lane scorers will collect the participants' scorecards and insure each participant is wearing a numbered vest. The vests should be colored differently or have different numbers. This is to aid the scorers in scoring and recording the number of laps that a man has run. Having finished the event, the participants will turn in their numbered vest and move to their equipment.

g. Timing Techniques. The event supervisor serves as the timer. He will run both stopwatches simultaneously in case one watch does not function properly. The time will be called out as the first man reaches the 1/4-mile mark (one lap) and will continue to be called until all men pass the mark. As the first man approaches the finish line, the timer will begin calling off the minutes and seconds and will continue to call off time until the last man finishes the event.

h. Scorer's Duties. The scorers will collect the scorecards of the participants in their respective lanes. They will mark the numbers on the bottom of the scorecard of each participant. During the run they will inform the participant of the fact that there is one lap to go upon completing the first lap. The scorer will listen for the time as their participants cross the finish line and record the time on the scorecards.

Section IV. THE AIRBORNE TRAINEE PHYSICAL FITNESS QUALIFICATION TEST

441. Participation

a. Use. The Airborne Trainee Physical Fitness Qualification Test is used as a means of determining the physical ability of the applicant for acceptance and retention in the airborne course of instruction.

b. Test Events (fig 138). There are five events: chinups, bent leg situps, pushups, knee bender, and endurance run (1-mile).

c. Standards. To successfully pass this test the participant must achieve the following minimum scores:

Chinups	6 repetitions
Bent leg situps	20 "
Pushups	22 "
Half knee bend	80 (2-minute period)
Endurance run (1-mile)	1 mile in 8 1/2 minutes or less

Note. There is no score table for this test.

d. Uniform. Fatigue trousers, T-shirt, and combat boots.

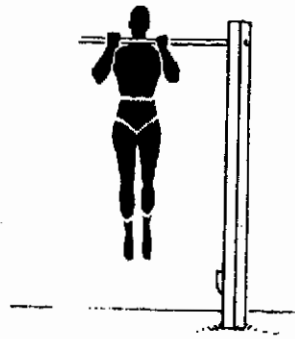
442. Administration

a. Area. This test is administered out of doors in an area suitable for the type events to be tested. Chinup bars must be available. Using a minimum of 12 lanes per test event, 14 officials can administer this test to 150 or 200 men in 2 hours. The officials are designated as follows: one test supervisor, one demonstrator, and 12 scorers.

b. Equipment. Five stopwatches and 12 clipboards and pens.

c. Organization. The following procedure is recommended:

(1) Conduct an orientation and insure the



1 CHIN UPS



2 BENT LEG SITUP



3 PUSHUPS



4 KNEE BENDER



5 ENDURANCE RUN

Figure 138. The airborne trainee physical fitness qualification test.

participants have properly filled out their scorecards.

(2) Assign participants to lanes and caution them to remain in the same lane order throughout the test.

(3) Explain and demonstrate the chin-up event, administer and score it; then proceed to the knee bender and pushups events and administer them in the same manner.

(4) Grant a 5- to 10-minute rest period after the push-up event. Advise against excessive consumption of water during the break period.

(5) Explain and demonstrate the sit-up event

and administer and score it as prescribed; then move to the run area, explain the running event, and have the men complete it.

(6) Retain the scorecards at the completion of the running event.

(7) A similar procedure is followed for the testing of individuals and small groups. The informality usually associated with small groups must not conflict with sound test administration. With fewer participants, a smaller number of officials will be required. A description of the test events are included in following paragraphs.

443. Chinups

a. *Purpose.* To test arm and shoulder strength, (fig 139).

b. *Equipment.* There is one horizontal bar per lane made of plumber's pipe or a gymnasium horizontal bar $1\frac{1}{2}$ inches in outside diameter. The bar must be rigidly supported 8 feet above the ground, and the upright supports must be 5 feet apart. There must be a movable stand or blocks at each bar for short men to stand on to reach the bar.

c. *Officials.* There is one scorer per lane.

d. *Organization.* The participants stand in order behind the restraining line in their respective lanes. The scorers take each man's scorecard when he comes forward.

e. *Starting Position.* The participant grasps the bar with palms turned toward his face, and his thumbs underneath the bar. His body is fully extended in a "dead" hanging position with the arms straight and the feet not touching the ground.

f. *Movement.* Pull the body directly upward until the chin is placed over the bar. Lower the body until the elbows are completely straight and the body is again in the "dead" hanging position. Repeat as many times as required.

g. *Instructions.* Explain and demonstrate the fully extended dead hanging position and proper grasp. Show that the chin is placed over the bar at the top of the movement and that the arms are fully extended and the elbows completely straight at the bottom of the movement (the hanging position). Explain that the body must be kept from swinging and that it is permissible to raise the legs and flex the hips when pulling up. Any kicking, bicycling, or jerking motion of the trunk or legs is not acceptable. Inform the men there is no penalty for resting in the hanging position. Tell them that half completed chinups are not counted, and that the scorer will repeat the number of the last correct chinup when incorrect execution is detected.

h. *Administration and Scoring.* Caution the men to assume the "dead" hanging position and wait for the scorer's command to begin. The scorer is at the participant's left and in such a position that he has a clear view of the bar. If the participant begins to swing widely, the scorer should stop the swinging by extending his left arm across the front of the participant's body, being careful not to hinder the execution of the chinups. He counts aloud the number of chinups

correctly executed. When a chinup is not correctly executed, the scorer repeats the number of the last correct one. The scorer records the number of correct chinups on the scorecard and returns the card to the participant.

444. Knee Bender

a. *Purpose.* This event measures the strength and endurance of the leg muscles (fig 140).

b. *Equipment.* None

c. *Officials.* There is one scorer per lane.

d. *Organization.* The men stand in numerical order behind the restraining line in their respective lanes. The scorer takes each man's scorecard when he comes forward.

e. *Starting Position.* The feet are spread less than shoulder width apart, hands on hips, thumbs in the small of the back, elbows back.

f. *Movement.* Do a half knee bend and at the same time lean the trunk slightly forward at the waist. Slide the extended arms downward along outside of the legs until the extended finger tips touch the boot top, or the calf of the leg, should boots not be worn. From this knee bend position, recover to the starting position by moving the body upward, straightening the knees, and returning the hands to the hips. Repeat as many times as required.

g. *Instructions.* Explain and demonstrate the correct starting position. Be certain that participants understand the correct knee bend and that only the tops of the fingers touch the boot tops. Tell them the scorer will repeat the number of the last correct knee bender when incorrect execution is detected. Two of the common errors are failure to touch the boot top, and failure to assume the erect position after the bend has been executed.

h. *Administration and Scoring.* The scorer stands to one side so he can see that the fingers are touching the boot tops as prescribed. From this position he can view the participant to see that a properly erect position is assumed after each knee bend. The scorer counts aloud the number of correctly executed knee bends. When a knee bend is done incorrectly, he repeats the number of the last correct one. The scorer records the number of correct knee bends on the scorecard and returns it to the participant.

445. Pushups

a. *Purpose.* To measure the strength of the shoulder girdle muscles (fig 127).



Figure 139. Chinupa.

b. Equipment. None.

c. Officials. There is one scorer per lane.

d. Organization. The men stand in numerical order behind the restraining line in their respective lanes.

The scorer takes each man's scorecard when he comes forward.

e. Starting Position. The front leaning rest position is the starting position. The body is straight from head to heels, the palms are flat on the ground directly underneath the shoulders, and the elbows are straight and locked. The body weight is supported on the hands and toes throughout the events.

f. Movement. Bending only the elbows, lower the body in one straight plane until the chest touches the scorer's hand. Straightening and locking the elbows, raise the body in one straight plane, returning to the original front leaning rest

position. Repeat as many times as required, keeping the body in a straight line from head to heels.

g. Instructions. Explain and demonstrate that the arms must be straight and elbows locked at the beginning and completion of the movement, and that the chest must touch the scorer's hand, but the stomach and thighs must not touch the ground. Also explain that the body must be maintained in a straight line as it is lowered and raised; that is, there is to be no breaking at the hips or shoulders so that part of the body is lowered or raised in advance of the other as a separate segment. Likewise, dipping or rolling through the shoulders is illegal, as is lowering or raising the body with one arm or shoulder at any time. Resting is not permitted during the repetitions. Instruct the men that the scorer will repeat the number of the last correct pushup when incorrect execution is detected.



Figure 140. *Knee bender.*

h. Administration and Scoring. It is recommended that the men assume a prone position while placing their feet and hands in the proper positions. This permits them to rest while the scorer gets into position and, at the same time, demonstrates to the participant how the body feels in a straight plane from head to heels. The scorer lies on his right side to the right of the participant. This gives him a clear view of the participant's body so that he can see any errors. The palm of his right hand rests flat on the ground, underneath the lowest part of the participant's chest. By keeping the right forearm flat on the ground and angling it from in front of the participant's right arm, the scorer's position will not prevent the participant from lowering his body completely. The scorer's left hand is free to test the straightening of the elbow at the completion of the movements and to point out body segments being lowered or raised separately. When in position and ready, the scorer has the participant assume the starting position and begin his pushups. He counts aloud the repetitions done cor-

rectly and repeats the number of the last correct pushup for all incorrect ones. There is no penalty if the contour of the participant's body causes the hips to protrude slightly out of line, provided that the whole body is raised and lowered simultaneously. The scorer enters the number of repetitions on the scorecard and returns it to the participant.

446. Sit-Ups

a. Purpose. To measure the strength of the abdominal muscles (fig 141).

b. Equipment. None.

c. Officials. There is one scorer per lane.

d. Organization. The men stand in numerical order behind the restraining line in their respective lanes. The scorer takes each man's scorecard when he comes forward.

e. Starting Position. The participant lies flat on his back with his knees flexed, both feet flat on the ground. The correct angle of the thighs to the ground is 45 degrees. If the heels are too near the



Figure 141. Sit-ups—airborne.



Figure 142. Endurance run, one-mile.

buttocks, the applicant will not be able to sit up. His legs are spread shoulder width apart. He interlaces his fingers and places them behind his head in contact with the ground. The feet are *not* held by another person.

f. Movement. Bend forward at the waist and raise the upper body until the head is directly over the knees. The heels do not leave the ground. Elbows remain in the same plane to the head and body throughout the event. The upper body is slowly lowered to the starting position until the fingers touch the ground. Repetitions are done at a slow cadence, with no rest periods.

g. Instructions. Explain and demonstrate the correct starting position and the proper execution of the situps to insure that the men understand the movement. Warn them that their knees must remain flexed during each situp, their heels cannot leave the ground at any time, and they may not roll up on one side and push up with one elbow. Tell them they must do the repetitions at a slow cadence, with no rest periods. Instruct the men that the scorer will repeat the number of the last correct situp when incorrect execution is detected.

h. Administration and Scoring. When in position and ready, the scorer has the participant assume the starting position and begin his situps. He counts aloud the correct repetitions. When a situp is improperly done, he repeats the number of the last correct one. No situp is credited if the hands are unclasped from behind the head, if the back is used to bounce up from the ground (which means the shoulders would not touch the ground), or if one shoulder or elbow is used to push up. The participant is not penalized if his heels slide forward slightly, as long as the knees remain flexed and the heels maintain contact with the ground. The scorer enters the number of repetitions on the scorecard and returns it to the participant.

447. Endurance Run (One Mile)

a. Purpose. To measure circulo-respiratory endurance (fig 142).

b. Equipment. One stopwatch or watch with a sweep second hand.

Section V. THE RANGER/SPECIAL FORCES PHYSICAL FITNESS QUALIFICATION TEST

448. Participation

a. Use. This test is administered to all personnel volunteering to attend Ranger or Special Forces training.

c. Area. A large training field or any flat terrain on which a $\frac{1}{4}$ mile track can be laid out and used as a running surface. A 1-mile route is designated with wooden stakes marking the starting line, each $\frac{1}{4}$ -mile interval, and the finish line.

d. Organization. The run is conducted with groups of men in a column formation. Company-size units may run at the same time with the platoons serving as running groups. The scorer issues the command to assume the double time.

e. Officials. For large groups there is a scorer who times the event and controls the conduct of the run, and a guide who runs with the group and sets the pace.

f. Starting Position. The men are assembled in column formation with short men to the front. The columns are moved forward a short distance before the running period is started.

g. Movement. At the command **DOUBLE TIME, MARCH**, the participants begin the run by stepping out with approximately a forty inch stride. They are to maintain their original formation throughout the run.

h. Instructions. The men are instructed to maintain formation while running, and are informed that the guide will set the proper pace. They will be instructed in the commands to be used to control the column in the execution of the event. The scorer should announce the four-minute, two-minute, one-minute, and $\frac{1}{2}$ -minute time intervals remaining.

i. Administration and Scoring. The event may be administered to a large group, to several men, or to an individual as previously described. An individual participant usually does not require a guide or pacer. If the event is administered on a training field, the scorer may stand in the center of the field and control the group or individual participant from this central location as the runner(s) circle(s) the field. This method of administration relieves the scorer of running with each group to be tested. Scoring is based upon successful completion of the run. The scorer should announce the remaining times as described in *h*, above.

b. Test Events. There are six events: inverted crawl, bent leg situp, pushups, run, dodge and jump, 2-mile run, and a swim event (fig 143).

c. Scoring Table. The scoring table (fig 144) is

to be reproduced locally. This table is used for conversion of raw scores to point scores.

d. Standards. To meet minimum acceptable standards, the participants must score 60 points per event and attain a minimum cumulative score of 300 points. The following raw scores are required to achieve a minimum acceptable standard of 60 points in each event:

<i>Event</i>	<i>Age</i>	<i>Raw Score</i>
Inverted crawl	ALL	25.0 seconds
Bent leg situps	ALL	37 repetitions
Pushups	ALL	33 repetitions
Run, dodge, and jump	ALL	24.0 seconds
Two-mile run	ALL	16 minute, 30 seconds
Swim event	ALL	Pass or Fail

e. Uniform.

(1) For all events except the swim event: fatigue trousers, T-shirt, and combat boots.

(2) Fifteen-meter swim for ranger applicants: fatigue shirt and trousers, combat boots, pistol belt, first aid pouch, two canteens, two ammunition pouches, harness, and weapon.

(3) 50-meter swim for special forces applicant: fatigue shirts, trousers, and combat boots.

449. Administration

a. Personnel. This test can be administered to 200 participants in three hours by 18 administrators. There will be one test supervisor who will also act as event supervisor for the 2-mile run and swim events, and one event supervisor for each of the other four events.

b. Area. The inverted crawl event will have 10 lanes and 10 scorers; the run, dodge, and jump 4, lanes and 4 scorers; the bent leg situps, 5 lanes and 5 scorers; the pushup event, five stations and five scorers; the 2-mile run event will be the last event taken before the 15-meter swim. Scorers from the other events will be used to administer the running event after the first four events have been completed. After all personnel have completed the 2-mile run, they will be moved to the swimming pool for the swim event.

c. Equipment. Five stopwatches, 18 clipboards and pens, 100 identification numbers.

d. Organization. Participants are arranged into three groups of equal size. All groups will take the inverted crawl as the first event. After the first event has been completed, group I moves to the pushup event; group II moves to the bent leg situps event; and group III moves to the run, dodge, and jump event. When each group has completed its second event, group I moves to the bent-leg situp event, group II moves to the run, dodge, and

jump event, and group III moves to the pushup event. Upon completion of the third event, each group moves to the event (other than the 2-mile run) which has not been taken. Upon completion of the fourth event, all groups reassemble for the 2-mile run and swim events. The fifth event to be taken will always be the 2-mile run, and the 15-meter swim will be the last event.

450. Inverted Crawl

a. Purpose. To test arm and leg coordination as well as overall strength and endurance (fig 120).

b. Equipment. One stopwatch, 10 clipboards and pens.

c. Facilities. Ten lanes, 6 feet wide by 20 yards long. Overall dimensions to include the above area and additional space needed for test administration, require an area 32 yards wide by 40 yards long.

d. Personnel. Eleven personnel—one event supervisor and 10 lane scorers.

e. Instructions. The event supervisor will read the following:

THE STARTING POSITION FOR THIS EVENT IS THE SAME AS THAT USED FOR THE CRAB WALK, I.E., THE MAN SUPPORTS HIS BODY WITH BOTH HANDS AND BOTH FEET, FACING SKYWARD, TOES BEHIND THE STARTING LINE. THE ARMS SHOULD BE STRAIGHT AND THE LEGS SHOULD BE EXTENDED TO THE STARTING LINE. IN THE STARTING POSITION THE TOES OF BOTH FEET MUST TOUCH THE STARTING LINE. ON THE COMMAND *READY*, TAKE YOUR POSITION AT THE LINE, KEEPING YOUR HANDS AND FEET IN PLACE, AND THEN SIT DOWN. ON THE COMMAND *GET SET*, RAISE YOUR BODY, AND ON THE COMMAND *GO*, BEGIN CRAWLING, OR MOVING, WITH YOUR FEET LEADING. NEGOTIATE THE FIRST TWENTY YARDS, TOUCH THE END LINE WITH ONE OR THE OTHER FOOT, AND RETURN TO THE STARTING LINE WITH YOUR HANDS LEADING. YOU WILL BE FINISHED WHEN BOTH FEET HAVE CLEARED THE FINISH LINE, OR THE STARTING LINE. WATCH THE DEMONSTRATION. (Demonstration) ARE THERE ANY QUESTIONS?

f. Administration. The participant will cover down on the lane and listen to the instructions. After the instructions are read and questions are answered, the command, *FIRST ORDER TO THE STARTING LINE* is given. At this time the



1 INVERTED CRAWL



2 PUSHUPS



3 BENT LEG SITUP



4 RUN, DODGE & JUMP



5 TWO-MILE RUN



6 15-METER SWIM

Figure 148. The ranger/special forces physical fitness qualification test.

first participant in each lane assumes the starting position and the other individuals in each lane remain 5 to 10 yards back of the first participant. On the command GO the participants, with their respective lane scorers, move down the lane. The lane scorer moves to a position from which he can insure that the participant in his lane touches the halfway marker; then he moves back to record, to the nearest half-second, the time that the participant crosses the finish line.

g. Timing Techniques. The event supervisor will keep time from the command GO, until the last participant crosses the finish line. When the first man nears the finish line the event supervisor will count off the time in half seconds, i.e., "twenty-one hut, twenty-two hut, twenty-three hut, twenty-four hut."

h. Scorer's Duties. Each lane scorer insures that the participant negotiates each event properly, and records the time to the nearest half second that it takes the participant to crawl the event.

451. Bent Leg Situps

a. Purpose. This event measures the strength of the abdominal muscles (fig 123).

b. Equipment. One stopwatch, five clipboards and pens.

c. Facilities. Five stations, 6 feet wide and 5 yards long, are required.

d. Personnel. Six personnel—one event supervisor and five scorers.

100	15.0	55	54	20.0	12:46-12:50	80	20.0	47	22.0	14:26-14:30	80	25.0	37	33	24.0	16:25-16:30	40	30.0	POINTS	INVERTED CRAWL	BENT LEG SITUPS	PUSHUPS	RUN, DODGE, JUMP	TWO-MILE RUN	POINTS	INVERTED CRAWL	BENT LEG SITUPS	PUSHUPS	RUN, DODGE, JUMP	TWO-MILE RUN	POINTS	INVERTED CRAWL	BENT LEG SITUPS	PUSHUPS	RUN, DODGE, JUMP	TWO-MILE RUN	POINTS	INVERTED CRAWL	BENT LEG SITUPS	PUSHUPS	RUN, DODGE, JUMP	TWO-MILE RUN
99					12:51-12:55	79		43		14:31-14:36	59				16:31-16:36	39								16:31-18:34	19	35.5	21	19		18:31-18:34	19	35.5	21	19		18:31-20:14	19	35.5	21	19		18:31-20:14
98	15.5	54	53		12:56-13:00	78	20.5	46		14:37-14:42	58	25.5	36	32		16:37-16:42	38	30.5	28					16:37-18:42	38	30.5	28		18:35-18:39	18					18:35-20:19	18					18:35-20:19	
97					13:01-13:05	77		42		14:43-14:48	57				16:43-16:48	37	31.0	26	27.5					16:43-18:44	17	36.0	20	18	30.0	18:40-18:44	17	36.0	20	18	30.0	20:20-20:24	17	36.0	20	18	30.0	20:20-20:24
96	16.0		52		13:06-13:10	76	21.0			14:49-14:54	56	26.0	35		16:49-16:54	36								16:49-18:49	16					18:45-18:49	16					20:25-20:29	16					20:25-20:29
95		53		20.5	13:11-13:15	75		45	41	14:55-15:00	55				16:55-17:00	35	31.5	27	25					16:55-18:54	15	36.5	19	17		18:50-18:54	15	36.5	19	17		20:30-20:34	15	36.5	19	17		20:30-20:34
94	16.5		51		13:16-13:20	74	21.5			15:01-15:06	54	26.5	34	31	25.0	17:01-17:06	34							16:55-18:59	14					18:55-18:59	14					20:35-20:39	14					20:35-20:39
93					13:21-13:25	73		44	40	15:07-15:12	53				17:07-17:12	33	32.0							17:07-19:04	13	37.0				19:00-19:04	13	37.0				20:40-20:44	13	37.0				20:40-20:44
92	17.0	52	50		13:26-13:30	72	22.0			15:13-15:18	52	27.0	33		17:13-17:18	32								17:13-19:09	12					19:05-19:09	12					20:45-20:49	12					20:45-20:49
91					13:31-13:35	71		43	39	15:19-15:24	51			30	17:19-17:24	31	32.5							17:19-19:14	11					19:10-19:14	11					20:50-20:54	11					20:50-20:54
90	17.5	51	49	21.0	13:36-13:40	70	22.5		23.0	15:25-15:30	50	27.5	32		17:25-17:30	30								17:25-19:19	10					19:15-19:19	10					20:55-20:59	10					20:55-20:59
89					13:41-13:45	69		42	38	15:31-15:36	49				17:31-17:36	29	33.0	25	23	28.5				17:31-19:24	9					19:20-19:24	9					21:00-21:04	9					21:00-21:04
88	18.0		48		13:46-13:50	68	23.0			15:37-15:42	48	28.0	31		17:37-17:42	28								17:37-19:29	8					19:25-19:29	8					21:05-21:09	8					21:05-21:09
87		50			13:51-13:55	67		41	37	15:43-15:48	47			29	17:43-17:48	27	33.5	24						17:43-19:34	7					19:30-19:34	7					21:10-21:14	7					21:10-21:14
86	18.5		47		13:56-14:00	66	23.5		36	15:49-15:54	46	28.5			17:49-17:54	26								17:49-19:39	6					19:35-19:39	6					21:15-21:19	6					21:15-21:19
85		49	46	21.5	14:01-14:05	65		40	23.5	15:55-16:00	45		30		17:55-18:00	25	34.0							17:55-19:44	5					19:40-19:44	5					21:20-21:24	5					21:20-21:24
84	19.0				14:06-14:10	64	24.0		35	16:01-16:06	44	29.0		28	18:01-18:06	24								18:01-19:49	4					19:45-19:49	4					21:25-21:29	4					21:25-21:29
83			45		14:11-14:15	63		39		16:07-16:12	43				18:07-18:12	23	34.5							18:07-19:54	3					19:50-19:54	3					21:30-21:34	3					21:30-21:34
82	19.5	48			14:16-14:20	62	24.5	38	34	16:13-16:18	42	29.5			18:13-18:18	22								18:13-19:59	2					19:55-19:59	2					21:35-21:39	2					21:35-21:39
81			44		14:21-14:25	61				16:19-16:24	41		29	27	18:19-18:24	21	35.0							18:19-20:04	1					20:00-20:04	1					21:40-21:44	1					21:40-21:44

Figure 144. Score table, ranger/special forces physical fitness qualification test.

e. Instructions. The event supervisor reads the following:

THIS EVENT MEASURES YOUR ABDOMINAL MUSCLE STRENGTH. ANOTHER PARTICIPANT WILL HOLD YOUR FEET BY THE ANKLES ON THE GROUND DURING THE EXERCISE. THE STARTING POSITION IS SUPINE (ON YOUR BACK), KNEES BENT AT APPROXIMATELY A FORTY-FIVE DEGREE ANGLE, FINGERS INTERLACED AND PLACED BEHIND THE HEAD WITH ELBOWS TOUCHING THE GROUND. AT THE COMMAND GO BEGIN BY CURLING YOUR BODY FORWARD TO THE VERTICAL POSITION. AFTER YOU HAVE ATTAINED THE VERTICAL POSITION, ALLOW YOUR BODY TO RETURN TO THE STARTING POSITION. ONE REPETITION IS CONSIDERED COMPLETE ONLY AFTER YOU HAVE RETURNED TO THE STARTING POSITION. DURING ALL PHASES OF THE EVENT YOUR FEET MUST BE HELD ON THE GROUND, YOUR FINGERS MUST REMAIN INTERLACED BEHIND YOUR HEAD, AND YOUR KNEES MUST REMAIN BENT AT APPROXIMATELY A FORTY-FIVE DEGREE ANGLE. ARCHING OF THE LOWER BACK PRIOR TO EXECUTING THE SITUP IS NOT PERMITTED. THE VERTICAL POSITION MUST BE ATTAINED TO RECEIVE CREDIT FOR A CORRECT REPETITION. DO AS MANY REPETITIONS OF THIS EXERCISE AS POSSIBLE DURING A ONE-MINUTE TIME FRAME. THE SCORER WILL COUNT THE NUMBER OF REPETITIONS YOU PERFORM CORRECTLY. IF ONE IS NOT DONE CORRECTLY, HE WILL REPEAT THE NUMBER OF THE LAST CORRECT REPETITION. WATCH THIS DEMONSTRATION. (Demonstration) ARE THERE ANY QUESTIONS?

f. Administration. After reading the instructions and answering any questions, each scorer insures that the first man at his station is in the correct starting position and that the second man in line is in a kneeling position on the ground holding the participant's feet by the ankles firmly on the ground. At the command GO, the scorer, standing at the participant's side, counts the number of correctly performed repetitions. After completion of each 1-minute period, the participant goes to the end of the line, the holder becomes the participant, and the next man in line becomes the holder. This procedure is followed until all participants, have been tested.

g. Timing Techniques. The event supervisor will also serve as timer. At the signal GO, the timer starts the stopwatch. He calls out the time at the 30-second interval and every second for the last 10 seconds. One minute is allowed for each order.

h. Scorer's Duties. The event supervisor will also serve as the timer. He will give the command GO and operate the stopwatch. Each scorer will observe the performance of the participant at his station and count the number of correct repetitions. The scorers will record the number of correct repetitions on the scorecard.

452. Pushups

a. Purpose. To measure the strength of the shoulder girdle muscles (fig 127).

b. Equipment. One stopwatch, five clipboards and pens.

c. Facilities. Five stations, 6 feet wide and 5 yards long, are required.

d. Personnel. Six personnel—one event supervisor and five lane scorers.

e. Instructions. The event supervisor reads the following:

THE PUSHUP EVENT MEASURES THE STRENGTH OF YOUR SHOULDER GIRDLE MUSCLES. YOU ARE TO ASSUME THE FRONT LEANING REST POSITION AS THE STARTING POSITION. THE ARMS AND BACK MUST BE STRAIGHT. ON MY COMMAND GO, YOU ARE TO BEGIN YOUR PUSHUPS BY BENDING THE ELBOWS AND LOWERING YOUR CHEST TO THE SCORER'S HAND. YOUR BODY MUST REMAIN STRAIGHT FROM HEAD TO TOE AS YOUR CHEST TOUCHES THE SCORER'S HAND. YOU WILL THEN RETURN TO THE STARTING POSITION BY LOCKING THE ELBOWS. THIS WILL CONSTITUTE ONE REPETITION. THE SCORER WILL COUNT THE NUMBER OF REPETITIONS CORRECTLY EXECUTED AT THE END OF EACH REPETITION. IF YOU DO NOT KEEP YOUR BODY STRAIGHT, IF YOUR CHEST DOES NOT TOUCH THE SCORER'S HAND, OR IF YOU DO NOT COMPLETELY STRAIGHTEN YOUR ELBOWS, THAT REPETITION WILL NOT COUNT AND THE SCORER WILL REPEAT THE NUMBER OF YOUR LAST CORRECT REPETITION. YOU WILL BE GIVEN ONE MINUTE IN WHICH TO EXECUTE AS MANY REPETITIONS AS POSSIBLE. WATCH THIS DEMONSTRATION. (demonstration) ARE THERE ANY QUESTIONS?

e. Instructions. The event supervisor reads the following:

THIS EVENT MEASURES YOUR ABDOMINAL MUSCLE STRENGTH. ANOTHER PARTICIPANT WILL HOLD YOUR FEET BY THE ANKLES ON THE GROUND DURING THE EXERCISE. THE STARTING POSITION IS SUPINE (ON YOUR BACK), KNEES BENT AT APPROXIMATELY A FORTY-FIVE DEGREE ANGLE, FINGERS INTERLACED AND PLACED BEHIND THE HEAD WITH ELBOWS TOUCHING THE GROUND. AT THE COMMAND GO BEGIN BY CURLING YOUR BODY FORWARD TO THE VERTICAL POSITION. AFTER YOU HAVE ATTAINED THE VERTICAL POSITION, ALLOW YOUR BODY TO RETURN TO THE STARTING POSITION. ONE REPETITION IS CONSIDERED COMPLETE ONLY AFTER YOU HAVE RETURNED TO THE STARTING POSITION. DURING ALL PHASES OF THE EVENT YOUR FEET MUST BE HELD ON THE GROUND, YOUR FINGERS MUST REMAIN INTERLACED BEHIND YOUR HEAD, AND YOUR KNEES MUST REMAIN BENT AT APPROXIMATELY A FORTY-FIVE DEGREE ANGLE. ARCHING OF THE LOWER BACK PRIOR TO EXECUTING THE SITUP IS NOT PERMITTED. THE VERTICAL POSITION MUST BE ATTAINED TO RECEIVE CREDIT FOR A CORRECT REPETITION. DO AS MANY REPETITIONS OF THIS EXERCISE AS POSSIBLE DURING A ONE-MINUTE TIME FRAME. THE SCORER WILL COUNT THE NUMBER OF REPETITIONS YOU PERFORM CORRECTLY. IF ONE IS NOT DONE CORRECTLY, HE WILL REPEAT THE NUMBER OF THE LAST CORRECT REPETITION. WATCH THIS DEMONSTRATION. (Demonstration) ARE THERE ANY QUESTIONS?

f. Administration. After reading the instructions and answering any questions, each scorer insures that the first man at his station is in the correct starting position and that the second man in line is in a kneeling position on the ground holding the participant's feet by the ankles firmly on the ground. At the command GO, the scorer, standing at the participant's side, counts the number of correctly performed repetitions. After completion of each 1-minute period, the participant goes to the end of the line, the holder becomes the participant, and the next man in line becomes the holder. This procedure is followed until all participants, have been tested.

g. Timing Techniques. The event supervisor will also serve as timer. At the signal GO, the timer starts the stopwatch. He calls out the time at the 30-second interval and every second for the last 10 seconds. One minute is allowed for each order.

h. Scorer's Duties. The event supervisor will also serve as the timer. He will give the command GO and operate the stopwatch. Each scorer will observe the performance of the participant at his station and count the number of correct repetitions. The scorers will record the number of correct repetitions on the scorecard.

452. Pushups

a. Purpose. To measure the strength of the shoulder girdle muscles (fig 127).

b. Equipment. One stopwatch, five clipboards and pens.

c. Facilities. Five stations, 6 feet wide and 5 yards long, are required.

d. Personnel. Six personnel—one event supervisor and five lane scorers.

e. Instructions. The event supervisor reads the following:

THE PUSHUP EVENT MEASURES THE STRENGTH OF YOUR SHOULDER GIRDLE MUSCLES. YOU ARE TO ASSUME THE FRONT LEANING REST POSITION AS THE STARTING POSITION. THE ARMS AND BACK MUST BE STRAIGHT. ON MY COMMAND GO, YOU ARE TO BEGIN YOUR PUSHUPS BY BENDING THE ELBOWS AND LOWERING YOUR CHEST TO THE SCORER'S HAND. YOUR BODY MUST REMAIN STRAIGHT FROM HEAD TO TOE AS YOUR CHEST TOUCHES THE SCORER'S HAND. YOU WILL THEN RETURN TO THE STARTING POSITION BY LOCKING THE ELBOWS. THIS WILL CONSTITUTE ONE REPETITION. THE SCORER WILL COUNT THE NUMBER OF REPETITIONS CORRECTLY EXECUTED AT THE END OF EACH REPETITION. IF YOU DO NOT KEEP YOUR BODY STRAIGHT, IF YOUR CHEST DOES NOT TOUCH THE SCORER'S HAND, OR IF YOU DO NOT COMPLETELY STRAIGHTEN YOUR ELBOWS, THAT REPETITION WILL NOT COUNT AND THE SCORER WILL REPEAT THE NUMBER OF YOUR LAST CORRECT REPETITION. YOU WILL BE GIVEN ONE MINUTE IN WHICH TO EXECUTE AS MANY REPETITIONS AS POSSIBLE. WATCH THIS DEMONSTRATION. (demonstration) ARE THERE ANY QUESTIONS?

f. Administration. After reading the instructions, answer any questions and give the command GO. Run this group and then proceed to the next group.

g. Timing Techniques. The event supervisor will serve as timer. When he gives the command GO, he will start the stopwatch. The time should be called out at the 30-second intervals and on every second for the last 10 seconds of the 1-minute period.

h. Scorer's Duties. The event supervisor reads the instructions to the participants. The scorers will position themselves so that they can control the participants' activities. This can best be accomplished by lying on the right side of the participant. The scorer should place his right hand, palm down, on the ground beneath the participant's chest. The right forearm should remain flat on the ground to prevent interference with the participant's correct execution of the pushup. Use the left arm to check for locking of the elbow and to point out incorrect movements, i.e., failing to keep the back straight. The scorer should count the number of correct repetitions and repeat the number of the last correctly performed movement when an incorrect repetition is performed. Participants may rest at any time in the down position. However, to begin again, they must assume the front leaning rest position.

453. Run, Dodge, and Jump

a. Purpose. To test explosive power, agility, coordination, (fig 121).

b. Equipment. One stopwatch, four clipboards and pens.

c. Facilities. The course consists of four lanes containing four wooden obstacles per lane and a shallow ditch across the center of all lanes. The overall size of the area required for test administration and the construction of the course is 27 yards wide by 26 yards long.

d. Personnel. Five personnel—one event supervisor and four lane scorers.

e. Instructions. The event supervisor reads the following:

THE RUN, DODGE, AND JUMP TESTS YOUR ABILITY TO JUMP A FIVE-FOOT DITCH AND RAPIDLY CHANGE DIRECTIONS WHILE RUNNING. ON THE STARTING COMMAND GO, BEGIN RUNNING FROM THE STARTING LINE AS FAST AS POSSIBLE. RUN BETWEEN THE FIRST TWO OBSTACLES FOLLOWING THE DIRECTIONAL AR-

ROWS. JUMP THE DITCH AND RUN BETWEEN THE LAST TWO OBSTACLES, CIRCLING AROUND THE LAST OBSTACLE. ON THE RETURN FOLLOW THE DIRECTIONAL ARROWS, CONTINUING TO WEAVE IN AND OUT BETWEEN THE OBSTACLES, JUMP THE DITCH, NEGOTIATE THE LAST TWO OBSTACLES, CIRCLE THE LAST OBSTACLE, AND START YOUR SECOND TRIP. FOLLOW THE SAME ROUTE AS ON YOUR FIRST TRIP. AT THE END OF YOUR SECOND COMPLETE ROUND TRIP, YOU WILL FINISH BY CROSSING THE SAME LINE FROM WHERE YOU STARTED. MAKE YOUR RUN AS FAST AS POSSIBLE. YOU CANNOT USE YOUR HANDS TO ASSIST BY GRASPING THE OBSTACLES AND YOU MUST JUMP THE DITCH. DIRECTIONAL ARROWS APPEAR ON BOTH SIDES OF THE OBSTACLES, AND YOU MUST GO THE WAY THE ARROW POINTS. YOU WILL BE SCORED ON YOUR ABILITY TO JUMP THE DITCH AND RAPIDLY DODGE AND RUN AROUND THE OBSTACLES. IF YOU INTENTIONALLY TOUCH ANY OF THE OBSTACLES, FAIL TO CLEAR THE DITCH, OR RUN OUT OF THE PATTERN, YOU WILL BE STOPPED AND REQUIRED TO RERUN THE COURSE. SHOULD YOU AGAIN COMMIT ONE OF THESE OFFENSES, YOU WILL BE DISQUALIFIED AND RECEIVE NO SCORE. TIME ENDS WHEN YOU CROSS THE FINISH LINE ON YOUR LAST TRIP. WHEN YOU FINISH THE EVENT, MOVE TO THE REAR OF THE FILE IN YOUR LANE. WATCH THIS DEMONSTRATION. (Demonstration) ARE THERE ANY QUESTIONS?

f. Administration. After reading the instructions, answer any questions and then give the command, FIRST ORDER ON THE STARTING LINE. Run this order and successive orders until all participants have completed the event.

g. Timing Techniques. The event supervisor serves as the timer. Time is called in half-seconds as the first participant approaches the finish line (example: "nineteen—hut, twenty—hut, twenty-one—hut"). Continue to call time until all men in the order have finished.

h. Scorer's Duties. At the conclusion of the demonstration, step up to your lane and take the scorecard of the first man in line. Remain at the starting point and observe the participant's progress through the course to determine successful completion. Record each participant's time to the nearest half-second as he crosses the finish line. If

the participant touches the obstacles, falls or steps in the ditch, or runs an incorrect patten while negotiating the obstacles, stop him, point out his error, and instruct him to go to the end of the line for a rerun of the event. When he completes the event, record his score and return the scorecard to him.

454. Two-Mile Run

a. Purpose. To test circulo-respiratory and leg muscle endurance (fig 124).

b. Equipment. Two stopwatches, 100 vests with numbers, course markers (if necessary), a turn-around point (may be a post, building, etc.) $\frac{1}{2}$ to 1 mile from the starting line, and 14 clipboards and pens.

c. Facilities. A large training area on which a $\frac{1}{2}$ - or 1-mile track has been staked out, or a level road over flat terrain, may be used. The route is designated by wooden stakes which mark the starting point, finish point, and $\frac{1}{4}$ -mile intervals.

Note. Option—A $\frac{1}{4}$ -mile oval track may be used if other areas cannot be prepared.

d. Personnel. Eighteen personnel—one event supervisor, four organizers who also serve as lane scorers, six lane scorers, two check personnel at the turn-around point, and five safety supervisors.

e. Instructions. The event supervisor reads the following:

THE TWO-MILE RUN TESTS YOUR ENDURANCE AND YOUR ABILITY TO MAKE A PROLONGED RUN. YOU WILL BE RUNNING AS PART OF A GROUP OF 100 MEN. AT THE START, ALL PARTICIPANTS WILL LINE UP BEHIND THE STARTING LINE. TIME WILL NOT BEGIN UNTIL THE LAST MAN CROSSES THE STARTING LINE. WHEN GIVEN THE WORD GO, EACH PARTICIPANT WILL BEGIN RUNNING, SETTING HIS OWN PACE. EACH MAN WILL RUN TO THE TURN-AROUND POINT (state distance) AND RETURN, USING THE STARTING LINE AS THE FINISH LINE. YOU WILL BE SCORED ON YOUR ABILITY TO COVER THE COURSE IN THE SHORTEST POSSIBLE TIME. THE NUMBER ON YOUR CHEST IS TO AID THE SCORER IN IDENTIFYING YOU. MAKE CERTAIN THAT THE NUMBER IS VISIBLE BOTH WHEN YOU REACH THE HALFWAY POINT AND WHEN YOU FINISH. ONCE YOU HAVE COMPLETED THE EVENT, TURN IN YOUR NUMBER AND MOVE TO THE AREA OF YOUR EQUIPMENT FOR THE COOLING-OFF PERIOD. DO NOT REMAIN NEAR THE

SCORERS OR THE FINISH LINE AS YOU MAY INTERFERE WITH THE SCORING. ARE THERE ANY QUESTIONS?

f. Administration. After reading the instructions, answer any questions. Then have half of the unit line up in 10 files of 8 to 10 participants each (depending on the size of the unit). Issue each man one numbered vest in order (i.e., first man in the first file gets number 1, and the last man in this file gets number 8 or 10, depending upon the number of participants). The first man in each file lines up behind the starting line, others assigned to that file cover on him. The cards of participants are collected by the scorers, approximately 8 to 10 cards per scorer. When the scorers and the participants are ready, the GO signal is given. After the first group of runners leave the starting line, the remaining half of the unit is prepared for the run by being arranged in files off the course. The safety supervisors will insure that the runners stay on the course and watch for injured participants. At the halfway point, there will be four check personnel who will observe and mark off the numbers of participants as they reach the halfway marker. The participant will not call off his number as he passes the marker. Rounding the marker, the participants return on the same course, keeping to their right or on the opposite side of the course so as to not interfere with the participants still running to the halfway marker. As participants near the finish line, the event supervisor will begin calling off time in minuces and seconds. As the participants finish, scorers will record their times in minutes and seconds. The organizers will then collect the numbered vests, issue them to the next group, and collect their scorecards.

g. Timing Techniques. The event supervisor serves as the timer for the event. He will use two stopwatches simultaneously in case one watch stops running. As the participants near the finish line, the event supervisor will begin calling off the time in minutes and seconds, i.e., "fifteen-thirty, fifteen-thirty-one, fifteen-thirty-two."

h. Scorer's Duties. When the participants are assembled on the course ready to run, step up to the starting line and gather the scorecards from the participants. As you take the scorecard, record each man's number in the upper right-hand corner of the card. As the participants finish the event, record their scores in minutes and seconds in the appropriate column.

455. Swim Event

a. Purpose. To test the trainee's ability to swim a minimum distance (fig 145).



Figure 145. Fifteen-meter swim.

(1) Ranger: the trainee is to swim 15 meters with clothing, boots equipment and rifle.

(2) Special forces: the trainee is to swim 50 meters with clothing and boots.

b. Equipment. A rope, with floats, long enough to span the width of the pool (to mark off the 15- or 50-meter distance), two pool hooks, and four life preservers.

(1) Ranger: Pistol belt, first aid pouch, two canteens filled with water, two ammunition pouches, harness, and the individual weapon.

(2) Special forces: None.

Note. For uniform see paragraph 448e. In addition, each participant must have a dry set of clothing and boots.

c. Facilities. Swimming pool with connecting shower facilities.

d. Personnel. Nine personnel—one event supervisor, four scorers, and four lifeguards.

e. Instructions. The event supervisor will read the following:

(1) Ranger: YOU WILL ENTER THE WATER WEARING YOUR EQUIPMENT AND HOLDING YOUR INDIVIDUAL WEAPON. AS A SAFETY PRECAUTION, THE HARNESS WILL NOT BE FASTENED. YOU WILL ENTER THE WATER BACKWARD WITH THE WEAPON HELD AT PORT ARMS. YOU ARE TO SURFACE, TURN AROUND, AND SWIM WITH THE WEAPON HELD CLOSE TO YOUR BODY TO REDUCE THE DRAG WHICH THE WEAPON EXERTS. BY HOLDING THE WEAPON AS PRESCRIBED YOU CAN IMPROVE ARM AND LEG COORDINATION. UPON ASSUMING THE SWIMMING POSITION, HOLD THE WEAPON UNDER WATER, BUT IN LINE WITH YOUR BODY, MUZZLE IN THE DIRECTION YOU ARE SWIMMING. YOU SHOULD GRIP THE WEAPON DIRECTLY ABOVE THE UPPER HANDGUARD TO MAINTAIN BODY CONTROL AND TO DEVELOP THE RHYTHM NECESSARY TO SUCCESSFULLY SWIM THE DISTANCE. IF YOU ACCIDENTALLY DROP YOUR WEAPON WHILE SWIMMING, YOU MAY RETRIEVE IT AND CONTINUE TO SWIM WITHOUT BEING PENALIZED. IF YOU DROP YOUR WEAPON INTENTIONALLY, YOU MAY CONTINUE TO SWIM TO THE FINISH LINE. IN THIS CASE IT WILL BE NOTED ON YOUR SCORECARD WITH THE LETTERS "WS," WHICH WILL CLASSIFY YOU AS A WEAK SWIMMER.

(2) Special forces: YOU WILL ENTER THE WATER WEARING YOUR FATIGUES

AND BOOTS. YOU ARE TO STAND ON THE DECK AND ON COMMAND SIT DOWN, LOWER YOURSELF INTO THE WATER AND HOLD ON TO THE SIDE OF THE POOL, AGAIN ON COMMAND OF "GO" BEGIN SWIMMING USING ANY STROKE OR COMBINATION OF STROKES. YOU ARE TO SWIM WITHOUT STOPPING TO THE 50-METER MARK. THERE IS NO SCORE TABLE FOR THIS EVENT SCORING IS EITHER "PASS" OR "FAIL" (AT THIS TIME POINT OUT THE FINISH LINE, IF A 50-METER POOL IS BEING USED, THE OPPOSITE END OF THE POOL IS THE FINISH LINE).

f. Administration. For both ranger and special forces the first 4 individuals will enter the pool area and "cover down" on one of four lanes. No other participants will enter the pool area than the number that leave. Those who have completed the test will get out of their wet fatigues and change into dry ones. Those who enter the pool area will "cover down" on one of the four lanes and wait for their order to be given the command ENTER THE WATER. Entering the water the participants will swim to the finish line (indicated by floats or the end of the pool). The lifeguards will walk along the sides of the pool observing the swimmers. Upon reaching the finish line, the swimmers will swim beneath the rope and to the nearest side of the pool, or exit the water if at the end of the pool. Leaving the water they will move to the dressing area. The remaining orders are run in the same manner.

g. Timing Techniques. For both ranger and special forces this is not a timed event.

h. Scorer's Duties.

(1) Ranger: To observe the participants who are swimming in the lane for which he is responsible and to indicate whether or not the participant swims the required 15 meters. Insure that the swimmer does not lose any equipment (i.e., weapon or harness) that would alter his swimming ability. If the swimmer does lose his weapon or harness, the scorer will indicate this by marking on the scorecard the letters "WS," which indicates he is classified as a weak swimmer and will need special attention later in his training. The scorer will record a pass or fail score for each participant.

(2) Special forces: To observe the participants who are swimming in the lane for which he is responsible and to indicate whether or not the participant swims the required 50 meters. Insure that the swimmer does not stop to rest. When the swimmer finishes or fails the scorer will record a pass or fail score for the swimmer.

PART SIX
THE HUMAN BODY

CHAPTER 28
THE BODY AND PHYSICAL FITNESS

456. Physical Fitness

a. Physical fitness is a product of anatomical and physiological fitness. Anatomical fitness is the possession of all essential parts and organs of the body. The Army Medical Department is responsible for insuring that men who enter the service are anatomically fit. This is usually accomplished when personnel initially enter the service. Therefore, in the physical readiness training program, we are concerned principally with developing physiological fitness. Physiological fitness is the capacity for rigorous and skillful performance and rapid recovery without undue fatigue.

b. Every man who undergoes physical conditioning should possess a practical understanding of the nature of physical fitness. Leaders who administer and conduct the program should possess both practical and technical knowledge of physical fitness.

c. To intelligently direct the conditioning of the human body, the instructor must understand the way exercise affects the body organs and systems and also, he should be aware of the disadvantages of being unfit.

457. Knowledge of the Human Body

a. The human body, like weapons and machines, must be understood before the proper techniques can be employed to condition it. If personnel directing the physical training program do not understand the functioning of the human body, they may fail to condition their troops for vigorous physical activity. This chapter and the following chapters provide information concerning the machine with which we work—the human body.

b. With an understanding of the basic physiological processes of the body, commanders and physical training supervisors can develop an effective physical training program. A program with a solid foundation eliminates fads which are often projected as short cuts to physical fitness and are usually without scientific basis.

c. To be effective, leaders must understand the interrelationship of physical fitness and mental fitness. Physical health and mental health cannot be separated. Poor physical condition can be caused by mental as well as physical disorders. A sound mind is characterized by cheerfulness, confidence, and interest. An unhealthy state of mind is characterized by indifference, discouragement, worry, or a feeling of inferiority. The physical readiness training program can improve the mind as well as the body.

458. Body Functioning During the Toughening Stage

Attaining physical fitness is not an overnight process; the body must go through three stages. The first is the toughening stage which lasts for about 2 weeks. During this time the body goes through a soreness and recovery period. When a muscle with a poor blood supply (such as a little used muscle) is exercised the waste products produced by the exercise collect faster than the blood can remove them. This acid waste builds up in the muscle tissue and irritates the nerves in the muscle fiber, causing soreness. As the exercise continues, the body is able to circulate the blood more rapidly through the muscles and remove the waste materials, which causes the soreness to disappear.

459. Body Functioning During the Slow Improvement Stage

The slow improvement stage is the second stage in attaining physical fitness. As the body passes through the toughening stage and continues into the slow improvement stage, the volume of blood circulating in the muscles increases and the body functions more efficiently. In the first few weeks the improvement is rapid, but as a higher level of skill and conditioning is reached, the improvement becomes less noticeable. The body reaches its maximum level of performance between 6 and 10

weeks. The intensity of the program and individual differences account for this variance in time. The sustaining stage is a third stage during which physical fitness is maintained.

460. Sustaining Stage

a. Prior to this stage the body has reached a level of physical conditioning established during the first two stages. This may be near to or peak condition. In some cases it may be a plateau beyond which the individual could progress only through a continued rigorous training program.

b. It is necessary to continue exercising at approximately the same intensity to retain the condition developed. For example, a soldier who has been trained until he is in excellent condition will lose his fitness on a 20-day furlough if he does nothing to maintain it. The members of troop units can also lose the peak of condition with the discontinuance of regular exercise.

c. For the human mechanism to retain a well-conditioned state, a maintenance program should be instituted. This program can be of relatively short duration. For example, through strenuous exercise, it is possible to maintain fitness in 15 to 20 minutes a day.

461. Crest Load

When the individual reaches his highest level of conditioning, he is at his "crest load." If he increases the amount of exercise, "oxygen debt" may develop, that is, his muscles develop more lactic acid than the blood can carry away for re-synthesis into glycogen; thus he may be forced to stop his exercise. Continued training can raise the crest load level. This is an important consideration in military physical training.

462. The Overload Principle

a. Muscular use improves body functioning; disuse promotes atrophy. Stated another way, the amount of muscular development obtained through exercise is comparable to the demand made on the system. With a certain amount of exercise, muscles develop only enough to perform that amount of work with ease. Only the number of muscle fibers needed to move a given load are brought into play. If there is no further increase in the demand, there is no improvement in muscle function or in strength or endurance. If, however, one wishes to improve the amount of work a muscle can do, the demand must be increased. For example, it is assumed that an individual is able to lift a weight of 40 pounds with his right arm.

If this individual were to exercise with a weight of only 3 or 4 pounds, he could exercise until the muscle was practically exhausted, and still such exercise would not markedly increase the strength of the muscle, as he already has more than enough strength to handle that much weight. On the other hand, if this individual were to exercise with a 40-pound weight, he would tire rapidly, perhaps in five or six movements. If he were to continue to exercise with this load until he could raise it 15 or 20 times, and then increase the weight to 45 pounds, then to 50 pounds, adding additional weight as the strength increased, the muscle would develop in size and strength very rapidly.

b. Another example may be found in circulo-respiratory endurance. If an individual wished to train to the point of being able to run a mile in 4 minutes and 20 seconds, he would have to run faster and faster until this point was reached. If, on the other hand, he were to run a mile in 10 minutes every day, he could do this for many, many years, and still not be able to run a mile in 6 or 7 minutes. The overload principle then, means that the fitness of the individual develops in proportion to the demand placed on it. Conversely, if the individual does less exercise than he has been accustomed to doing, he rapidly "deconditions." Hence men assigned to sedentary jobs with opportunity for only mild exercise rapidly lose their physical fitness.

c. The overload principle does not mean that the individual should be "overloaded" to the point of undue strain. It means that the physical requirements must be over his usual load. In the use of conditioning exercises, the instructor can increase the intensity either by increasing the cadence or by adding to the load carried. In running, for example, the speed (cadence) can be increased, and in conditioning drills progression from Conditioning Drill One to log exercises will increase the load by adding the weight of the logs. The theory of overload is one of the most important principles for physical training personnel to understand and practice.

463. Exercise and Diet

a. Regular exercise has a tendency to increase the appetite. The body benefits if this desire for greater amounts of food is satisfied with a balanced diet.

b. There are two main types of foods: body building and energy producing. Body building foods consists of proteins, which build up and maintain body tissue. Energy producing foods are of two types: carbohydrates and fats. Carbohydrates provide a quick source of energy, while

fats act as a reserve store of energy. In addition, food contains vitamins, mineral salts, and water. During hot weather and strenuous training periods, the fluid intake should be increased. Proper diet should be supplemented with proper rest to provide the digestive system with time to digest and feed food back into the system as energy.

c. Occasionally, violent exercise may cause vomiting. Vomiting is a natural occurrence and under normal circumstances should not be considered dangerous. Exercise during prolonged exposure to high temperature may result in heatstroke. One of the symptoms of heatstroke may be vomiting. In such case the vomiting is a danger signal.

464. Effect of Exercise on Body Growth

a. Continuous exercise results in an increase in size and efficiency of many body organs and systems, such as the heart, lungs, blood vessels, and digestive system.

b. Body size tends to increase and it is possible

to put several inches on the circumference of the chest. This increase is due to an increase in the size of the muscles of the back and chest. An increase in shoulder width is due to the development of the shoulder girdle muscles.

c. Exercise causes an improvement in posture which may cause an individual to stand straighter and hence appear taller.

465. Systems of the Body

The systems of the body include the skeletal, muscular, circulatory, respiratory, endocrine, digestive, excretory and nervous systems. All systems must function properly to maintain health. For physical training purposes, it is not necessary to consider all systems. The first five systems are those most affected by exercise and therefore are the systems which are emphasized in the chapters concerning "Body Structure" (chap 29), "Body Functioning" (chap 30), and "Posture Training" (chap 31). The effects of exercise on these systems is included in chapter 30.

CHAPTER 29

BODY STRUCTURE

Section I. INTRODUCTION

466. Body Composition

a. The parts of the five body systems most affected by exercise are identified in this chapter by name, location, and characteristics.

b. This chapter also provides sufficient information concerning body structure to support the discussion of body functioning in chapter 30, and posture training in chapter 31.

467. Terminology

A thorough understanding of the following terms should precede the study of body structure and functioning.

a. *Anatomy*. Anatomy is the study of body structure to include the size, shape, location, and composition of bones, muscles, and organs.

b. *Anatomical Position*. In the study of body structure the body is always assumed to be stand-

ing in an upright position with the arms at the sides, palms forward.

c. *Median Plane*. An imaginary plane running through the body from front to rear dividing it into equal right and left halves.

d. *Medial*. When this term is used in reference to a body part, it indicates that the part is near the center of the body.

e. *Lateral*. Lateral means toward the side of the body.

f. *Superior*. Superior is used in the definition of a body part that is higher or nearer the head.

g. *Inferior*. This term indicates that the body part is lower or farther from the head.

h. *Anterior*. Anterior refers to the front.

i. *Posterior*. Posterior refers to the rear.

Section II. THE SKELETON

468. General

The skeleton is composed of about 206 bones. Bones are of four types: flat bones, as in the shoulder blade; long bones, as in the legs; short bones, as found across the arch of the foot; and irregular bones, as in the spinal column. The center of the bones, called the marrow, manufactures red blood cells for the body. Bones also furnish support for the attachment of muscles and protection for the vital organs, such as the brain, lungs, and heart. In general, bones may be classified according to their location.

469. Bones of the Skeleton

Both sides of the skeleton must be examined to view all the major bones. The front and rear views are shown in figure 146.

a. *Head*. The skull is composed of 22 separate bones, many of which are fused together to pro-

vide protection for the brain and give shape to the face.

b. *Shoulder Girdle*. The following bones form the shoulders and provide a place of attachment for the upper arm and shoulder area muscles:

(1) *Clavicle (collar bone)*. A long bone, one on each side of the neck, connecting the shoulder and breast bone.

(2) *Scapula (shoulder blade)*. A broad, flat bone with a raised ridge extending laterally across the superior part of the bone.

c. *Arm Bones*. The following are the major bones of the arm:

(1) *Humerus*. Upper arm bone.

(2) *Radius*. A long bone on the thumb side of the forearm.

(3) *Ulna*. A long bone on the little finger side of the forearm.

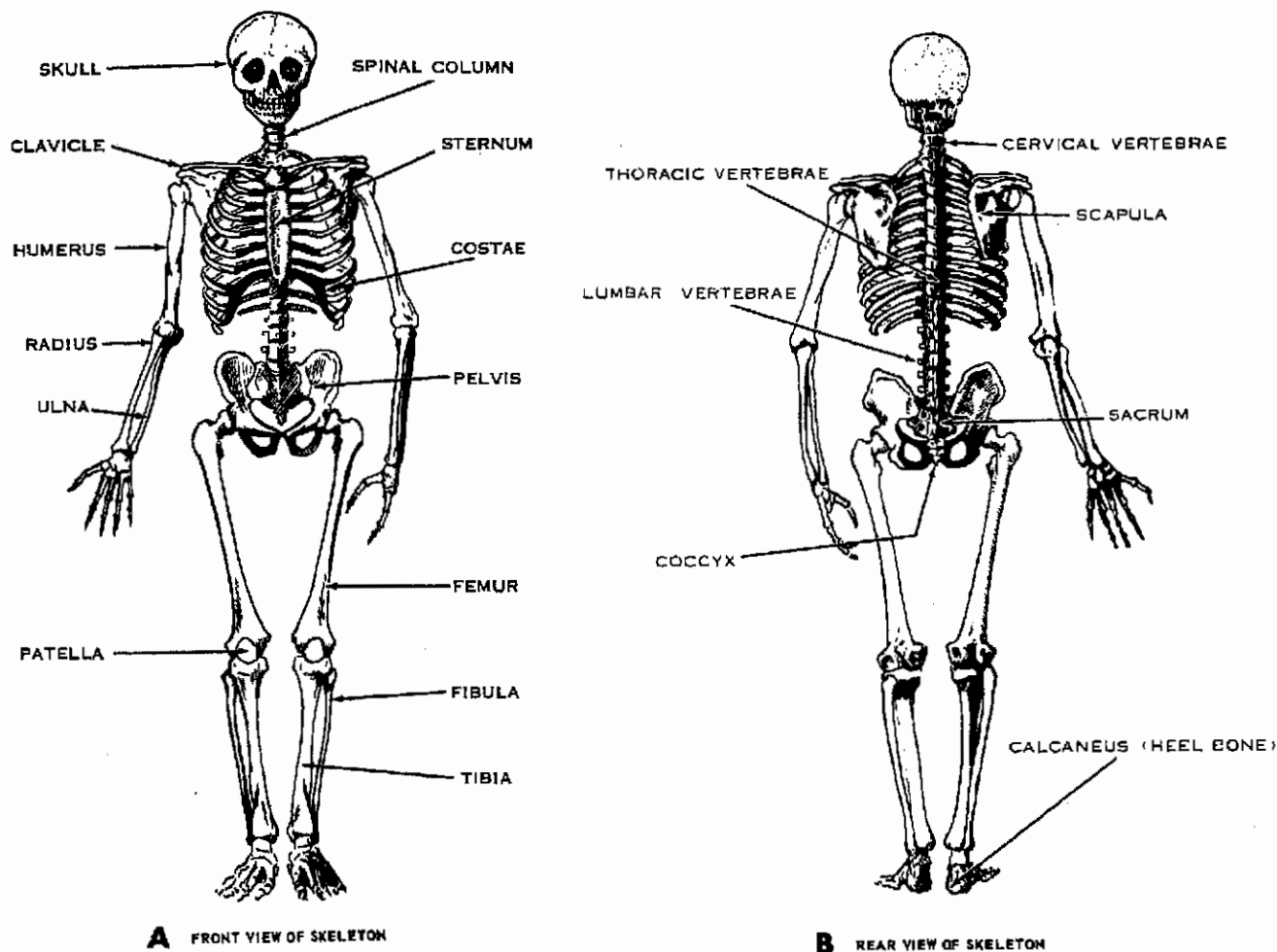


Figure 146. Front and rear views of skeleton.

d. Rib Cage. The rib cage protects the lungs and heart, and is formed by the following bones:

(1) *Spinal column.* About 29 to 32 irregular bones that protect the spinal cord and are divided into cervical, thoracic, lumbar, and sacral regions.

(2) *Sternum (breast bone).* A flat bone forming the center portion of the rib cage.

(3) *Costae (ribs).* Twenty-four long bones joining the spinal column and sternum.

e. Hips. The hips protect the organs of the lower abdomen and provide a place of attachment for the legs. They are formed by the lower portion of the spinal column and the bones of the pelvis. These bones are the pelvic girdle (hip bones), one on either side, each consisting of three bones which fuse together during early life into one bone, and the sacrum (lower portion of the spinal column) composed of five bones.

f. The Leg Bones. The following are the major bones of the leg:

(1) *Femur.* A long bone in the thigh which is attached to the pelvis.

(2) *Patella.* A flat bone called the knee cap.

(3) *Fibula.* A long bone on the lateral side of the lower leg.

(4) *Tibia.* A long bone on the medial side of the lower leg.

g. Spinal Column. The spinal column is composed of vertebrae which are divided into five areas. References to these areas are frequent in posture training.

(1) *Cervical vertebrae.* Seven vertebrae that form the neck.

(2) *Thoracic vertebrae.* Twelve vertebrae to which the ribs attach, forming the rear of the rib cage.

(3) *Lumbar vertebrae.* Five vertebrae in the area between the rib cage and the hips.

(4) *Sacrum.* Five fused vertebrae forming the rear portion of the pelvis.

(5) *Coccyx.* Small vertebrae on the end of the sacrum, usually fused together. The number of these bones varies among individuals.

h. Heel Bone. The calcaneus (heel bone) is a short bone that forms the heel. It serves as a place of attachment for the muscle in the calf of the lower leg.

470. Characteristics of Bones

Bones of the skeleton have definite characteristics, with ridges, projections or depressions appearing on most of them. The purpose of these areas is to provide a place for the attachment of muscles.

471. Joints

A joint is a place of union between two or more bones. Joints, because of their movement (or lack of movement in some cases), are divided into three classes: immovable, slightly movable, and freely movable.

a. The immovable joint has no joint cavity. Example of this type of joint are the bones of the skull and pelvis.

b. The slightly movable joint provides very limited movement. Examples of this type of joint are the vertebrae and sternum.

c. The freely movable joint permits maximum movement. Freely movable joints are of greater importance in physical training because they are

affected by exercise. The main effect is to increase their mobility and stability with a combined increase of muscle power and control. Types and examples of movable joints are—

(1) Rotary (radius and ulna in rotation of the forearm).

(2) Hinge (ankle and elbow joints).

(3) Ball and socket (hip and shoulder joints).

472. Cartilage and Ligaments

The joints in the body are connected and supported by cartilage and ligaments.

a. Cartilage is a tough, elastic, translucent tissue that acts as a shock absorber or buffer between bones. Examples are the discs between the vertebrae, the connector tissue attaching the ribs to the sternum, the buffers in the knee joints, and the cartilage that forms sockets around certain joints.

b. Ligaments are connective tissue that bind bones together; they are extensible but not elastic. Because of this characteristic major sprains or stretching of the ligaments are serious; while healing does occur, the stretched ligaments never completely return to their former length.

Section III. THE MUSCLES

473. General

Muscles are of three classifications: involuntary, voluntary, and cardiac. Involuntary muscles are those over which we have no control. Voluntary muscles are the larger skeletal muscles which are under control of the individual. Cardiac muscle is found only in the heart and is an involuntary muscle. For physical training purposes, with the exception of the heart, voluntary muscles are the most important group.

474. Muscle Structure

a. The smallest unit of structure of the muscle is the cell. These microscopic bodies are grouped in small bundles of fibers, which in turn are grouped into larger bundles until finally the entire muscle is formed. These bundles of fibers are held in place by a thin, sheath-like material that surrounds them and secretes a fluid that lubricates the muscle tissue. The fused ends of the sheath form the tendons which attach the muscles to the bones.

b. Muscles are formed in layers to do particular jobs; some are flat, some are round, some are

large, and others small. Some are superficial, lying just under the skin, while others are located under the superficial muscles and are known as deep muscles.

475. Attachment of Muscles

The arrangement of muscles on the skeleton provides the proper angle of pull to make movement possible. Voluntary muscles are usually attached to the skeleton in two places. One end of the muscle is known as the origin to indicate the starting point; and the other end as the insertion, to indicate the place where the muscle ends or inserts on the bone.

476. Action of Muscles

a. To produce motion or work a muscle shortens its fibers. The movement may be flexion such as bending the arm at the elbow, or flexion of the trunk in attempting to touch the floor with the hands while keeping the legs straight. The movement of body parts may also take the form of extension which is simply a return from flexion. Some muscles raise the arms or legs, others pull

the raised limb down. Some muscles have the primary function of rotating the trunk from side to side, and still others cause the trunk to bend forward (flexion). Muscles act as stabilizers as well as prime movers.

b. In this section, the muscles are grouped according to the action they produce and by their location. The discussion is limited to the major muscle groups; no attempt is made to consider many smaller muscles. In the following explanation of muscles the name, general location, origin, insertion, and action is described.

477. Muscles of the Trunk

Muscles which control action of the head, arms, shoulders, and bending of the trunk are located on both the anterior and posterior sides of the trunk (fig 147).

a. *Muscles Causing Neck and Shoulder Action.* Muscles attached to the trunk area control neck and shoulder action (fig 147).

(1) Sterno-mastoid—the important muscle on the front portion of the neck. This muscle runs from the sternum upward to the mastoid process behind the ear. The action of a single sterno-mastoid muscle turns the head and elevates the chin. Both sterno-mastoid muscles, acting together, move the head forward.

(2) Trapezius—a large triangular shaped muscle of the upper back and neck. It originates on the base of the skull, and all 12 thoracic verte-

brae. It inserts along the ridge of the scapula and over the shoulder on the clavicle. This muscle pulls the head back, holds the shoulders back, and supports weight when carried on the shoulders.

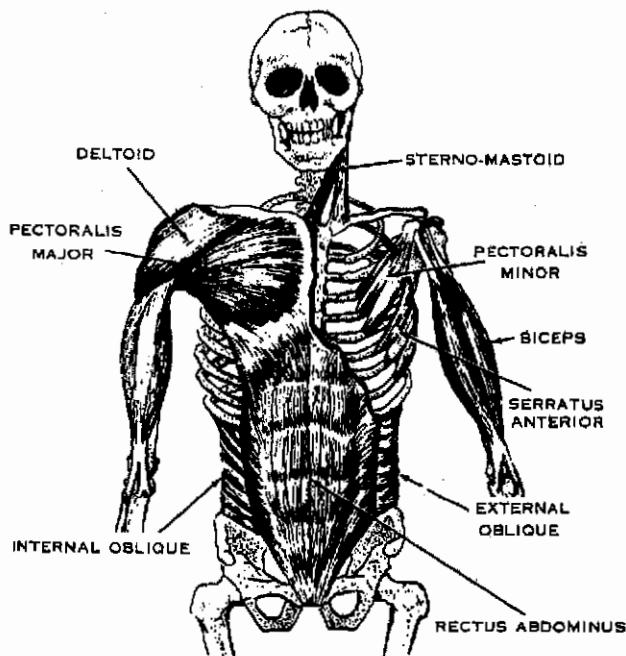
(3) Levator scapulae—a deep muscle lying beneath the trapezius that helps to form the rear portion of the neck. Its origin is the top four vertebrae of the neck and it inserts on the upper angle of the scapula. Its primary function is to lift the shoulder.

(4) Pectoralis minor—a flat, triangular shaped deep muscle of the chest region. Its origin is on the 2d, 3d, 4th, and 5th ribs. The muscle reaches up to the point of the shoulder where it inserts on a projection of the scapula. The action of this muscle pulls the shoulder downward and forward.

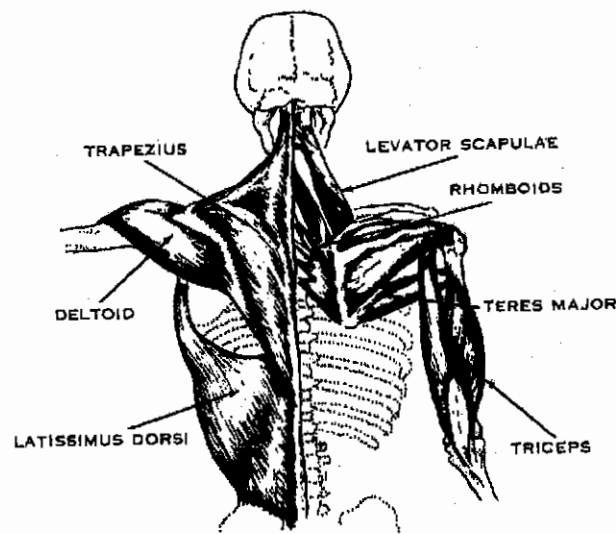
(5) Serratus anterior—a flat, deep muscle reaching from the chest around under the armpit and under the scapula. It originates on the top nine ribs and inserts on the medial, or inner border of the entire scapula. This muscle pulls the shoulders forward in such movements as pushups.

(6) The rhomboids—two deep muscles (minor and major) located on the upper back. They originate on the last cervical (neck) and first five thoracic vertebrae. They insert on the medial border of the scapula. These muscles hold the scapula in position and pull the shoulders upward and back.

b. *Muscles Responsible for Arm Action* (fig



A ANTERIOR MUSCLES OF THE TRUNK



B POSTERIOR MUSCLES OF THE TRUNK

Figure 147. Anterior and posterior muscles of the trunk.

147). Several muscles located on the shoulders, trunk, and arms cause movement of the arms.

(1) *Deltoid*—a triangular shaped muscle located on the shoulder and upper arm. The front portion of the deltoid originates on the clavicle and the rear portion on the scapula. It inserts on the outer surface of the humerus just above its middle. This muscle lifts the arm forward, and to the side and rear.

(2) *Teres major*—a deep muscle of the back stretching from the scapula to the humerus. It originates on the lower portion of the scapula and inserts on the humerus at a spot about one-third of the distance from the top. This muscle pulls the arm downward.

(3) *Pectoralis major*—a superficial muscle of the chest region. It is fan shaped, originating on the medial end of the clavical and the top six ribs and inserting on the humerus. The muscle pulls the arm across the chest and is used in pushups.

(4) *Biceps*—a muscle located on the front portion of the upper arm and having two separate origins (two tendons that fuse together to form the body of the muscle.) These two heads originate on the scapula and the muscle covers the upper arm to insert on the radius in the lower arm. The action of this muscle is to flex the arm. It is used in such movements as pullups.

(5) *Triceps*—a muscle located on the rear portion of the upper arm and having three separate origins (three tendons that fuse together to form the body of the muscle). Two of the heads originate on the upper part of the humerus and the other on the scapula just below the socket where the humerus joins the scapula. It inserts on the upper part of the ulna. The action of this muscle is to extend the arm at the elbow. It is used in such movements as pushups, throwing, and shot putting.

(6) *Latissimus dorsi*—a flat, triangular shaped muscle located on the lower back. It originates on the lower six thoracic vertebrae, all lumbar vertebrae, back of the sacrum, and the rear portion of the top of the hip bone. From this broad base the muscle tapers to a point that inserts on the upper part of the humerus. This muscle is used in doing pullups, rope climbing, and in striking movements.

c. Muscles Responsible for Trunk Action (fig 147). Three of the major muscles of the trunk that produce movement just above the hips are of interest in the physical training program.

(1) *Rectus abdominis*. This large muscle is located on the front portion of the abdominal wall. It originates on the pubic arch at the bottom of the pelvis, runs upward over the abdominal

area and inserts on the sternum and the 5th, 6th, 7th, and 8th ribs. This muscle retracts the abdominal wall and tilts the pelvis upward. It also aids in flexing the trunk. The *rectus abdominis* is one of the most important muscles from a postural standpoint.

(2) *External oblique*. This big muscle makes up the side and external portion of the abdominal region. It originates on the lower eight ribs and runs diagonally downward to insert on the crest and front part of the hip bone and into the *linea alba* (a tendinous line running down the front of the abdomen between the right and left *recti abdominis*). This muscle flexes and rotates the trunk.

(3) *Internal oblique*. This muscle is a deep muscle that lies beneath the external oblique. It originates at the pelvis on the front two-thirds of the crest of the hip bone. It runs diagonally upward and inserts on the 8th, 9th, and 10th ribs. The internal oblique muscles flex and rotate the trunk.

478. Muscles of the Pelvic Region

Two muscles of the pelvic region are concerned with flexing the legs at the hip (fig 148).

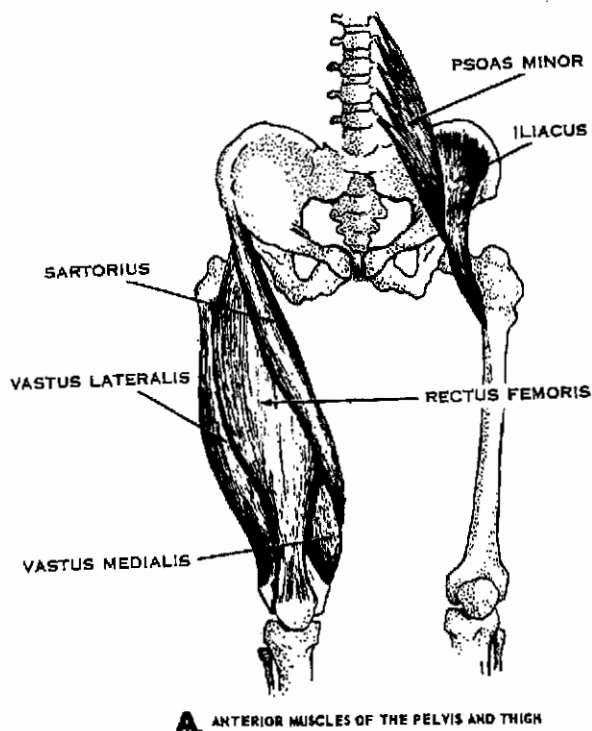
a. Iliacus. The *iliacus* originates on the inner surface of the hip bone. It inserts on the inside of the femur just below the ball and socket joint. Its primary function is to flex the thigh through the hip joint.

b. The Psoas Major. The *psoas major* is a muscle attaching the spine and leg. It originates on the last thoracic and all lumbar vertebrae. It inserts on the inside of the femur just below the ball and socket joint. The *psoas* works with the *iliacus* in flexing the thigh through the hip joint. It is used in exercises such as kicking, running, and situps.

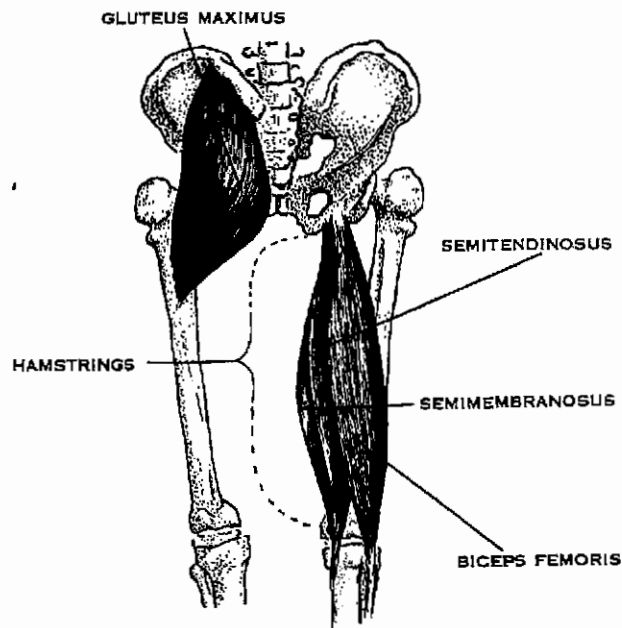
479. Anterior Muscles of the Thigh

The muscles located on the front and rear of the thigh (fig 148) cross two joints, the thigh and the knee. In general, when they contract, they extend one joint and flex the other. For example, in a kicking movement the leg must bend (flex) at the hip and straighten (extend) at the knee. Muscles located on the front of the thigh region are the—

a. Sartorius. The *sartorius* is a long, rope-like muscle that stretches across the thigh from the outside of the hip to the inside of the knee. It originates on the forward part of the hip bone and inserts on the medial side of the tibia. This muscle assists in keeping the knee in the median plane while running, and in flexing the knee.



A ANTERIOR MUSCLES OF THE PELVIS AND THIGH



B POSTERIOR MUSCLES OF THE PELVIS AND THIGH

Figure 148. Anterior and posterior muscles of the pelvis and thigh.

b. Quadriceps Femoris. The quadriceps femoris is a four-headed group of muscles located on the front of the thigh region. The tendons of these four muscles fuse, continue over the patella, and insert on the tuberosity of the tibia. These muscles extend the leg at the knee, and, as a secondary mission, flex the hip. They are used in walking, jumping, running, kicking, and climbing. The four muscles are the—

(1) *Vastus lateralis.* This muscle is on the outside of the thigh and originates on the upper part of the femur (thigh bone) and inserts on the patella (knee cap).

(2) *Rectus femoris.* The rectus femoris is the center muscle of this group. It originates on the front lower part of the ilium (top bone of the pelvis). It inserts on the upper part of the patella.

(3) *Vastus medialis.* The vastus medialis is a muscle lying on the inside of the thigh. It is partly hidden by the rectus femoris. It originates on the medial side of the femur. It inserts on the inner top part of the patella.

(4) *Vastus intermedius.* The vastus intermedius is a deep muscle lying directly beneath the rectus femoris and due to this position is completely covered, therefore it is not illustrated in figure 148. It originates on the whole front aspect of the femur and inserts on the top back portion of the patella.

480. Posterior Muscles of the Thigh

The muscles responsible for flexing the knee and

extending the hip are located on the rear of the thigh (fig 148). They are the—

a. Gluteus Maximus. This muscle originates on the rear crest of the hip bone and rear surface of the sacrum. It inserts on a rough ridge along the rear of the femur, just below the joint. The gluteus maximus is used in all extensions of the upper leg from the trunk. It is used most forcibly in such exercises as jumping, sprinting, climbing, and lifting.

b. Hamstrings. The hamstring group consists of three muscles located on the rear of the thigh region which attach the tibia and fibula bones of the lower leg to the femur and pelvis. The primary action of this muscle group is to flex the knee. Its secondary mission is to extend the hip. The hamstrings are used in such exercises as walking, running, jumping, and rowing. The three muscles of this group are the—

(1) *Semitendinosus.* This muscle originates on the ischium (center) bone of the pelvic girdle and inserts on the front of the tibia. Its primary function is to flex the leg on the thigh. It also acts to extend the thigh at the hip.

(2) *Semimembranosus.* This muscle also originates on the ischium and inserts on the rear inner surface of the tibia. While its primary function is to flex the leg and rotate it inward, it also extends the thigh at the hip upon contraction.

(3) *Biceps femoris.* The biceps femoris is the

most important hamstring muscle from a physical training standpoint. It originates on the ischium and the surface of the femur and inserts in the head of the fibula. The primary function of this muscle is to flex the knee and rotate it outward. It also extends the thigh at the hip if the leg is kept stiff.

481. Muscles of the Lower Leg

These muscles are located on the front and rear of the lower leg (fig 149), and their action is to flex and extend the foot at the ankle.

a. Anterior Tibialis. The anterior tibialis is re-

sponsible for flexing the foot. It originates on the upper two-thirds of the outer surface of the tibia and inserts on the first metatarsal bone in the foot.

b. Gastrocnemius and Soleus. The gastrocnemius is commonly referred to as the calf muscle and with the soleus, is responsible for extending the foot at the ankle. It originates on the lower end of the femur and inserts on the heel bone. It is used in running, starting, and jumping. The soleus originates on the upper two-thirds of the tibia and inserts on the heel bone. It works with the gastrocnemius in extending the foot at the ankle.

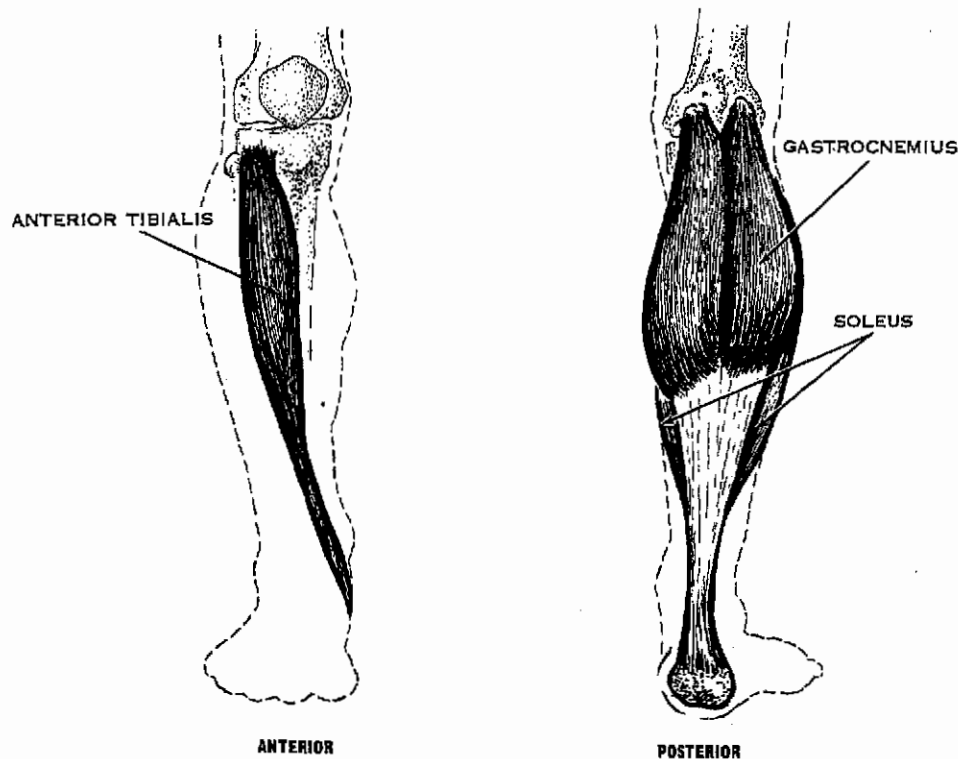


Figure 149. Anterior and posterior muscles of the leg.

Section IV. THE STRUCTURE OF THE CIRCULATORY AND RESPIRATORY SYSTEMS

482. The Circulatory System

The functions of the circulatory system are to transport oxygen carrying blood to all parts of the body, to remove waste products for disposal, and to deliver protecting and repairing substances where needed. The heart, veins, arteries, and capillaries form this system.

a. The Heart. This is a "force pump" divided into a right half and a left half (fig 150). The right half pumps blood to the lungs, where it releases waste and picks up oxygen, and the left

half supplies the systems. The four chambers of the heart are the right auricle, right ventricle, left auricle, and left ventricle. The heart is a little larger than the fist and is located in the left center of the chest region between the two lungs.

b. Blood Vessels. The vessels carrying blood away from the heart are the arteries, which eventually divide into capillaries, the very small vessels through which the exchange of food and waste products takes place. The capillaries gradually increase in size until the veins are formed. Veins carry blood back to the heart. See chapter

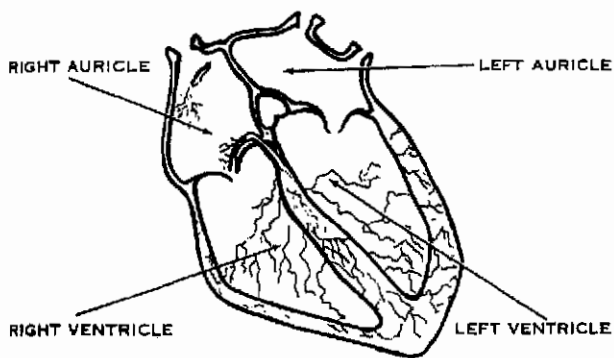


Figure 150. The heart.

30 for a detailed discussion of the functioning of the circulatory system.

483. The Respiratory System

The respiratory system consists of the mouth, nose, trachea, lungs, and diaphragm.

a. Trachea. The trachea, or "windpipe," is a hollow, tube-like structure that carries air from the mouth to the lungs (fig 151).

b. Lungs. The lungs are elastic bags that contain sections of the windpipe which divide first into the bronchus, then into smaller tubes known

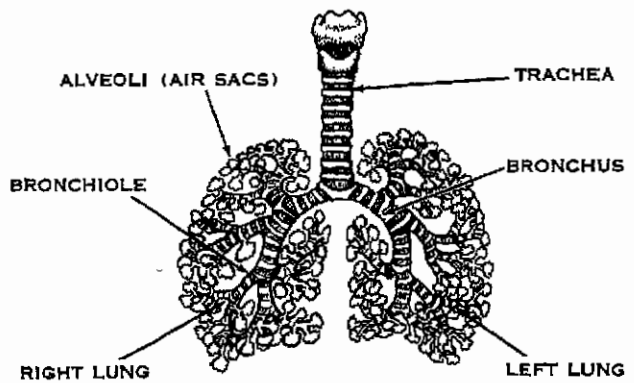


Figure 151. The trachea and lungs.

as the bronchiole, and finally into small alveoli or air sacs. The exchange of oxygen and carbon dioxide takes place in these air sacs.

c. Diaphragm. The diaphragm is a thin, sheet-like muscle stretching across the thoracic cavity just below the lungs. During inspiration, the diaphragm flattens out and lowers, allowing the lungs to expand and fill with air. During expiration, the diaphragm raises into a dome shape helping to reduce the space inside the thoracic cavity which forces out used air. Functioning of the respiratory system is outlined in chapter 30.

CHAPTER 30

BODY FUNCTIONING

Section I. FUNCTIONING OF THE SKELETAL AND MUSCULAR SYSTEMS

484. General

The functioning of the skeleton and muscles are not the same, yet these systems are closely related. The body could not move without the actions of muscles, and without a frame work or skeleton from which to suspend these prime movers there could be no movement.

485. Functioning of the Skeleton

The skeleton has three main functions as follows:

- a. To provide a framework for the body and a place of attachment for muscles.
- b. To provide protection for vital organs such as the brain, heart, stomach, and liver.
- c. The bones of the skeleton serve as a place to manufacture red blood cells. This action takes place in the inner part, or marrow of the bone.

486. Effect of Exercise on Bones

a. Continuous exercise, particularly among younger people, usually brings about certain beneficial changes to the bones. For example, regular exercise causes the cancellous plates of the bones to become strengthened and to be rearranged so they can stand up under great stress and strain.

b. Bones which are not used lose a large part of their minerals. This should be considered when individuals are returned to the conditioning program after a prolonged period of inactivity. Individuals in this category should be restrained from activities which might result in bone breakage before the stimulus of use has brought the bone back to normal condition.

487. Muscular Strength

a. When a muscle is exercised vigorously enough to strengthen it, the muscle itself grows in size. Hence, the larger the muscle (other things being equal), the stronger the muscle. It is apparent that trained muscles function more smoothly and more efficiently than untrained ones. They are

able to contract somewhat more vigorously and with less effort. To insure that muscles are developed to their potential it is necessary that the overload be carried well beyond the present state of development.

b. Regular and strenuous exercise of the muscle also toughens it. The muscle tissue becomes firmer and can stand much more strain. This is due partly to a toughening of the sheath that protects the muscles, and also to the development of more connective tissue within the muscle bundles. Whether this toughening effect is temporary or permanent is not known.

488. Muscular Endurance

Muscular endurance enables an individual to continue a relatively heavy load of exercise over a long period of time. For example, many men can shovel dirt for 5 minutes without experiencing undue fatigue; however, continued digging at the same rate for an hour causes them to become exhausted. We experience the muscular exhaustion brought about in local muscle groups by pullups, situps, and other tests of endurance. Here the local muscle groups fatigue rapidly, but the man is not exhausted. This type of endurance is almost entirely a combination of strength plus improved local circulation in the muscle. To improve muscular endurance, the length of workouts should be increased.

489. Speed and Agility

Both speed and agility are qualities related to strength and, to a certain extent, to muscular and circulo-respiratory endurance. They are developed through specific skills that should be included in a program and taught and practiced.

490. Increase in Muscular Coordination

As an individual develops his physical abilities, he increases his strength and endurance. This is due partly to the fact that he has developed better

coordination and more skill and is now using only the muscles that are relevant to his task. On the other hand, an unskilled performer may use many irrelevant muscles, thus increasing the amount of physiological work without increasing the general output of mechanical work. This increase in skill is a highly desirable development, but it should be offset by increased dosage of exercise to compensate for a possible loss in overload which occurs due to the increase of skill.

491. Muscular Fatigue

a. When the rate (speed) of work is increased, the energy required is proportionately much greater than the increase in rate. For example, if an individual doubles his speed of running, the amount of energy required is increased eight times. The instructor should be careful when he increases the speed of the exercise to guard against making too great a demand in the length of time the exercise is performed.

b. Fatigue, when caused by strenuous, but brief exercise, may be thought of as "intoxication fatigue," as contrasted to "depletion fatigue" brought on by continued, not too strenuous exer-

cise. As a effect of training, the complex chemical processes in the muscles become more effective in combatting fatigue.

492. Circulation in Muscles

When exercise of a strenuous nature is pursued over a prolonged period of time and is engaged in regularly, the blood vessels within the muscular tissue increases in number. This increase is due partly to the number of new capillaries, which increase as much as 50 percent in the same volume of muscle. It is also due to the opening of the latent capillaries which, when combined with new capillaries, may increase the circulation as much as 400 percent. This gives a much greater supply of food materials and oxygen to the muscle, thereby increasing its endurance. It takes about 8 to 12 weeks for this increase to take place in young men. A longer period is required as age advances. To be effective, the exercise must be regular. Professional athletes who desire to rapidly condition themselves, may train twice a day. After a period of 8 to 12 weeks of inactivity, or light activity, these extra capillaries become inactive and cease to function.

Section II. FUNCTIONING OF THE CIRCULATORY AND RESPIRATORY SYSTEMS

493. General

The development and functioning of the circulatory and respiratory systems is closely interwoven. The chief organs of these systems, the heart and lungs, function together to provide a supply of oxygen vital to the body.

494. Heart Action

a. The heart is the chief organ of circulo-respiratory endurance. The lungs transmit the oxygen from the air to the blood, but it is the heart that propels this blood through the blood vessels to the tissues. If the heart fails to deliver the quantity of oxygen, carried by the blood to the muscles in sufficient amounts the individual quickly becomes exhausted (fig 152).

b. The heart is a muscular organ and is developed by exercise just as any other muscle. However, the heart cannot be singled out and exercised alone. In other words, an individual working vigorously enough to make the heart beat rapidly exercises the heart along with the other muscles that are used. Therefore, in every conditioning program there should be some exercises that will develop "wind." Exercises of speed, carried out over a fairly long period of time, will rapidly develop the heart.

c. One of the results of a speed exercise is that the heartbeat tends to become slower in rest and each heartbeat pumps out a greater amount of blood. This is known as an increase in "stroke volume," a desirable condition because it enables the heart to pump more blood with a slower contraction rate. The contraction of the heart is a vigorous one, but when the heart is expanding, there is a momentary rest. Other things being equal, the greater the time for this rest, the longer the heart will be able to beat under the same exercise demand without undue fatigue.

495. Circulation of the Blood

a. The circulation of blood may be divided into three parts to include pulmonary, portal and systemic. Pulmonary circulation is to the lungs, portal circulation is to the vital organs located in the abdominal area, and systemic circulation is to the brain, arms and legs.

b. The portal circulation supplies blood to the vital organs located in the abdominal area to include the stomach. Blood assists to digest food taken into the stomach. Normally, the body adjusts automatically to send a greater amount of blood to the portal system after mealtime. If the body is subjected to vigorous exercise immedi-

ately after mealtime the muscles demand increased oxygen to sustain the exercise. To meet the need for more oxygen, heart action speeds up and thus the blood programmed for portal circulation, instead goes to pulmonary circulation (heart and lungs), and then is pumped to the systemic circulation (muscles). This action leaves insufficient blood to aid in digestion of food. This imbalance may cause nausea and upset stomach. To allow time for digestion vigorous exercise should not be scheduled during the one hour period immediately after meals.

c. When an individual is in good physical condition, the pressure of the blood in his veins tends to be higher than in a man out of condition. This higher venous pressure is important. A pump can move only the amount of fluid that is available to it. In like manner, the heart can pump out into the arteries only the blood that comes to it from the veins. If the pressure in the vein leading into the heart is too low, then the auricle will not fill and there will not be enough blood reaching the ventricle to be pumped forward into the system to sustain vigorous physical activity.

496. Circulation in Conditioned Men

a. When an individual is in poor condition, the sympathetic nerves controlling circulation relax and the individual tends to have an excess of blood in the vessels of the lower extremities and internal organs. If this poorly conditioned individual engages in strenuous activity or is subject to emotional pressure, he may experience temporary brain anemia due to a lack of readily available blood to the brain. This may be to the degree that the individual faints, or it may only cause him to feel dizzy or weak. Exercise will stimulate the movement of blood to and from the heart and counter this possibility of brain anemia.

b. In strenuous exercise where there is a great deal of forced breathing, return of the blood to the heart is facilitated. The blood vessels tend to constrict and relax rhythmically in connection with the increased rate of the heart beat. During return of the blood to the heart the valves in the peripheral veins and the increased pressure prevent the blood from running back and away from the heart. Under such forced breathing more blood is available to the heart.

497. Red Blood Cells

Red blood corpuscles, or cells, are very small circular discs (fig 153). One hundred of these cells in single file would reach across the head of a common pin. The principal purpose of the red

cells is to carry oxygen. In order to meet increased oxygen requirements, the body provides a temporary increase in the number of red cells (para 498).

498. Lymphatic Circulation

The plasma from the blood seeps out through the walls of the capillaries and surrounds all of the cells of the body. The blood which carries the red cells does not come in direct contact with these cells. Therefore, the oxygen, carbon dioxide, and all of the food products have to filter through the surrounding plasma or lymph to get to the cells. When individuals are engaged in sedentary activity, this lymph moves slowly. The carbon dioxide and the oxygen are still transmitted without difficulty, but the lymph becomes "stale" and needs to be moved to the general circulatory mechanism. Exercise causes the lymph to move away from the cells of the body and to be replaced by fresher lymph. This moving of the lymph facilitates the cellular exchange of food and waste products and is accomplished by milking the lymph along and up these vessels by physical exercise.

499. Relationship of Heart and Lungs

In tracing the circulation of the blood, the cycle begins at the point where the carbon dioxide-laden blood is returning to the heart. A large vein, the vena cava, carries the blood to the right auricle (upper chamber) of the heart. This blood then passes through a valve into the right ventricle (lower chamber). At this point, the blood leaves the heart by way of the pulmonary artery for processing in the lungs. In the lungs the carbon dioxide is exchanged for oxygen and the purified blood is returned to the heart by way of the pulmonary vein. The blood then re-enters the heart at the left auricle (upper chamber) and passes through a valve into the left ventricle (lower chamber). Here it is pumped into a large artery (aorta) for passage to the body. As the blood moves into the muscles, it gives off oxygen and takes on carbon dioxide. Moving through the capillaries into the veins, the blood is ready for the return trip to the heart.

500. Functions of the Lungs

a. When there is a demand upon the heart brought about by strenuous and continued exercise, the efficiency with which the lungs transmit oxygen to the blood is increased as much as 25 percent. This increase is attributed to a number of factors. There is some evidence that in continued programs of exercise, the alveoli (air sacs),

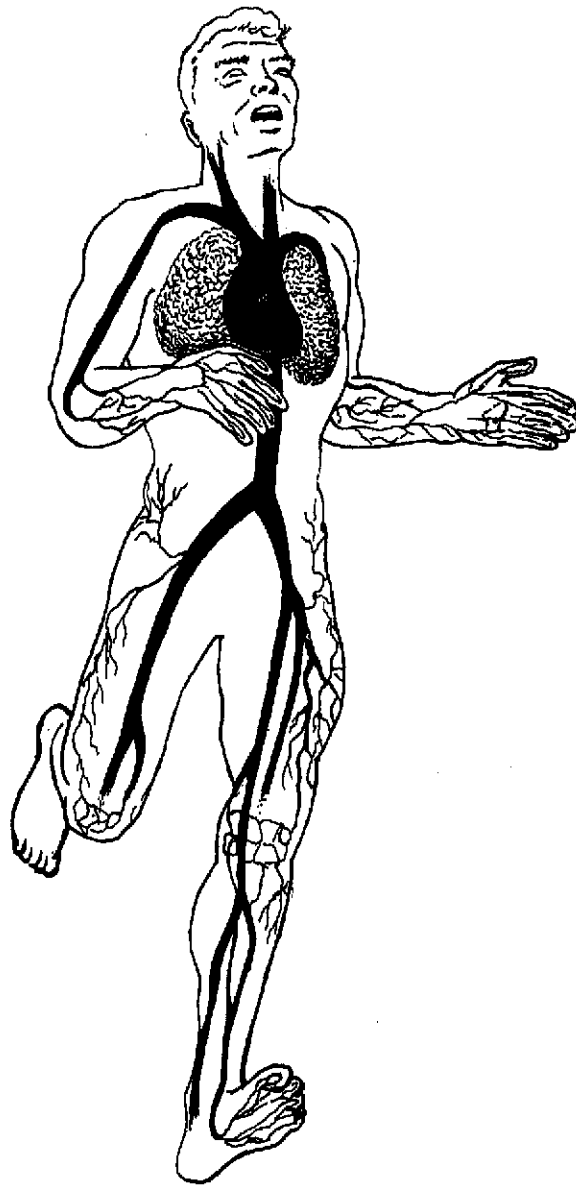


Figure 152. Circulation of blood from the heart to the body.

which are the terminal parts of the lungs at the end of the air tubes (fig 154), put in some new partitions, thus increasing the absorption surface.

b. A more acceptable explanation of the increased efficiency of the lungs of the conditioned individual is based on the expansion of the air sacs. In the poorly conditioned individual, some of the air sacs are closed or collapsed. As this individual participates in vigorous exercise, thus placing a greater demand for oxygen upon the body, the forced breathing causes the air sacs to be slowly expanded. This process occurs over a period of several weeks.

c. Once a large number of these air sacs have been forced open, the lungs have greater absorption surface as each open air sac can contain more

oxygen. The small capillaries surrounding each air sac are also extended and a greater number of red corpuscles can circulate around the air sacs to be in a favorable position to pick up oxygen (fig 155).

d. In regular exercise the individual learns to breathe more deeply, and there is apparently an improvement in the way in which the fresh air gets to the walls of the alveoli. This increase in the amount of air breathed into the lungs is due to an increase in lung capacity and a strengthening of the respiratory muscles.

501. Circulo-Respiratory Function in High Altitude

a. If troops are employed in areas of high alti-



Figure 153. Red corpuscles.

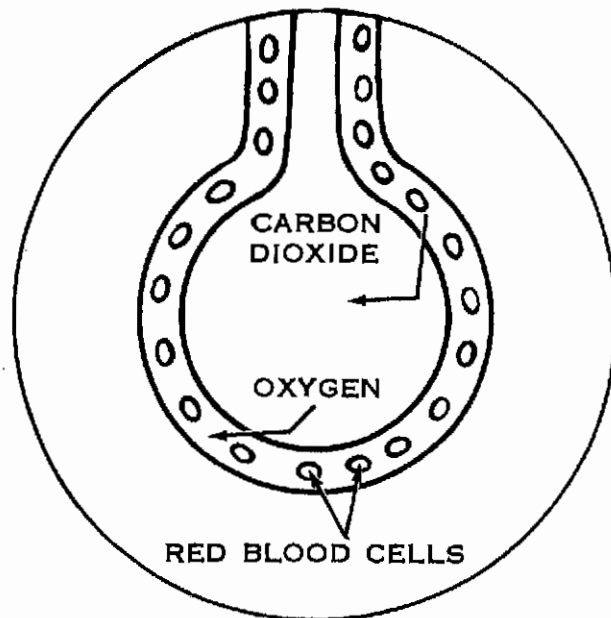


Figure 155. View of a single air sac.

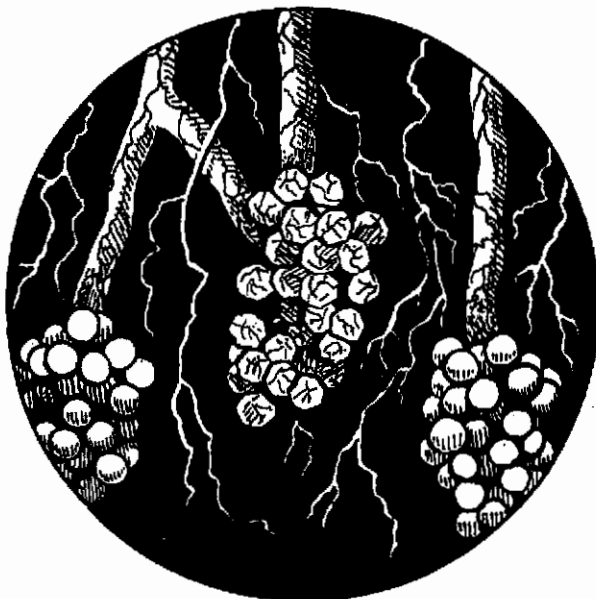


Figure 154. Air sacs in the lungs.

tude, they should be acclimatized by movement to a high altitude area for a period of 10 to 14 days prior to their employment. At areas of high altitude the components of the atmosphere are the same as at sea level, but the air is much less dense. As a result, a soldier can take in—no matter how hard he gasps for air—only about 80 percent of the oxygen he is accustomed to at sea level. Personnel who are accustomed to sea level or moderate altitude simply do not have enough red corpuscles in the blood to fulfill their oxygen needs at high altitudes. Since there is no immediate increase in red blood cells, the individual undergoing exertion gasps for breath and his heart

beat increases to force as much blood as possible to oxygen-starved muscles. Personnel not accustomed to the atmosphere of higher altitudes tire quickly and may collapse after rapid physical exertion.

b. The brain is the first organ to react to a lack of oxygen. When the brain is denied a sufficient quantity of oxygen, unconsciousness results. Such "blacking out" is actually a defense mechanism to enable the body to remain alive. When unconscious, the body requires a minimum of oxygen, hence when in a prone position, a maximum supply of blood is permitted to return the brain to a conscious state.

c. Men who are accustomed to high altitude have about one-third more red corpuscles with which to carry oxygen than men in low altitude areas. These men can exercise strenuously without loss of efficiency. After a few weeks at higher altitude, a body accustomed to areas of low altitude increases its production of red cells and becomes acclimatized to the higher altitude.

502. Tips for Living at High Altitude

a. Get at least 10 hours of sleep during the first few nights.

b. Stand straight and give the lungs every chance to do their job. Breathing will be faster and chest muscles will be working overtime.

c. Tests prove that fit personnel adapt more readily than unfit persons. Get troops in shape two weeks ahead of time.

d. Smoking and drinking slow acclimitization.

e. Avoid swimming any distance alone. An easy swim at sea level can become a tragic impossibility at high altitude.

f. During hikes or marches slow the pace by about 10 percent. A brisk walker takes 120 steps

per minute; this pace should be cut to under 100 steps initially.

g. Exposure to high altitude causes bodily changes that reduce resistance to disease causing bacteria and viruses. Avoid people with colds. Be certain that food and water are not contaminated.

Section III. FUNCTIONING OF THE GLANDULAR SYSTEM

503. General

The body contains several ductless glands which assist in regulating the body processes. One of the glands affected by exercise is known as the adrenal gland.

504. Action of the Adrenal Gland

a. The adrenal gland provides two secretions. The secretion that is put out from the medulla, or the interior part, is distributed when there is extreme interest, anxiety, alarm, or danger. It activates almost all of the muscular functions and causes a more efficient muscular action. It enables men to work at a higher level of overload and to feel good while doing it. Competition is frequently one of the best ways of increasing the output of adrenalin.

b. The second output of the adrenal gland is called cortin. This is the secretion that gives one a general sustained level of energy. When there is a

pathological change in this gland and the amount of cortin is reduced, the individual has no energy and finds it very difficult to undertake an activity. Individuals who have a high output in this gland are almost super energetic. Programs of exercise which are strenuous, but not exhausting, increase the output of cortin and cause the individual to feel more energetic. Programs of exercise that are so strenuous that the participant is exhausted for several hours afterwards, tend to decrease the output of cortin and leave the participant feeling spent.

505. Output of Adrenal Gland and Overload

Since individuals differ in their output of hormones, program planners should be careful in the application of the overload principle. There will be individuals in every phase of training who will vary greatly in their physical condition. The program should be modified so that individuals in poor condition will not be worked to exhaustion.

CHAPTER 31

POSTURE TRAINING

506. Posture Training as Part of Physical Training

a. Posture training is an important phase of physical training. Few men enter the Army with a soldierly bearing. Because appearance, well-being, and efficiency are adversely affected by poor carriage, posture training must be emphasized.

b. While posture training is considered a primary responsibility of the physical training program, it is by no means the sole objective. Good posture cannot be attained by practicing it for only one period a day. It must be stressed in all other phases of training. Good military bearing must be practiced at all times until it becomes a habit.

507. Motivating Good Posture

a. Good posture must be built upon the desire of the individual to stand correctly. Regardless of the amount of exercise and instruction they receive, men assume good posture only if they want to. That is why motivation is so important.

b. Men may be motivated by various means, but in all cases the approach must be centered on cultivating an individual and unit sense of pride in a soldierly appearance. Posture and morale go hand in hand. In fact, military bearing may serve as an indicator of troop morale.

c. Early in their training, the men should be given a well-planned talk on the reasons for cultivating good posture. This talk should be illustrated and accompanied by a demonstration of the important points. The values of good body mechanics to the soldier should be stressed as follows:

(1) A soldier is often judged by his appearance, therefore the man with good posture looks like a soldier; he commands attention.

(2) It is an accepted psychological fact that good posture is associated with good morale; a man with good posture feels better and possesses a positive attitude.

(3) Good posture permits the body to func-

tion efficiently because the opposing muscle groups are in balance, thus maintaining the bony structure in a balanced position. The correct body alinement provides for correct positions of the internal organs, which enables them to function properly.

(4) Good posture relieves the strain and tension placed upon bones, muscles, and ligaments. It is less fatiguing and promotes physical efficiency.

d. Men should also be informed of the harmful effects of poor posture (fig 156). The results of poor posture include rounded shoulders, flat chests, sway backs, protruding abdomens, and tilted pelves. Body parts sag because of muscular weakness. They lack stability. Continued sagging results in further weakening of the muscles to the point where they can no longer prevent or correct the sag, and the malformations become permanent. The back and other muscle areas can be strained under a small load because of faulty carriage.

508. Characteristics of Good Posture

a. There is no *best* posture for all men because of the wide variations in inherited physical structures. However, this does not preclude, good posture based on individual anatomical balance. Anatomical balance is the keynote of good posture and it can be achieved with the correct alinement of body parts.

b. Good posture is characterized by vertical alinement, in which certain body segments are alined, one above the other, so that they support each other along the line of the pull of gravity. With the body in profile the body segment alinement is correct if an imaginary straight line can be drawn through the top of the head, the lobe of the ear, the tip of the shoulder, the middle of the hips, slightly back of the kneecap, and in front of the outer ankle bone (fig 157). In this position the knees, hips, shoulders, and head are properly balanced over the ankles. When this alinement is disturbed by faulty positions of one or more joints, the entire body is thrown out of line. The muscles must then overwork to counteract the pull of gravity, which produces unnecessary fatigue.



FAIR
 HEAD FORWARD
 ABDOMEN PROMINENT
 EXAGGERATED CURVE —
 IN UPPER BACK
 SLIGHT HOLLOW BACK



POOR
 RELAXED (FATIGUE) POSTURE
 HEAD FORWARD
 ABDOMEN RELAXED
 SHOULDER BLADES PROMINENT
 HOLLOW BACK



VERY POOR
 HEAD FORWARD BADLY
 VERY EXAGGERATED —
 CURVE UPPER BACK
 ABDOMEN RELAXED
 CHEST FLAT — SLOPING
 HOLLOW BACK

Figure 156. Examples of improper posture.



STAND TALL
 CHIN IN
 SHOULDERS RELAXED
 CHEST RAISED
 BUTTOCKS DOWN
 BELT PARALLEL —
 WITH THE FLOOR
 KNEES STRAIGHT
 WEIGHT BALANCED
 BODY PARTS IN LINE
 LOBE OF THE EAR
 TIP OF THE SHOULDER
 MIDDLE OF THE HIP
 MIDDLE OF THE KNEE
 FRONT OF ANKLE BONE

Figure 157. Basic requirements of proper standing posture.

509. Standing and Walking Posture

The following elements of good posture are of major importance in both standing and walking:

a. The body should be stretched upward as tall as possible. The head should not be tilted or the shoulders raised. By flattening out the curve of the neck and keeping the eyes level, this tendency is avoided.

b. The head and neck should be centered between the shoulders. The chin should be drawn inward so that its point is carried directly above the notch at the top of the breastbone. Press the neck back against the collar. The chest should be moderately elevated without strain. If the chest is raised properly, the stomach wall will be flattened normally. The stomach should not be drawn in to the extent that normal breathing is restricted.

c. The shoulders should be relaxed and held evenly. In certain cases the shoulders may be drawn back slightly, but they should never be under any strain.

d. The buttocks should be drawn down and under to flatten the lower back and prevent the pelvis from tilting forward. In the proper position, the plane of the belt is parallel to the ground.

e. The knees should be straight without stiffness.

f. The weight should be evenly distributed between the heels and balls of both feet.

510. Sitting Posture

Proper sitting posture (fig 158) has most of the same elements described for standing and walking posture. The following differences should be stressed:

a. The upper back and hips should touch the back of a straight chair. The tendency to allow the hips to slide forward must be counteracted. The chair must be of proper height to allow for the correct alinement of body parts.

b. The upper legs should be in contact with the chair and the angle formed by the upper and lower legs forms a 90-degree angle, with the feet flat on the floor.

511. Principles of Posture Training

a. Men cannot be expected to assume good posture without being taught. Many men have a misconception as to what constitutes good posture. When trying to assume a good stance they tilt their heads, thrust out their chests, retract their

shoulders in an exaggerated manner, and spring their knees backward. These faulty positions become habitual unless corrected early, and they may lead to permanent structural defects.

b. To develop the best group as well as individual posture, the following points must be applied:

(1) Teach the basic posture characteristics of good standing, walking, and sitting.

(2) Provide ample opportunity to practice good posture until it becomes natural.

(3) Create a desire for good posture in the men.

(4) Insure that men receive adequate physical conditioning to strengthen and tone the muscles thus enabling them to maintain body parts in proper alinement.

512. Teaching Good Posture

a. The first essential to the establishment and maintenance of good body mechanics is a correct interpretation of proper posture. Every man must have a correct mental image of the ideal position, so that he can recognize and correct any faults in his own posture. Good instruction and concentrated practice at repeated intervals will give him this ability.

b. Posture instruction should only be attempted by an instructor who is fully prepared to give complete explanations, demonstrations, and corrections. The instructor should have a detailed

knowledge of the mechanics of posture, so that he can recognize defects and correct them.

c. The instructor should exemplify good posture. He must be enthusiastic and "sell it" to the men. Men with excellent posture should be complimented. Others should be corrected when they exhibit poor posture (fig 156). The instructor should remember that posture correction is a gradual process, and repeated admonition and corrections are necessary to overcome life-long habits of poor posture.

d. It is impractical to attempt the posture training of a unit on an individual basis. It must be done en masse, but individuals are corrected when necessary. It is best to use the following command techniques accompanied by cues and corrections to secure uniform results:

(1) Stand tall, sit tall, and walk tall, with the toes pointing straight ahead.

(2) Chin in; chest moderately elevated; stretch top of head toward the ceiling.

(3) Buttocks rolled downward until the belt is parallel to the ground. The hips are level and the buttock muscles are firm.

(4) Knees straight.

(5) Shoulders down and relaxed.

(6) Arms downward and straight.

(7) Maintain good balance.

e. The instructor should explain and demonstrate each command clearly so the men will know what is required of them. For example, when he commands STAND TALL, and the group tries to do so, he explains concisely what "stand tall" calls for and shows the group how it is done. He can add corrections as the group strives to stand with good alinement. The instructor needs assistants to help him make individual corrections.

f. Visual aids should be used in teaching good posture. A life-size enlargement of the posture chart (fig 157) provides an excellent aid for teaching the basic elements of correct posture. A few pictures of good posture, and signs posted at familiar places, remind the men to emphasize proper posture.



SIT TALL
CHIN IN
SHOULDERS RELAXED
CHEST RAISED
UPPER BACK AND—
HIPS IN LINE
BELT PARALLEL —
WITH THE FLOOR
UPPER LEGS ON CHAIR
LOWER LEGS VERTICAL
FEET FLAT ON FLOOR

Figure 158. Proper sitting posture.

APPENDIX A

REFERENCES

AR 28-1	Special Services.
AR 28-52	Army Sports Program.
AR 600-9	Army Physical Fitness Program.
AR 632-1	Weight Control.
FM 22-5	Drill and Ceremonies.
FM 21-150	Combatives.
ATP 21-111	Modified Basic Training Program for Conscientious Objectors Without Prior Service (1-A-0).
ATP 21-114	Male Military Personnel Without Prior Service.
ASubjScd 21-37	Physical Readiness Training.
ASubjScd 21-150	Physical Contact-Confidence Training.
DA Pam 21-1	Physical Fitness Program for Staff and Specialist Personnel.
DA Pam 28-6	Intramural Sports for the Army.
DA Pam 350-46	Run For Your Life: Physical Conditioning Program.
TB Med 175	The Etiology, Prevention, Diagnosis, and Treatment of Adverse Effects of Heat.
TF 7-3856	Physical Fitness—US Army.
GTA 21-39	Components of Physical Fitness.

APPENDIX B

INSTRUCTOR HINTS AND INSTRUCTOR TRAINING

Section I. GENERAL

1. Purpose and Scope

The purpose of this appendix is to provide advice to instructors and leaders who have the responsibility for instruction and conduct of exercise activities. The scope includes general factors for improving administration of exercise periods, commands, the extended rectangular and circle formations, methods for instruction and conduct of exercise activities, explanation of various basic positions associated with the various activities of the program, and instructor training. For a more complete coverage of physical fitness leadership see chapter 4.

2. Conservation of Time

You should require all men to know the exercises by name and movement so they will be easier to conduct. After performing the exercises several times, the men are usually able to complete the entire drill or table with only enough pause between exercises for you to indicate the next one by name. This continuous method of conducting an exercise activity conserves time and greatly intensifies the workload.

3. Provision for Different Levels of Physical Condition

Providing for different levels of physical condition is recommended in the early stages of conditioning: Older men and men in poor physical condition should be expected to attain a group level of fitness, but they should be given more time to do it.

a. One simple method of providing for the difference in physical condition is to group the men according to their level of condition. A two-group classification would divide men into highly conditioned and average groups. A finer classification could be obtained by dividing them into three groups—a highly conditioned, a moderately conditioned, and an unconditioned group.

b. The separation of men into exercise groups

should be based on their physical fitness test scores or on the level of condition they demonstrate during the conditioning activities. At first they may also be grouped according to age. A common classification by ages is under 30, 30 to 39, and 40 and above. All groups should be required to eventually attain a level of physical fitness commensurate with their classification as combat or combat support troops.

4. Importance Commands

The importance of commands in conducting the physical training program cannot be overemphasized. When a command is given concisely, with energy and snap, and with a proper regard to rhythm, the performance reflects the command. Indifferent commands result in a lifeless and disorganized performance. For instruction on the use of the voice in giving commands, see FM 22-5.

5. Preparatory Commands and Commands of Execution

The *preparatory command* describes and specifies what is required, and the *command of execution* calls into action what has been prescribed. All preparatory commands are given with a rising inflection. The interval between commands is long enough to permit the average man to understand the first one before the second one is given.

6. Extended Rectangular Formation

The traditional formation for carrying on many physical training activities is the extended rectangular formation (fig 159). This formation is more compact than any other. It is the best type to use for large numbers of men because it is easy to assume.

a. For the formation of one platoon, the base man paces off five paces from the instructor's platform, faces left and moves five paces, halts, and again faces left. With the baseman positioned facing the platform, the platoon leader then com-

mands: **FALL OUT AND FALL IN ON THE BASE-MAN.** At this command all personnel run to the designated area and re-form. This procedure is preferred to marching the unit into position. If more control is desired, the unit may march at double time to the vicinity of the base-man and then be directed to fall out and fall in on him. Time is wasted in the field due to needless maneuvering of troops at quick time in an effort to position the unit on the exact spot for the exercises.

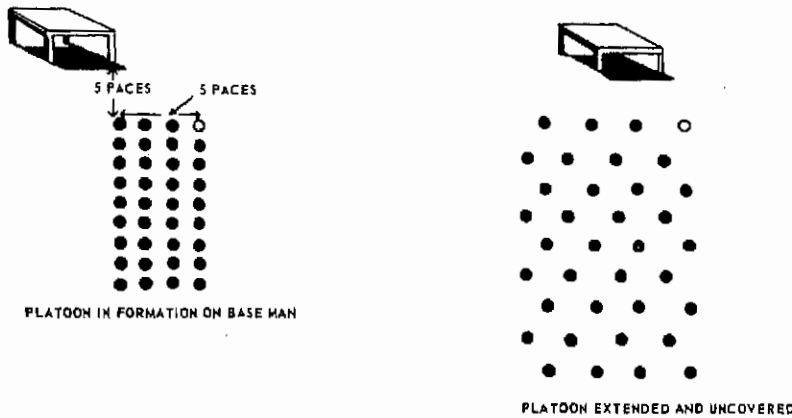
b. A company size unit assumes the extended rectangular formation from a column of three's or four's at normal intervals between squads. This extension can also be executed from a company

mass without interval between platoons. In either extending a platoon- or company-size unit take your place at the head of the column and command—

(1) **EXTEND TO THE LEFT, MARCH.** At this command the men in the right flank file stand fast with arms extended sideward. All other men turn to the left and run forward at double time. After taking a sufficient number of steps, all men face the front with both arms extended sideward. The distance between fingertips is about 12 inches and dress is right.

(2) **ARMS DOWNWARD, MOVE.** At this command the arms are lowered smartly to the sides.

A. FORMING A PLATOON



B. FORMING A COMPANY - SIZE UNIT.

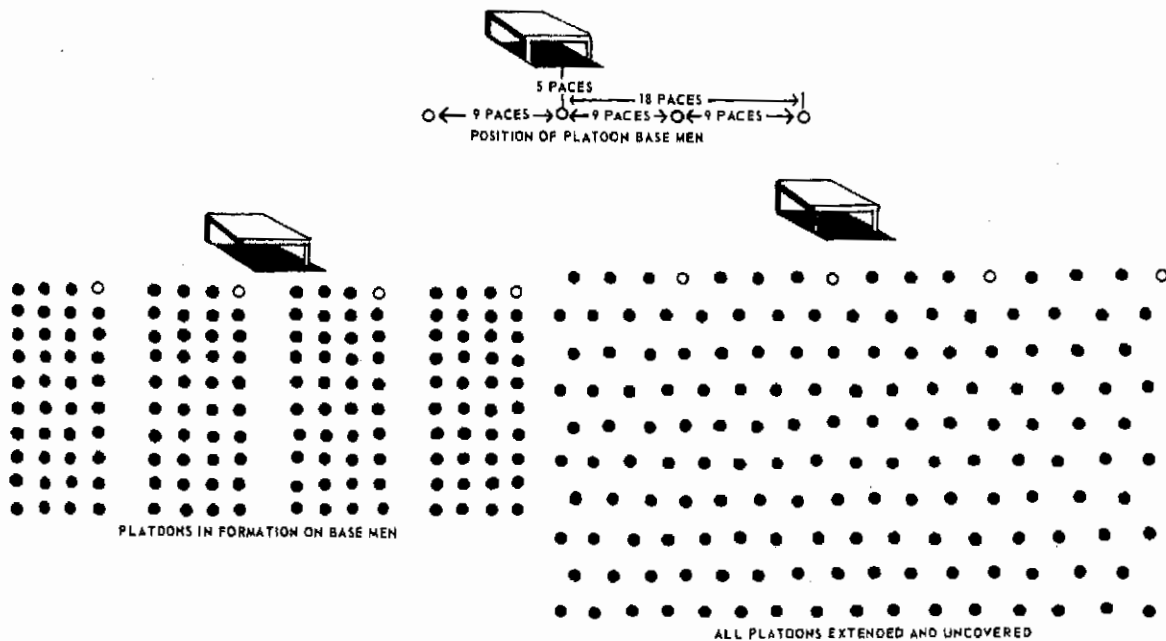


Figure 159. Forming the extended rectangular formation.

(3) **LEFT, FACE.**

(4) **EXTEND TO THE LEFT, MARCH.** At this command the men in the right flank file stand fast with arms extended sideward. All other men turn to the left and run forward at double time. Spacing is the same as in (1) above and dress is right.

(5) **ARMS DOWNWARD, MOVE.** Same as in (2) above.

(6) **RIGHT, FACE.**

(7) **FROM FRONT TO REAR, COUNT OFF.**

At this command the leading man in each column turns his head to the right rear, calls off "one" and faces the front. Successive men in each column call off in turn, "two," "three," "four," "five," in the same manner.

(8) **EVEN NUMBERS TO THE LEFT, UNCOVER.** At this command each even numbered man stride-jumps to the left, squarely in the center of the interval. In doing this, he swings his left leg sideward and jumps from his right foot to his left foot and smartly brings the right into position against the left.

c. To assemble the unit command: **ASSEMBLE TO THE RIGHT, MARCH.** At this command, all return to their original position in the column at double time and reform on the baseman.

d. It is recommended that the area for grounding equipment and weapons be at the edge of, or well away from, the area to be used for exercis-

ing. To conserve time and insure proper position of the unit, the baseman or, if the unit is composed of several platoon-size groups, the various basemen may precede the unit and establish their positions in relation to the instructor's platform.

7. Circle Formation

The circle formation is effective for the conduct of various exercise activities (fig 160). This formation has an advantage in that the supervision of all men is facilitated and a moving formation is available which provides control. Guerrilla exercises, grass drills, and some forms of running, are examples of activities which are more easily conducted in the circle formation than in the extended rectangular formation.

a. It is not advisable to have more than 60 men in a circle. When more men must be accommodated, separate circles should be used. Concentric circles (fig 161) may be employed to reduce the size of the circle or to accommodate more men. If concentric circles are formed the different circles are made by designating squads for each circle. Each additional circle requires more men than the one inside it. For example, one squad of a platoon may form the inner circle and the remaining three squads the outer circle.

b. When a platoon is to form a circle the commands are **CIRCLE FORMATION, MARCH, FOLLOW ME.** Upon this command the right

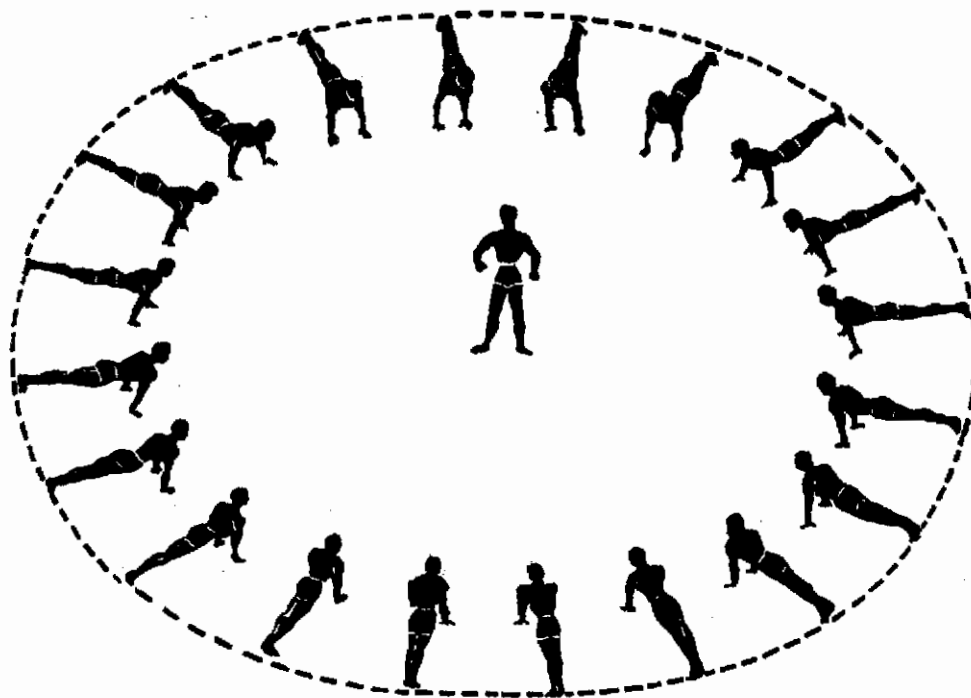


Figure 160. The circle formation.

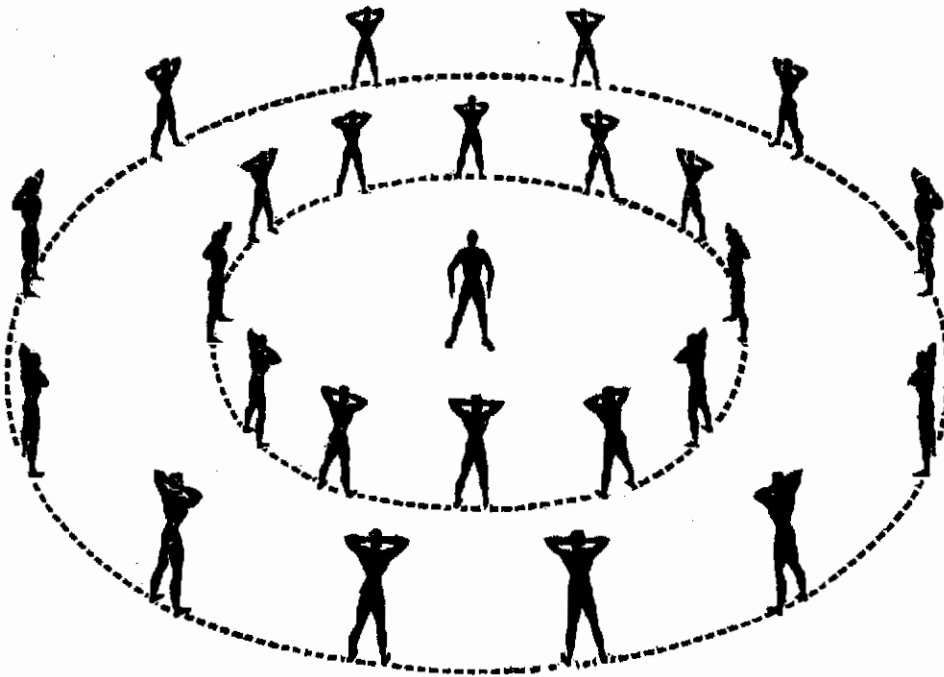


Figure 161. Concentric circle formation.

flank squad of the column moves forward at double time with the leader of the platoon group gradually forming a circle in a counterclockwise direction. Each succeeding file falls in behind that on the right. After the rough outline of the circle is formed the leader commands, PICK UP A FIVE-YARD INTERVAL. This is to insure the interval between men in uniform.

c. The group may be halted and faced toward the center, or, if instruction is not necessary, the exercise activity may be executed without stopping the platoon.

8. Leadership Techniques

a. Unless you experience all the exercises you cannot appreciate how strenuous they are, what movements are the most difficult, where the errors in performance are likely to occur, and what the proper cadence should be.

b. You must give all the men careful supervision and participate in the exercises to show that you can do them. When you participate your assistant instructors should supervise because it is difficult for you to supervise and exercise simultaneously.

c. The men should never be kept too long in one position, especially a constrained one. They should never have to perform so many repetitions of an exercise that they lose the correct form. Slight deviations from the proper form reduce the value of the exercise.

d. Avoid long explanations. As a rule, it should be necessary to give a full explanation of new exercises only. Explain the most essential features of an exercise first; add details later. Too many details at one time are more likely to confuse than assist the men. Minor corrections should be made to the entire class while the exercise is in progress (for example, "heads up," "knees straight"). If necessary, follow this correction by the name of the man who is at fault. If a man requires special attention, he should be given separate instruction by an assistant instructor to avoid wasting time.

e. The heavy demand on your voice can be lightened by training assistant instructors to assume some of the instruction and by employing mass cadence.

9. Assistant Leaders

a. Even when the size of your group is limited to one platoon, you need assistants to help supervise and to assume charge in your absence. These assistants must be the most capable leaders in the platoon. Each assistant leader assumes responsibility of from 10 to 15 men. It is important for them to participate in the exercise at regular intervals to maintain their own physical condition. To do this, they should rotate their duties as assistant leaders.

b. Assistant leaders must carefully supervise the performance of the men when they are learning new exercises. They also watch for errors while an exercise is being performed in cadence,

and offer corrective suggestions to individuals at its conclusion.

10. Instructor's Platform

A movable physical training instructor's platform

is recommended to elevate the instructor to a height where all men may observe his demonstration. A recommended platform (fig 152) is illustrated. A platform of such size and construction may be moved as required to support instruction in many different activities of the program.

Section II. CONDUCTING CONDITIONING DRILLS

11. Necessity for Precision and Accuracy

Conditioning exercises lose much of their value unless performed exactly as prescribed. Considerable time and effort must be expended during the early learning stages to teach the exercises properly to all men. The methods contained in this section apply to Drill One, Two, and Three; Rifle Drill; and Log Drill.

a. By the Numbers. When conditioning exercises are introduced to a new group, they should be taught by command. This will give the instructor an opportunity to check the position and form of every man at the beginning. The method of teaching new exercises using commands is by the numbers. In this method, a number is given to each position which is to be taken. The proper position is assumed when its number is called. The preparatory command is **READY**, and the command of execution is the number **ONE**, **TWO**, and so on.

b. Commands for Continued Exercises. After the men have had several days' experience with the exercises, the instructor needs merely to indicate what the exercise is, command the men to assume the starting position, and start them exercising in cadence. Before giving the command **STARTING POSITION, MOVE**, the instructor must always give the name of the exercise. Here is an example of commands:

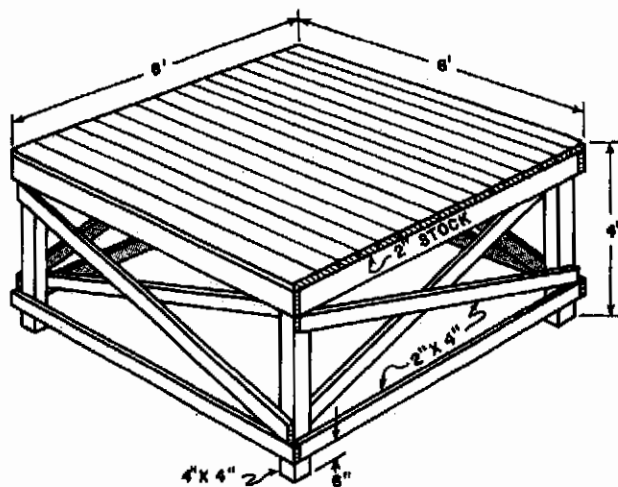


Figure 152. Physical training instructor's platform.

"High Jumper."

(1) **STARTING POSITION, MOVE** (Men move into the prescribed starting position.)

(2) **IN CADENCE, EXERCISE**—one, two, three, *one*; one, two, three, *two*, until the exercise is completed. (Men begin on the command **EXERCISE**.)

c. Commands of Discontinuation.

(1) To stop an exercise performed rhythmically or in cadence, the command **HALT** is given in place of the numeral (for example: One, two, three, **HALT**). To prepare the men for this command, all numerals in the final repetition should be spoken with a rising inflection. The rising inflection of the voice can be used any time the instructor desires to stop the exercise.

(2) After the men are halted, they are given a posture reminder (for example stand tall, chin in, chest out) and then put at ease. In the early stages of training, they may be given a rest after each exercise or they may be placed at ease to listen to further explanation by the instructor. After a week, however, the rests should be gradually eliminated and the men should remain at ease between exercises only long enough for the instructor to name the next exercise, bring the group to attention, and give the command **STARTING POSITION, MOVE**.

(3) To intensify the conditioning exercises in the late stages of training, the practice of having the men assume the "at ease" position momentarily between exercises may be discontinued. By going immediately from the position in which the men have been halted to the starting position of the next exercise, the command **AT EASE** can be eliminated.

12. Introducing Conditioning Exercises

a. When introducing conditioning exercises to a new group, they are taught by a specific procedure as explained below. There are three steps involved in teaching the exercises. These steps are:

(1) *Instructor at normal cadence.* Demonstration of the exercise at normal cadence by the instructor.

(2) *Troops by the numbers.* Participation of

the group "by the numbers." On each count the men hold the positions while the instructor and his assistants correct any errors they notice.

(3) *Troops at normal cadence.* Group participation in the exercise at normal cadence.

b. The following is an example of these three steps with the High Jumper, which is the first exercise of Conditioning Drill One.

(1) *First Step.* The troops remain at ease and the instructor demonstrates. "At normal cadence the exercise looks like this: High Jumper. **STARTING POSITION, MOVE.** In cadence, **EXERCISE**—One, two, three *one*; one, two, three, *two*," and so on.

Note. The instructor executes five repetitions of the exercise returning to the position of attention when he finishes them.

(2) *Second Step.* Troops are brought to attention and perform the exercise. **COMPANY, ATTENTION.** High Jumper. The starting position for this exercise consists of the feet spread shoulder width apart, knees flexed, body bent forward at the waist, arms alined with the trunk and hips, elbows locked, fingers extended and joined, head and eyes to the front. **STARTING POSITION, MOVE.** By the numbers. On one, take a slight jump into the air, swinging the arms forward and up to shoulder level. *Ready, ONE.* Note that the elbows are locked and the arms are shoulder width apart. On two, take a slight jump into the air and swing the arms backward, returning to the starting position. *Ready, TWO.* On three, take a vigorous leap into the air, looking skyward and swinging the arms forward to an overhead position. *Ready, THREE.* Upon returning to the ground, knees are flexed again, eyes to the front. On four, take a slight jump, swinging the arms down and back, returning to the starting position. *Ready, FOUR. POSITION OF ATTENTION, MOVE.*

Note. The instructor stands at attention and makes corrections during this step.

(3) *Third Step.* Both instructor and troops participate. "At normal cadence. High Jumper. **STARTING POSITION, MOVE.** In cadence, **EXERCISE**—One, two, three, *one*" (five repetitions).

c. It should be reemphasized that the above procedure is to be used **ONLY** when the exercises are first introduced to the men. When the exercises have been learned, only the *third* step is used.

13. Counting Cadence

a. The instructor counts when the exercises are performed in rhythmic cadence. Each count coincides with the end of a movement in the exercise.

When the men begin exercising in cadence, it is important that they start the first movement of the exercise on the command **EXERCISE** rather than wait for the count *One*.

b. The counting is used not only to indicate rhythm or cadence, but also to indicate the manner in which each movement is performed. Through proper use of these commands, long explanations are avoided and the instructor is able to accurately indicate the tempo and exactness of the movements. When a movement needs to be done slowly, the instructor draws out the count. If any particular movement is to be performed with more energy than the others, the numbers corresponding to that movement should be emphasized by a louder and sharper count. The cadence for Drill One, Drill Two, Drill Three, and Rifle and Log Drills is one of the three following types or a combination of two of them:

- (1) Moderate—80 counts per minute.
- (2) Fast—100 counts per minute.
- (3) Slow—50 counts per minute.

c. Normal cadence is the cadence prescribed for a particular exercise, whether it be moderate, fast, or slow.

d. The exercises are always given in cadence after the men have learned to execute them properly. Either the instructor or the entire group counts the cadence.

14. Cumulative Count

a. A cumulative count is a method of indicating the number of repetitions of an exercise on the fourth numeral of a 4-count exercise, thus: 1-2-3-1; 1-2-3-2; 1-2-3-3; 1-2-3-4. In the case of an 8-count exercise, the cadence would 1-2-3-4-5-6-7-1; 1-2-3-4-5-6-7-2.

b. The use of the cumulative count is desirable for the following reasons:

(1) It provides the instructor with an excellent method of counting the number of repetitions performed.

(2) It enables the leader to make the exercise progressive from day to day and week to week.

(3) It serves as a self-testing and motivating device. Men like to know how much they are expected to perform. They want to continue to show improvement.

(4) It provides a means of prescribing an exact amount of exercise for any group, even when conducted by untrained personnel.

(5) When large groups exercise together, the cumulative count makes it possible to adapt the

amount of exercise to men of different levels of physical fitness.

c. The use of the cumulative count motivates participation in conditioning exercises. When the men know how many repetitions of each exercise they have done, they are challenged to equal or exceed it on succeeding days. The cumulative count thus serves as a self-testing device by which men compete against their own previous performances.

15. Mass Commands

a. The use of mass commands is strongly recommended under appropriate circumstances.

(1) Mass commands assist greatly in overcoming individual timidity and in developing confidence, self-reliance, assertiveness, enthusiasm, and proficiency.

(2) Mass commands, in effect, give large groups the benefit of individual instruction since each man virtually becomes his own instructor. The principal advantage is that each man is made to rely upon his own initiative and intelligence. He must learn not only to give commands properly, but also how to correctly perform the movement required by the commands.

(3) Each man is required to give the commands as if he alone were giving them to the entire unit. As a result, the volume of combined voices literally impels each man to extend himself

to the limit in performing the movements with snap and precision. Coordination and a sense of cadence are also developed.

(4) Mass commands teach the proper cadence of an exercise, when to emphasize or lengthen a count, and how to convey by proper intonation the way a movement is to be performed.

(5) Mass commands aid in developing the voice.

(6) Mass commands may serve the valuable function of developing group exercise leaders.

b. The following example shows the recommended method of using mass commands for conditioning exercises:

(1) *Instructors*: (1) Call the platoon to the starting position of the squat bender, (2) **COMMAND**.

(2) *Mass*: (1) Starting position, (2) **MOVE**.

(3) *Instructor*: (1) Execute the exercise, at your command, (2) **COMMAND**.

(4) *Mass*: (1) In cadence, (2) **EXERCISE**—One, two, three, one.

c. To discontinue an exercise with mass commands, the mass will count the last repetition with a rising inflection: One, Two, **THREE**, **HALT**.

d. Mass commands are not recommended until the men have done the exercises an adequate number of times to learn them.

Section III. CONDUCTING NONDRILL TYPE ACTIVITIES

16. Nondrill Type Activities

Many exercise activities are used in the development of physical readiness which are not controlled or executed to a cadence count. Although commands and counting of cadence are not used to the degree employed in a set drill activity, there is a procedure to be followed by the leader in maintaining control and providing effective instruction. Specific phraseology is used to teach beginning groups in grass drills (chap 12), guerrilla exercises (chap 13), and combatives (chap 20).

17. Grass Drills

The commands peculiar to each exercise are identical to the name of the exercise. The instructor uses the phraseology in *a* below to teach the basic positions, and the phraseology in *b* below to teach the exercises. Both are to be taught by combining a demonstration with the explanation. The following are examples:

a. "One of the four basic positions for grass

drill is front." (Name the particular position being taught.) "At the command, *front*, (name the particular basic position being taught) *you* (simultaneous explanation and demonstration showing how the basic position looks when executed normally)."

b. "This grass drill, *bicycle* (name the particular grass drill being taught), *is done from the back position.*" (Name the basic position or positions from which the drill will be given.) "At the command, *bicycle*, (name the particular grass drill being taught) *you will* (simultaneous explanation and demonstration showing how the grass drill looks when executed normally)."

c. To practice this exercise prepare men for practice and command, "GO, BACK, BICYCLE, STOP, and UP."

18. Guerrilla Exercises

a. Men are moving in the circle formation. To teach an exercise use the following phraseology: "The next guerrilla exercise, *all fours* (name the

particular guerrilla being taught), *is a ground exercise* (name the particular kind of guerrilla), *and is done in the following manner* (give a simultaneous explanation and demonstration showing how the exercise looks when executed normally)."

b. Men are continuing to move around the circle. To practice the exercise, command: "All Fours (name the particular guerrilla), *March* (supervise the execution of the exercise, keeping the men moving)." "Quick time, *March. 1-2-3-4, 1-2-3-4.*" (The men assume rapid cadence as they reestablish their intervals.)

Section IV. POSITIONS

20. Basic Positions Used in Activities

This section describes the basic positions prescribed for the various activity packages. These positions should be taught at the time they are needed to perform the activity. See FM 22-5 for detailed descriptions of the position of attention, the various rests, and for the commands used to bring men to these positions.

21. Positions of the Arms

a. There is one hands-on-hips position (A, fig 163). At the command of execution, bend the arms at the elbows and place the hands on the hips. The tips of the fingers should rest on the forward part of the hip bone, thumbs pointing to the rear, fingers extended and together, elbows and shoulders drawn back.

b. There are two sideward arm positions (B, fig 163). At the command of execution, raise the arms laterally until horizontal. The palms are up or down, elbows straight, fingers extended and together, thumbs along the index fingers.

c. There are two forward positions of the arms (C, fig 163). At the command of execution, raise the arms to the front. Extend them smartly to their full length until the hands are in front of and at the height of the shoulders. Palms may be facing or down, fingers extended and together, and thumbs along the index fingers.

d. There is only one arms flex position, but it has two variations, depending on the height of the elbows (D, fig 163). At the command of execution, move the arms forward, bend the elbows and raise the arms until the clenched hands are shoulder height, palms facing the shoulders. The variation

19. Dual Combatives

a. Men are in formation and paired with an opponent with all men facing the instructor: "This dual combative, the back-to-back tug (name the particular dual combative activity) is done in the following manner (simultaneous explanation and demonstration, showing how the activity looks when executed normally and explaining all regulations governing it)."

b. To practice the exercise, command: "Take your positions for the back-to-back tug (name the particular dual combative). "READY." (blow the whistle)."

c. To terminate the exercise blow the whistle and command "REFORM."

differs only in that the arms continue upward until the upper arms are horizontal. This action brings the clenched hands to a position directly over the shoulders.

e. Two positions of lacing the fingers on the head (E, fig 163) are prescribed. These positions are assumed on the command of execution by raising the arms sideward, and at the same time bending the elbows until the upper arms are horizontal. The fingers are laced behind the lower portion of the head, thumbs pointing downward, or on top of the head, thumbs on the crown. Keep the elbows pressed well back with the hands held lightly on the head.

f. There are two overhead arm positions (1, fig 163). To assume the first position, at the command of execution, raise the arms by swinging them forward and extending them vertically overhead, palms facing, fingers extended and together, and thumbs along the index fingers. To return the arms to the starting position, swing them downward in the same arc as used in the upward movement. To assume the second position, at the command of execution, raise the arms in the same manner, turning the wrists to face the palms of the hands forward, bringing the hands together and interlocking the thumbs with the fingers extended and together, and the elbows close to the head. To return the arms to the starting position, swing the arms sideward and downward.

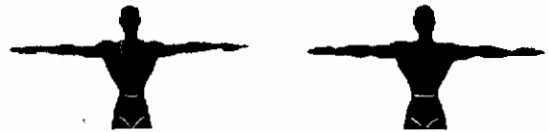
22. Position of the Legs

a. There are three straddle positions called "stances" (2, fig 164). At the command of execution, to assume the—

A. HANDS ON HIPS



B. ARMS SIDEWARD



C. ARMS FORWARD



D. ARMS FLEX



E. FINGERS LACED ON HEAD



F. ARMS OVERHEAD



Figure 163. Positions of the arms.

(1) *Narrow stance*, keep the base foot (right foot) in place, move the left foot 8 to 12 inches to the left of the right foot. Keep the legs straight so that the weight of the body rests equally on both feet.

(2) *Regular stance*, move the left foot in the same manner as for the narrow stance, but 18 to 24 inches (the feet should be about shoulder width) apart.

(3) *Wide stance*, move the left foot in the same manner as for the narrow and regular stances, so that the feet are 36 to 40 inches apart (wider than shoulder width).

b. There is a staggered stance position (3, fig 164). At the command of execution, move the left foot forward and slightly sideward so that the heel of the left foot is on line with the toe of the right foot, and separated about 6 to 8 inches from the right foot.

c. A knee bend position is used with two variations (4, fig 164). At the command of execution (executing the movement from the narrow stance) bend the knees and open them outward so that each knee points 45 degrees to the oblique. Incline the trunk slightly forward at the waist. Heels are off the ground. The position is varied by the depth of the knee bend. Either a quarter or a half knee bend will be used.

d. A squatting position (5, fig 164) differs from the knee bend position in that the trunk is forward. At the command of execution, from the narrow stance, bend the knees and open the legs outward so that each knee points 45 degrees to the oblique and the heels are off the ground. At the same time, place both hands flat on the ground, directly beneath the shoulders. Keep the fingers spread and to the front, arms straight and head up, with the eyes focused on a point about 3 feet in front of the hands.

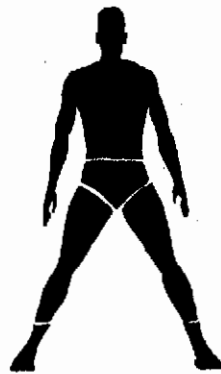
1. SIDE STRADDLE STANCES



NARROW



REGULAR



WIDE

2. STAGGERED STANCE



3. QUARTER AND HALF KNEE BENDS



QUARTER



HALF

4. SQUATTING POSITION



23. Positions of the Trunk

a. There is a forward leaning position (A, fig 165). At the command of execution, bend the trunk forward at the hips about 45 degrees. The bend is only at the hips. Keep the back straight and the head erect.

b. There are three trunk bending positions (B, fig 165), and they vary only as to direction of the bend. At the command of execution, bend the whole spine from the hips. The movement must be forceful, and there is usually a bounce or slight recovery associated with it.

c. The trunk turn position (C, fig 165) is used in various activities. At the command of execution, twist the trunk to the left (right) above the hips. The hips and head do not turn, but remain to the front. The major twist is in the spine. There is a slight bounce or recovery to this movement.

d. The trunk bend and turn position (D, fig 165) is used. At the command of execution, given after the regular side straddle position has been assumed, turn the trunk to the left (right), and then bend forward over the left (right) hip. Keep the knees straight and the head down.

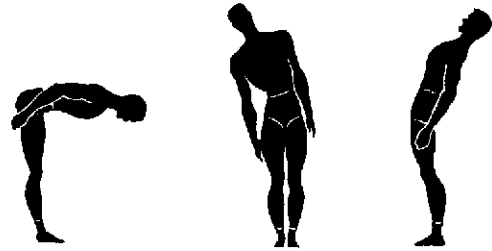
24. Ground Positions

a. The supine (on the back) position (A, fig 166) is assumed in several activities. At the command of execution, thrust the left leg forward, bend the right knee, and sit down, supporting the weight of the body on the hands which are placed on the ground behind the hips. The toes and heels come together as the upper body is lowered to the ground. To return to the position of attention, sit up, bend the right knee, and place the right foot on the ground near the buttocks. Rise to an upright position while pushing upward with the hands. A variation of this position is used when

A. FORWARD LEANING POSITION



B. BEND TRUNK FORWARD, SIDEWARD, AND BACKWARD



C. TRUNK TURN SIDEWARD

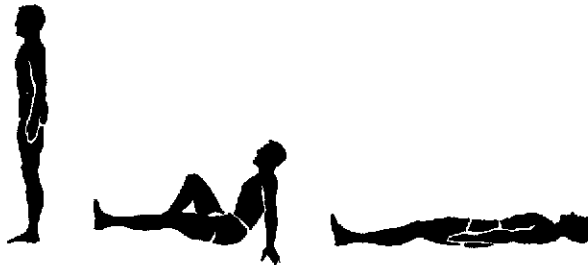


D. TURN AND BEND TRUNK SIDEWARD



Figure 165. Positions of the trunk.

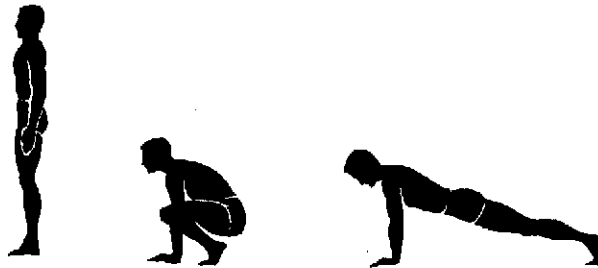
A. SUPINE POSITION



B. SITTING POSITION



C. FRONT LEANING REST POSITION



D. PRONE POSITION



Figure 166. Ground positions.

an object is held in the hands, such as a rifle or log.

b. To assume the supine position in Rifle and Log Drills, the feet are crossed, left over right, the knees are bent outward, and a sitting position

is assumed; then the upper body is lowered to the ground and the legs are extended.

c. There is one sitting position (B, fig 166). At the command of execution, thrust the left leg forward, bend the right knee, and sit down, support-

ing the weight of the body on the hands. When seated, move the hands to a place on the ground beside the buttocks. Straighten the right leg beside the left, toes and heels together. The cross-legged variation (described in *a* above) is used in Rifle Drill.

d. The front leaning rest position (C, fig 166) is often used. At the command of execution squat down. Thrust the legs backward to the position of rest, the body weight on the hands and toes. The

eyes focus on the ground at a point about 18 inches in front of the head, the elbows are locked and the body is straight from head to heels.

e. The prone position (D, fig 166) is used occasionally. At the command of execution, squat down, thrust the legs back to a front leaning rest position, then lie down in a prone position with the hands beneath the shoulders. The feet are together.

Section V. TRAINING OF LEADERS

25. Purpose of Instructor Training

The transfer of personnel leaves an instructional group with inadequate numbers of instructors to perform their training mission. To overcome this deficiency a full-time instructor course should be established.

26. Establishing a Course of Instruction

a. To determine an organization's need for physical training instructors, unit commanders should be interviewed as to the level of training in progress and the deficiencies existing in the present program. It is desirable that two or three qualified instructors be available in each platoon. Only with an adequate number of instructors who have a thorough knowledge of Army physical training can the individual soldier receive the training needed to reach an acceptable level of fitness.

b. The effectiveness of the inservice training program is determined, in part, by the instruction time available. A full-time school is preferable so the student may devote his time and energy to the program of instruction. Such a school should be conducted periodically to meet the need for qualified instructors. In the preliminary planning for the school, instructors must be chosen far enough in advance to be available at the desired time. Time is also required to requisition equipment. The scheduling of areas and classrooms requires careful coordination.

c. To conduct a full-time course in units undergoing a heavy program of training would be extremely difficult. It may be necessary to conduct the school at regular intervals during available duty and off duty time. Careful scheduling can eliminate most interference with the students' regular duty assignments.

d. In either the full-time or part-time course, the classes should be scheduled regularly. The

length of the course depends on many factors, but should contain the basic subjects as listed in paragraph 32 of this appendix. If at all possible, the course should be open to anyone who shows interest. Company commanders should conduct a preliminary screening of students, guided by the qualifications for school attendance.

e. Command support is essential to the organization and conduct of an instructor training program. When the commander has determined the needs of his organization and allocated time to such a program by means of a training directive a definite schedule may be planned and a program of instruction outlined.

27. Authority for Establishing the Course

A directive for setting up the course should contain the following:

- a.* The purpose and scope of the program.
- b.* The location of the school.
- c.* The date and time men should report, and date of course completion.
- d.* Unit quotas.
- e.* A list of equipment and clothing required.
- f.* A list of prerequisites for attendance.

28. Selection of Personnel

Students selected should meet the qualifications listed below:

- a.* Be volunteers.
- b.* Show interest and enthusiasm in physical training activities.
- c.* Possess leadership qualities.
- d.* Have good physique and command voice.
- e.* Have sufficient time remaining in service to justify training.

29. Instructors

a. The number of instructors needed to conduct the course is determined by the length and scope of the course. They should be chosen by a survey of personnel records supplemented by personal interviews. The instructor should be—

(1) A graduate of an Army physical training course of instruction. This is the best source of instructors as these men will be familiar with army procedures in this area.

(2) A person with civilian training in physical education; however, he must be familiar with the Army physical training program.

(3) An individual who is, or has been, a skilled performer, official, coach, or one who has demonstrated an interest in athletics and physical training.

b. Instructors without previous experience or instruction in Army physical training must be trained before the course is held.

30. Facilities and Equipment

The amount and type of facilities and equipment needed depend on the number of students and the scope of the instruction. Normal requirements include:

a. Classrooms and outdoor training areas.

b. Visual aids (charts, slides, films, and blackboards).

c. Physical training instructor stands.

d. Obstacle, conditioning, and confidence courses.

e. Strength circuit courses.

f. Swimming pool.

g. Rifles and logs.

h. Athletic equipment (balls, nets, gloves, bases, backstops).

i. Physical Fitness Test facilities.

j. A copy of this manual and related publications (app A) for each student, with a list of references for each class period.

31. Conduct of Classes

To conserve time and to insure the most efficient conduct of classes, the commander should prescribe a standing operating procedure for the course. The SOP should provide for the following:

a. Student leadership of the class.

b. Wearing of the uniform.

c. Marching between classes.

d. Time for breaks.

e. Grading and rating of students.

f. Certificates of completion of the course.

g. Disposition of incapable students.

h. Graduation.

32. Core Subjects for the Instructor Course

The basic core subjects of the physical training instructor course are:

a. Noncompetitive conditioning activities: Drill One, Drill Two, Drill Three, Rifle Exercises, Log Exercises, Obstacle Conditioning and Confidence Courses, Running, Grass Drills, Guerrilla Exercises, and Strength Circuits.

b. Combat water survival.

c. Competitive conditioning activities: dual combatives, relays, team contests, and team athletics.

d. Background subjects: fundamentals and nature of physical fitness (chap 2 and 3), structure and functioning (chap 28 through 31), program planning (chap 5 through 9), and leadership of physical activity (chap 4 and app B).

e. Physical fitness testing.

33. Selecting a Program of Instruction

a. A definite program of instruction cannot be prescribed for all courses of instruction. However, each of the core elements should be included in every course. The degree to which each element is emphasized depends on the needs of the students and their respective units. If the troops need a basic program, the bulk of the classes should be conditioning exercises and supplementary activities. If the units are in an advanced stage of training, leadership of mass activities and organized athletics should be stressed. The background subjects should be included, regardless of unit needs. These subjects give the student a greater knowledge, understanding, and personal justification of the physical training program. The proper administration and evaluation of physical fitness testing is also an essential element.

b. The course selected, regardless of emphasis or length, requires careful scheduling and coordination. The classes should be 2-hour periods, conducted often enough each week to retain student interest. Classes should be scheduled for either

the last 2 hours of the morning or afternoon. Only 1 hour of conditioning activities should be included in a 2-hour period. The hours for a common subject block of instruction should be scheduled in sequence. A lesson giving background information for another should always come first. For example, the students should be familiar with the exercises of Drill One before learning the methods of instruction for Drill One. The same principles apply to a full-time school. To keep the school from being too strenuous, the hours of classroom instruction and hours of physical activity should be alternated.

34. Evaluating the Program

a. The physical training instructor must know his subject, have poise, and employ sound teaching techniques. The instructor training course

should give him an opportunity to practice and demonstrate these qualities, as well as teach him the fundamentals of physical conditioning. Only by participating can the instructor gain the experience and ability required to simultaneously teach and demonstrate the various activities. Although he may not demonstrate complete proficiency in the desired qualities until he is instructing in his unit, the course may be evaluated initially by determining how much practical training it offers the student. It should emphasize his gaining experience in the practical aspects and application of instructional techniques.

b. Evaluating the program is a continuous process. It involves not only the course in progress, but constant observation of the instructors who have graduated to determine if the course is meeting the need for trained instructors in the unit.

★APPENDIX C

RUN FOR YOUR LIFE PHYSICAL CONDITIONING PROGRAM

Section I. INTRODUCTION

1. General

This appendix explains the "Run for Your Life" physical conditioning program and establishes standard procedures for implementing this program throughout the Army. Participation in the program is on a voluntary basis.

2. Purpose and Scope

Information is provided for both individual participants and administrators of the program. The program is a progressive distance running exercise for both sexes of all age groups, and for military personnel, dependents, and civilian employees. It provides guidance for the person who individually desires to develop and maintain physical fitness, for unit commanders who desire to implement the program, and for personnel whose duty it is to organize and administer the program. Running tables are illustrated to accommodate various levels of physical fitness, different age groups, and both sexes. Progress schedule sheets are included which are used to maintain a record of running progress. Finally, details concerning the organization and administration of the program are covered to include promotion and publicity, maintenance of records, physical examinations, entry procedure, cost factors, personnel requirements, and an award system.

3. Value of Program

Exercise for all age groups is indorsed by health authorities and medical personnel. As a means of developing and maintaining physical fitness, "aerobic" forms of exercise are considered to be most efficient. Aerobic exercise concentrates upon activity which causes development of the heart,

lungs, and circulatory vessels. Running is a form of aerobic exercise. Coronary attacks and other related disabling conditions are prevalent in our society. Exercise of the *proper type* may strengthen the cardio-vascular system and thereby increase work tolerance and may counter deterioration of the body's ability to endure physical and emotional stress.

4. Advantages

This program is based upon accepted aerobic practice which research indicates to be a sound method of physical conditioning. The program is carefully structured to provide progression, regularity, and incentive. It is a simple and effective method of improving the cardio-vascular system, it strengthens certain skeletal muscles and aids in maintaining general health. In addition, there are other advantages to the program as follows:

- a. The award system furnishes an added motivation and provides recognition for achievement.
- b. It can be used as a supplement to other individual physical fitness programs.
- c. It provides a regular schedule to follow which reduces the need for technical knowledge on the part of the participant.
- d. It can be adapted to the majority of the world's areas and in any situation where known distances can be established.
- e. No special equipment or facilities are required other than appropriate footwear.
- f. Maximum benefit can be derived by devoting 15 minutes or less per day to the program.

*Copyrights:

"Run For Your Life." Used by permission of the title holder, Universal Television, an MCA Inc., Company, Universal City, California.

"Aerobics" by Kenneth H. Cooper, M.D. © 1968 by Kenneth H. Cooper and Kevin Brown. Used by permission of the publisher, M. Evans and Company, New York, (ref table 4).

g. The program can be used by individual members, or it may be incorporated to supplement organization (unit) physical readiness training.

5. Health Benefits

There are numerous health benefits to be derived from this program. Specifically, the "Run for Your Life" physical conditioning program aids in accomplishing the following:

a. Increases the efficiency of the heart by pumping more blood per stroke, and for that reason reduces the number of strokes necessary; therefore, it slows the resting heart rate. Persons with a resting heart rate over 90 beats per minute are more susceptible to heart disease than are persons with under 70 beats per minute.

b. Increases the efficiency of the lungs, conditioning them to process nearly twice as much air per minute as the lungs of an unconditioned individual.

c. Increases the number and size of the blood vessels that carry blood to the body tissue, thereby improving the total blood supply, especially that going to the heart.

Notes. Individuals participating in any exercise program must remember that their total "life style"—age, diet, current physical condition, mental attitudes, and physical limitations (if any) may limit the benefits of any such

program. This program, properly employed, may be of benefit to the individual.

6. Responsibility

a. *Personal Responsibility.* Physical fitness can benefit our lives and careers in many ways. It is important for military personnel to be physically combat ready; this requires strength, endurance, and coordination. These physical attributes can also enhance the daily livelihood and physical well-being of military and civilian personnel. Every individual has a personal obligation to remain physically fit and this is not possible without proper exercise. This program affords the individual an excellent opportunity to stay fit.

b. *Command Responsibility.* Commanders must provide command support and supervision to afford personnel an opportunity to participate in the program. A single staff agency should be designated at each installation to organize and administer the program. The post or installation agency responsible for organization and administration of the program shall be known as the sponsoring agency. Directions for supporting the program are contained in the remaining chapters of this pamphlet. Tables and forms specified for the administration of this program are to be locally reproduced on 8- x 10 $\frac{1}{2}$ -inch paper directly from the pamphlet in necessary quantities. Each installation is to provide monetary support from funds available to the commander.

Section II. INDIVIDUAL AND UNIT PROGRAMS

7. General

This section provides information concerning the "Run for Your Life" program which pertains to the individual who desires to participate in the program, and to the unit commander who may desire to make it available to the personnel within his unit. The scope contains both individual and unit programs to include participation, entry procedure, medical requirements, running tables, progress schedules, and awards.

8. Participation

Participation is *voluntary*, may be on an individual or a unit basis, and normally is pursued out-of-doors. The program is divided as follows:

a. *Individual Program.* All military personnel, dependents, and Department of the Army civilian employees are encouraged to *voluntarily* participate (fig 167 and 168). The program is designed for use by men, women, and children, and it is

intended to establish a physical conditioning activity that can be used over an extended period of time. Prior to running, all applicants must officially enter the program through the local sponsoring agency. The program is based upon the *honor system* wherein each entrant will record his own time and distances.

b. *Unit Program.* The program is suitable for use during unit training to *supplement* physical readiness training.* Its objectives are enhanced by the incentive award system which provides built-in self-motivation. Competition between units provides still another incentive to the individual while stimulating esprit de corps.

*The program is not to be incorporated into ATP 21-111, Modified Basic Training Program for Conscientious Objectors (1-A-O) Without Prior Service (MBT); ATP 21-114, Male Military Personnel Without Prior Service (BCT); Advanced Individual Training (AIT); or Common Specialist Training (CST).



Figure 167. Men running in the individual program.

9. Entry Procedure

All participants must be formally entered as follows:

a. Individual Entry. The applicant secures an entry form DA Form 3856-R (fig 169), completes the information as specified by the form, and signs the form. The signed DA Form 3856-R will be submitted by the applicant to the office of the sponsoring agency where it will be retained. If the applicant is under 16 years of age the parent or

guardian must sign the entry form. The applicant is accepted and can begin the program upon receipt of the application by the sponsoring agency. If there is reason for nonacceptance of the application the applicant will be notified.

b. Unit Entry. Units will submit only one DA Form 3856-R with an attached roster for that unit. Any member of the unit who *voluntarily* chooses to join the program will sign the roster opposite his name, and also indicate his age and



Figure 168. Women participating in a scheduled run.

weight. The roster will then be certified by the commanding officer, indicating that all stipulations on DA Form 3856-R have been met. This DA Form 3856-R will then be forwarded to the sponsoring agency. Unit applications are accepted based upon certification of the commanding

officer, and unit participation may begin upon submission of the application.

10. Medical Requirements

The program is vigorous and is designed to im-

RUN FOR YOUR LIFE PHYSICAL CONDITIONING PROGRAM
ENTRY APPLICATION

For use of this form, see DA Pam 350-46; the proponent agency is US Army Infantry School.

NAME: _____ RANK: _____ DATE: _____

UNIT: _____
(Civilians - Military Members)

MILITARY SPONSOR'S NAME: _____ RANK: _____
(Military Dependents)

MILITARY SPONSOR'S UNIT: _____
(Military Dependents)

AGE: _____ WEIGHT: _____

If you are age 30 or older, complete the following sentence. I have received a medical clearance necessary to participate in the "RUN FOR YOUR LIFE" Program: Yes No

FAMILY HISTORY OF HEART TROUBLE: Yes No

(Check the phase at which you will begin the program)

I am entering the following phase of the "RUN FOR YOUR LIFE" Program:

Six-Week Preparatory Phase Nine-Week Conditioning Phase

Sustaining Phase

To the best of my knowledge I am in good health and I voluntarily elect to participate in the "RUN FOR YOUR LIFE" Program.

(SIGNATURE)

If under age 16, parent must sign.

return to: _____

DA FORM 3856-R
MAY 72

(DA Form 3856-R may be locally reproduced directly from this page on 8- x 10 $\frac{1}{2}$ -inch paper.)

Figure 169. Entry form for program.

prove physical fitness and general health. To insure that the program is safe, medical requirements apply to both individual and unit training participants. Because of its strenuous nature, participants *under* 30 years of age should *consult* a physician prior to beginning the program. Persons 30 years of age or older cannot initiate the program without a certified medical clearance. This must include a check of blood pressure, weight, chest X-ray, and electrocardiograph (EKG). Entrants whose medical history indicates evidence of high blood pressure, excess weight, or abnormal EKG *cannot* enter the program. They may, however, participate in a program limited to walking, if approved by a physician. Medical certificates need not be attached to the entry form. The applicant's or commander's signature is accepted as certification that the information on the form is true and correct.

11. Running Tables

The running tables (fig 170—173) for the program were developed to apply to healthy men, women, and children in all stages of physical fitness. In order to tailor the running program to individual needs, three phases were designed. These are the preparatory phase (fig 170) for those who have recently led a sedentary, inactive life; the conditioning phase (fig 171) for those who have completed the preparatory phase, or who have been actively engaged in a conditioning program but cannot walk/run (combination of walking and running) a mile in 8½ minutes without undue stress or becoming fatigued; and the sustaining phase (fig 172) for those who can run a mile in 8½ minutes or less without becoming overly fatigued. During periods of inclement weather which prohibit outdoor participation, indoor running is substituted (fig 173). The information and guidance which follows is designed for the individual who controls his own program; however, the principles involved should be applied when units use the program. In addition, unit commanders should not assume that personnel are in good physical condition and begin with the sustaining phase. The selection of the starting phase should be geared to the amount of running engaged in prior to starting the program and to the least conditioned personnel in the unit.

a. The preparatory phase begins with an untimed walk to allow the participants to safely evaluate their state of physical fitness, prevent stress fractures (shin splints; especially in younger people), and reduce the possibility of heart attack (particularly in older people). This starting level also prevents participants in poor

condition from becoming demoralized and losing interest in the program. This phase is also designed to reduce possible soreness and stiffness in muscles.

b. The rate of progression in all phases is arranged to accommodate individual differences and developmental plateaus. An *increase* in speed is accompanied by a *decrease* in the number of repetitions (frequency per week). A repeat of time goals is accompanied by an increase in the number of repetitions or an increase in distance. The result is a constant progression of speed or distance, which in turn results in a progressive increase of endurance.

c. If entrants are in good health, but not in good physical condition, they must go through the preparatory and conditioning phases. If they are experienced runners, and normally run 2 miles or more a day, they may enter according to their present level of experience. It is important that entrants *do not strain* in this program, but start gradually.

d. If entrants cannot attain the suggested *time goals*, they should repeat the previous week's run (walk) until they can progress without stress.

e. It is recommended that the running schedules as outlined be conducted on alternate days. If possible, there should not be more than 2 consecutive days without running or walking.

f. The goal of the program is to progress to the *sustaining phase* and continue running (walking) a minimum of 7 to 10 miles per week to insure development of a minimum level of physical fitness.

g. The running tables contain the distances and time goals for men and women under 40, and for men over 40. The time goals for women over 40 are adjusted to fit that group and are contained in the Program Schedule Sheets (fig 170—172). Children under 16 may use the appropriate table for their sex, with the concurrence of parents.

h. A table which may be substituted during periods of inclement weather is provided (fig 173). If weather conditions do not allow outdoor participation this table may be followed to assure no break or interruption in the program.

12. Progress Schedules

As participants progress on the running tables, a record is maintained on the progress schedule sheet. There is a separate progress schedule for each phase (fig 170—172) (DA Forms 3859-R, 3859-1-R, and 3859-2-R). Three miles per day is

Table 1

PREPARATORY PHASE (6WEEKS)

FOR MEN UNDER 40 YEARS OF AGE:

<u>WEEK</u>	<u>METHOD</u>	<u>DISTANCE (Miles)</u>	<u>TIME GOAL (Minutes)</u>	<u>TIMES PER WEEK</u>
1	Walk	1	—	3
2	Walk	1	13:00	4
3	Walk Run Combination	1	11:45	3
4	Walk Run Combination	1	11:45	4
5	Walk Run Combination	1	11:00	3
6	Walk Run Combination	1	10:00	3

FOR MEN OVER 40 AND FEMALE PERSONNEL UNDER 40:

<u>WEEK</u>	<u>METHOD</u>	<u>DISTANCE (Miles)</u>	<u>TIME GOAL (Minutes)</u>	<u>TIMES PER WEEK</u>
1	Walk	1	—	3
2	Walk	1	14:00	4
3	Walk Run Combination	1	12:45	3
4	Walk Run Combination	1	12:45	4
5	Walk Run Combination	1	12:00	3
6	Walk Run Combination	1	11:00	3

NOTE:

The above times are for men under 40 years of age, for men over 40, and women under 40. Women over 40 see time tables on appropriate progress schedule sheets.

If the goals for any week are not attained, repeat that week's schedule until the goals are satisfied. If additional running is desired within any week use the time goals as outlined for that particular week. Then continue in sequence to the next scheduled week. After completing the preparatory phase, proceed to the conditioning phase.

Figure 170—continued.

Table 2

CONDITIONING PHASE (9 WEEKS)

FOR MEN UNDER 40 YEARS OF AGE:

<u>WEEK</u>	<u>METHOD</u>	<u>DISTANCE (Miles)</u>	<u>TIME GOAL (Minutes)</u>	<u>TIMES PER WEEK</u>
1	Run	1	9:45	3
2	Run	1	9:30	3
3	Run	1	9:30	4
4	Run	1	9:15	2
	Walk/Run Combination	1 1/2	15:00	2
5	Run	1	9:00	2
	Walk/Run Combination	1 1/2	14:00	2
6	Run	1	9:00	3
	Walk/Run Combination	1 1/2	13:00	2
7	Run	1	8:30	2
	Run	1 1/2	13:00	2
8	Run	1 1/2	13:00	2
	Run	2	17:00	1
9	Run	1	8:30	2
	Run	1 1/2	13:00	2
	Run	2	17:00	1

*FOR MEN OVER 40 AND FEMALE PERSONNEL UNDER 40:

<u>WEEK</u>	<u>METHOD</u>	<u>DISTANCE (Miles)</u>	<u>TIME GOAL (Minutes)</u>	<u>TIMES PER WEEK</u>
1	Run	1	10:45	3
2	Run	1	10:30	3
3	Run	1	10:30	4
4	Run	1	10:15	2
	Walk/Run Combination	1 1/2	16:30	2
5	Run	1	10:00	2
	Walk/Run Combination	1 1/2	15:30	2
6	Run	1	10:00	3
	Walk/Run Combination	1 1/2	14:30	2
7	Run	1	9:30	2
	Run	1 1/2	14:30	2
8	Run	1 1/2	14:30	2
	Run	2	19:00	1
9	Run	1	9:30	2
	Run	1 1/2	14:30	2
	Run	2	19:00	1

*NOTE:

The above times are for men under 40 years of age, for men over 40, and women under 40. Women over 40 see time tables on appropriate progress schedule sheets.

If the goals for any week are not attained, repeat that week's schedule until the goals are satisfied. If additional running is desired within any week, use the time goals as outlined for that particular week. Then continue in sequence to the next scheduled week. After completing the conditioning phase, proceed to the sustaining phase.

Figure 171—continued.

Table 3

SUSTAINING PHASE (INDEFINITE)

The desired goal during this phase is to run a minimum of 7 to 10 miles per week. The time goals listed below are the standards necessary to receive credit for this phase:

FOR MEN UNDER 40 YEARS OF AGE:

<u>METHOD</u>	<u>DISTANCE (Miles)</u>	<u>TIME GOAL (Minutes)</u>
Run	1 mile	8:30
Run	1 1/2 miles	13:00
Run	2 miles	17:00
Run	2 1/2 miles	21:30
Run	3 miles	25:30

*FOR MEN OVER 40 AND FEMALE PERSONNEL UNDER 40:

<u>METHOD</u>	<u>DISTANCE (Miles)</u>	<u>TIME GOAL (Minutes)</u>
Run	1 mile	9:30
Run	1 1/2 miles	14:30
Run	2 miles	19:00
Run	2 1/2 miles	24:00
Run	3 miles	28:30

NOTE:

The above times are for men under 40 years of age, for men over 40, and women under 40. Women over 40 see time tables on appropriate progress schedule sheets.

Figure 172—continued.

Table 4

INCLEMENT WEATHER RUNNING TABLES

To allow participants to progress during periods of inclement weather, a stationary run may be substituted for the normal distance run. Credit for running 1 mile can be achieved by meeting the following standards;

*Stationary Running Tables;

Preparatory Phase

Time: 10 minutes

70/80 steps per minute

Conditioning Phase

Time: 12:30 minutes

70/80 steps per minute

Sustaining Phase

Time: 15 minutes

70/80 steps per minute

NOTE: This table applies to both sexes and all age groups. Count only when the left foot strikes the floor. Lift feet at least eight inches from the floor. Credit may also be achieved by running indoors over known distance. Eighteen laps around a standard basketball court will equal approximately 1 mile. The 18 laps must be run within the time goals as established for various age groups and sex as specified in Figures 170, 171, 172.

*Aerobics, Kenneth H. Cooper, M.D.

Figure 173. Inclement weather Running Table (4).



To All Who Shall See These Presents Greeting:
Be it known that _____ has successfully
completed _____ miles of running and is
a member of the
"Run For Your Life"
Mile Club

Given at
on this _____ day of _____ 19____

DA FORM 3860-R
1 MAY 72

(DA Form 3860-R may be locally reproduced on 8- x 10½-inch paper.)

Figure 174. Award certificate.

COLORS

50 Mile Club - Light Blue Background
With White Lettering

100 Mile Club - Dark Green Background
With White Lettering

200 Mile Club - Dark Red Background
With White Lettering

300 Mile Club - Black Background
With White Lettering

400 Mile Club - Silver Background
With Blue Lettering

500 Mile Club - Gold Background
With Black Lettering

750 Mile Club - Light Green Background
With White Lettering

1,000 Mile Club - Brown Background
With White Lettering

2,500 Mile Club - Yellow Background
With Black Lettering

5,000 Mile Club - Dark Blue Background
With White Lettering

7,500 Mile Club - Medium Red Background
With White Lettering

10,000 Mile Club - Orange Background
With Black Lettering



(Patches are to be produced locally.)

Figure 175. Example of patch to be awarded through participation and completion of program.

the *maximum* distance that can be logged for certification purposes.

a. Individual Progress. Individual participants maintain their times and distances on the appropriate progress schedule sheet and certify their progress.

b. Unit Progress. A single progress schedule sheet will be maintained for all unit participants. Unit commanders sign progress sheets for all participants.

13. Awards

One of the primary advantages of this program is the incentive awards system which contributes to participants' motivation and progress in the program. As an incentive, mileage certificates (fig 174) (DA Form 3860-R) and patches (fig 175), will be awarded to participants completing 50, 100, 200, 300, 400, 500, 750, 1000, 2500, 5000,

7500, and 10,000 miles of running in the program. To receive credit for awards, an individual must complete the mileage within the established time goals as appropriate for the phase of participation; i.e., preparatory, conditioning, or sustaining phase. When qualified for an award the individual participant submits the schedule sheets to the sponsoring agency. Unit commanders submit a group schedule sheet to certify the awards for individuals who are eligible for recognition within the unit program. Awards should be transmitted by letter (fig 176), to the organization for presentation to both individual participants and unit participants. These letters should be typed on appropriate letterhead stationery. The patch award may be worn on a sweater, or similar type of clothing. The cloth patch can usually be produced by a local manufacturer. For uniformity, colors, patch size, letter size, and letter style must be specified in ordering to insure standardization throughout the Army (fig 175).

SUBJECT: Transmittal of Award

TO:

1. Inclosed is the _____ patch and certificate earned by _____ while participating in the RUN FOR YOUR LIFE Program. Request you make proper presentation.
2. If individual has departed your command/office, request this correspondence be forwarded to his/her present commander for presentation.

1 Incl

as

(Typed locally on appropriate letterhead stationery.)

Figure 176. Sample letter of award transmittal for military and civilian personnel.

Section III. ORGANIZATION FOR THE PROGRAM

14. General

This section specifies and explains the organizational procedure required of the sponsoring agency to initiate the "Run for Your Life" program. The scope includes responsibilities of the sponsoring agency, publicity and promotion, organizational steps to implement the program, personnel requirements, budget and expenditures, and establishment of running areas.

15. Sponsoring Agency Responsibility

The success of the program will greatly depend on the effectiveness of the organizational effort. The sponsoring agency must prepare by publicizing and promoting the program, establishing office space, selecting and training personnel to administer the program, arranging a budget and procuring necessary funds, and establishing the measured running areas.

16. Administrative Personnel

It is necessary to select and train a program administrator and a clerk to administer the program. Initially, and temporarily as the program is being established, it will take the full-time effort of the administrator to organize and supervise the program. The clerk types needed materials, posts records, and files. After the initial work is accomplished, experience has indicated that to operate a program of 5,000 participants the administrator spends an average of 2 hours per day, and the clerk averages from 1 to 1½ hours per day. For this reason, it is usually possible to add this program without adding additional personnel to the sponsoring agency staff. The duties of the program administrator will be discussed where the material is related to his responsibility in this section and in section 4.

17. Publicity and Promotion

In that the program is geared to individuals and is voluntary, it is essential for success to promote and publicize the program. This should be done far enough in advance to assure wide understanding. The program administrator should promote the program and arrange the publicity.

a. Publicity should be used on a continuous basis in order to reach a large audience initially and to maintain interest. This can be accomplished through any available media, including daily bulletins, family quarters bulletins, information office, radio, local newspapers, billboards, and posters. The initial publicity should include publi-

cation of feature articles to explain the program, information on entries, location of running areas, and other items of interest. As the program develops, names of award winners should be published in the daily bulletin and local newspaper. Also, feature articles should be prepared regularly for available publications.

b. A handout (fig 177), should be printed to explain the program in detail. These handouts should contain general information, running tables (all three phases) (tables 1—4), progress schedule sheets (fig 170—172), an entry form (fig 169) and strip maps showing running areas. It is recommended that the handout be printed on 8- x 13-inch pages.

c. Handouts should be made available through the use of display posters (fig 178) located throughout the installation. Display posters should be 30- x 40-inch chartboard and contain a strip map of the areas with the "Run for Your Life" areas clearly indicated. These posters can be attached to bulletin boards or set up as separate display boards (fig 179). Posters will publicize the program and serve as a distribution point for handout materials.

d. Publicity is not limited to the forms of communication listed above. Imagination and initiative on the part of the program administrator will open new methods and procedures for informing personnel. Any appropriate form of advertising may be used to publicize the "Run for Your Life" program.

e. To secure cooperation of local commanders and to promote the program, the support of commanders can be stimulated by holding orientation meetings. Such meeting should be held initially with the commanders, and later with their project officers.

18. Budget and Expenditures

Limited monetary expenditures are required to operate the program. For this reason a budget must be determined based upon the size of the program. Cost items are in three areas; printing of award certificates and reproduction of forms, purchase of award patches, and signs to include promotion boards and directional signs as used on the running areas. Experience has indicated these expenditures can be covered by budgeting 50 cents per participant per year. Estimates based upon experience of test installations indicate 25 to 30 percent of the military personnel will enroll. Of that number, 50 to 75 percent will earn awards. It

RUN FOR YOUR LIFE

1. **PURPOSE.** This handout is designed to provide military personnel, dependents, and civilian employees of the installation with an understanding of the "RUN FOR YOUR LIFE" program.

2. GENERAL.

a. The "RUN FOR YOUR LIFE" program is patterned on progressive distance running based on the aerobics theory to strengthen the cardiovascular system (heart, lungs and blood vessels) by gradually expanding their capacity to handle stress. The program provides sufficient exercise to significantly improve the strength and running endurance of regular participants.

b. Phases: The "RUN FOR YOUR LIFE" program is divided into three phases:

(1) **Preparatory phase.** The preparatory phase should be initiated by personnel who have recently led a sedentary, inactive life. This group may include office workers, clerks, administrators, instructors, or people who have recently been ill or overweight. Individuals who do not exercise regularly or have not been involved in a vigorous conditioning program should start in this phase (see running tables attached).

(2) **Conditioning phase.** Personnel who have completed the preparatory phase or who have recently been engaged in a vigorous conditioning program but cannot run walk a mile in 8:30 minutes (men under 40), 9:30 minutes (men over 40 and women under 40), and 10:30 minutes (women over 40) without undue stress or becoming fatigued should start in this phase. The goal is to progress slowly through the conditioning phase and then to continue running indefinitely with a minimum goal of 7 to 10 miles per week within the time and distance goals of the sustaining phase (see running tables).

(3) **Sustaining phase.** This phase is for personnel who are conditioned runners and can run a mile in 8:30 minutes (men under 40), 9:30 minutes (men over 40 and women under 40), and 10:30 minutes (women over 40) or less without becoming fatigued. The goal is to continue running a minimum of 7 to 10 miles per week within the time and distance goals of the sustaining phase (see running tables).

3. PARTICIPATION IN THE PROGRAM.

a. All military personnel, dependents, and members of the civilian community of the post are invited and encouraged to voluntarily participate in the program.

a. "RUN FOR YOUR LIFE" is a vigorous program designed to improve physical fitness and general health. Because of its strenuous nature, it is suggested that participants consult their physician prior to beginning the program. All persons 30 years of age or older will not initiate the program prior to a medical clearance which must include a check of:

- (1) Blood pressure.
- (2) Weight
- (3) Chest X-Ray.
- (4) Electrocardiograph (EKG).

Active duty personnel may initiate this at dispensary level. Begin with a healthy body and "RUN FOR YOUR LIFE".

(Handout may be locally reproduced from these pages.)

Figure 177. Promotion handout to be used for distribution to potential entrants.

4. HOW TO ENTER AND RECORD YOUR RUNNING MILEAGE.

a. Entry.

(1) Individuals (military personnel, dependents, and civilians) must officially enter the "RUN FOR YOUR LIFE" program by detaching and completing the entry form at the back of this handout, and sending it to _____

(2) Units. Unit participation will be coordinated through the unit S-3. The procedure for company-size (or larger) unit participation is as follows: Units will submit only one entry form with an attached roster for that unit. Any member of the unit who voluntarily chooses to join the program will sign the roster opposite his name, and also indicate his age and weight. The roster will then be certified by the commanding officer indicating that all stipulations on the entry form have been met. This entry will then be forwarded to the same address as for individual entries.

(3) Unless notified to the contrary, all entries are accepted and participants may begin the program.

b. Recording Scores.

(1) Individuals. "RUN FOR YOUR LIFE" progress schedule sheets will be maintained by individual participants. The honor system will be in effect for recording distances and times. Military sponsors will certify progress sheets of their dependents.

(2) Units. A single progress sheet will be maintained for the entire unit. After completing the required distance for an award, the progress sheet will be attached to a roster of those personnel eligible for the award and certified by the commanding officer.

5. MILEAGE CERTIFICATES AND PATCHES. To be awarded as follows:

a. Mileage certificates and patches will be awarded for completing 50, 100, 200, 300, 400, 500, 750, 1,000, 2,500, 5,000, 7,500, and 10,000 miles of running in the "RUN FOR YOUR LIFE" program. To receive credit for awards, an individual must complete the mileage within the established time goals as appropriate for the phase being participated in, i.e., preparatory, conditioning, or sustaining phase.

b. Upon completion of the required distance, participants can receive awards by returning their completed scoresheet to

c. Participants may receive a maximum credit of three miles per day toward awards.

d. Upon reassignment, credit for awards may be transferred to your next installation.

6. ATTIRE.

a. During duty hours the uniform for all military personnel will be fatigues or sweat clothes.

b. Dependents and civilians will be dressed in any appropriate exercise attire.

c. All personnel not wearing boots should use good quality footwear with adequate arch support, such as tennis shoes or jogging shoes.

7. MAXIMUM BENEFITS AND MINIMUM STRESS

a. Participants should warm up prior to running. Warm up exercises that require twisting, bending, and stretching will increase the benefits derived from the program and reduce bodily stress. Walking approximately 100 meters before and after running is highly recommended.

b. Participants should avoid running on hard surfaces such as asphalt or cement, when possible. A smooth, grass covered area is ideal and prevents or reduces stress or pain in the ankles, knees, and lower legs.

c. If the time goals for any week are not attained, repeat that week. If the running schedule for any week is extremely easy, additional running within the time frame for that week is permissible before continuing in sequence to the next scheduled week.

8. WHERE TO RUN.

a. Any course or route that is a known distance may be used.

b. The following areas have been established and marked as "RUN FOR YOUR LIFE" running areas:
(see strip map).

AREA	DISTANCE
(1)	
(2)	
(3)	
(4)	
(5)	
(6)	

(NOTE: List each area, field, stadium track, training area, etc., where areas have been established, to include the name of the area and the distance.)

(Publish strip map in this space)
Indicate running areas by shading.
Also number the areas to correspond to the
number on the list above.

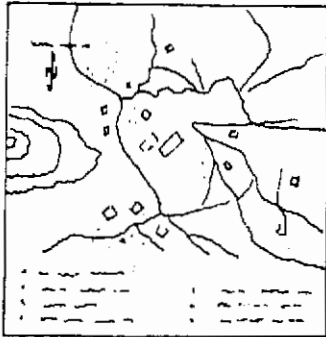
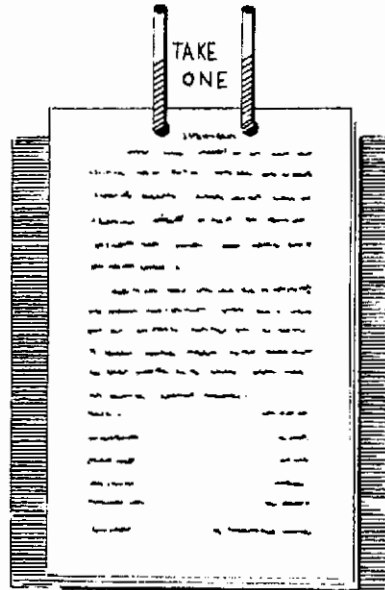
Figure 177—continued.

RUN

FOR

YOUR

LIFE !



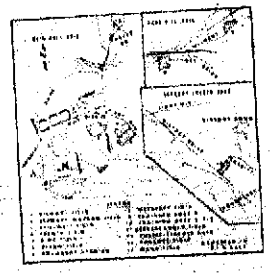
(Poster is produced locally.)

Figure 178. Example of display poster to publicize program.



TAKI ONE

RUN FOR YOUR LIFE



... ..

(Locally fabricated.)

Figure 179. Display board.

is the duty of the administrator to make arrangements to secure the necessary monetary support from funds available to the installation commander.

19. Running Areas

Convenient running areas must be established to encourage participation. One-quarter-mile tracks, if available, can be used; however, better results are achieved if 1/2-mile courses are specifically marked off. These areas should be established at one or more locations for the convenience of participants throughout the installation. At a large installation, 10 to 15 running areas may be required.

a. Areas selected should be well suited for run-

ning; i.e., level, grassy areas. If possible, courses should be interesting and scenic. All running areas should be marked at 1/4-mile increments with wooden stakes painted white with the appropriate mileage and "Run for Your Life" stenciled in black. These markers should also clearly indicate with arrows the direction to be followed, and should be positioned around the outer edge of the course.

b. The administrator should supervise the selection of sites, proper measurement, adequate marking, and recording of the locations for promotion and display purposes. He must also inspect, or have each course checked weekly, to locate missing or damaged signs in order to repair or replace them as required.

Section IV. ADMINISTRATION OF THE PROGRAM

20. General

This section provides detailed information as required to properly administer the "Run for Your Life" program following its initial organization and during day-to-day operation on a continuing basis. The scope includes processing entry applications, establishing record files, maintaining records, processing and presentation of awards, and scheduled runs.

21. Processing Entry Applications

a. Signed DA Form 3856-R (fig 169) will be submitted by the applicant and maintained for all active participants. In the case of unit participation, this will consist of a signed roster. Entry forms (DA Form 3856-R) and unit entry rosters will be maintained in a chronological file. Each entrant will be assigned an individual control number and this number will be entered on the entry form. This entry control number will begin with the number 1; additional entry forms will be numbered in sequence as the forms are received.

b. At this time a 3- x 5-inch card record (fig 180) will be made for each individual or unit entry. Index cards are used and the individual's name, or if a unit entry the unit designation, is recorded on the card, together with the date the form was received. The control number will also be recorded on this card, thus the card is used as a control file, and this file is maintained *alphabetically*.

22. Record Maintenance

A separate file is established when participants submit progress schedule sheets indicating they

qualify for awards. These schedule sheets are filed chronologically together with a copy of the award transmittal letter (fig 176) which transmits the certification and mileage badge to the unit commander for presentation. A control number is again assigned to this action, and is recorded on the schedule sheet and the control card record. The award control number again starts with number 1 for the first participant to submit credit for an award. The date is also recorded on the card record.

a. Control numbers are recorded for each mileage award. For example, an individual who is the 87th applicant to submit an application for the 50-mile award is assigned the control number 87; if he is the 73d applicant to attain the 100-mile distance he is assigned the number 73 opposite the 100 Mile Club on the card record. Two award entries would show on his 3- x 5-inch card record as follows: 50-mile award (date)—87; 100-mile award (date)—73.

b. The control number system serves as a record of entries into the program and also as a means of determining the number of awards earned in each mileage category.

c. When a participant leaves the command he should pick up his records, hand-carry them to his new command, and submit them to the new sponsoring agency. If he fails to pick up his records they should be retained for at least 60 days to await a request for transfer of running credits to his next station. The individual should re-enter at his new command. If no program exists at the new command the individual should be permitted to make special arrangements with the departed command to continue under his former program.

DOE, JOHN E.

		<u>Control No.</u>
Entry received	17 Oct 70	115
50 Mile Club	20 Nov 70	87
100 Mile Club	15 Jan 71	73

Figure 180. Record card (8" x 5").

As participants leave the program their 3- x 5-inch cross-reference cards can be placed in a hold file for the recommended 60-day waiting period.

23. Earning and Presentation of Awards

Certificates (fig 174) (DA Form 3860-R) and cloth patches (fig 175) should be awarded to all participants upon the proper submission of a completed progress schedule sheet. Awards are made at various mileage levels. The first is for 50 miles^o and is known as the "50-Mile Club." Awards progress to the "10,000-Mile Club." Each award is for the specified number of miles under the established time goals. The administrator is responsible for forwarding the certificate and cloth patch award to the individual's immediate commander or supervisor. The accompanying letter of transmittal (fig 176) should be signed by the head of the sponsoring agency recommending proper presentation. Awards should be established, processed, and presented as follows:

a. 50 to 400 Miles. Awards for 50, 100, 200, 300, and 400-Mile Clubs should be signed and presented by a commander from company to brigade level (or appropriate staff or office level), as deemed appropriate by the organization to which the award recipient is assigned.

b. 500 to 1,000 Miles. Awards for 500, 750 and

* Since the entrant is allowed to certify only 3 miles per day to qualify toward an award, it would take 17 days to merit the 50-mile award; or, nearly a year to qualify for the 1,000-mile award.

1,000-Mile Clubs are signed and presented by the division commander or installation commander, as appropriate.

c. 2,500-Mile Club. This award for 2,500 miles should be signed by the corps commander, and appropriately presented at installation level. If corps does not exist, the certificate should be signed at installation level by a general officer.

d. 5,000 to 7,500 Miles. Awards for the 5,000 and 7,500-Mile Clubs should be signed by the Army commander and appropriately presented at installation level.

e. 10,000-Mile Club. This top award, representing approximately 10 years of running, should be signed by the Army Chief of Staff and presented as appropriate at installation level.

24. Scheduled Runs

Scheduled runs are set up by the sponsoring agency, and are announced in time for individuals who desire to run with companions or friends to make necessary arrangements. These runs should be scheduled at convenient times and in appropriate locations. Participation of this type allows for friendly competition which could have a desirable effect upon motivation (fig 168). This scheduling also provides for those individuals who do not desire to run alone. The benefit received from a program of running individually, with friends in a group, or within a unit, can be measured in the health and well-being of those individuals who begin and continue to RUN FOR THEIR LIVES!

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☆ U.S. GOVERNMENT PRINTING OFFICE : 1974-O-534-107