

## Section 2



# HEALTH AND FITNESS

## Key Points

---

- 1 Components of Fitness
- 2 Principles of Exercise
- 3 Frequency, Intensity, Time, Type (FITT)
- 4 Safety and Smart Training
- 5 Nutrition and Diet

To every man there comes in his lifetime that special moment when he is figuratively tapped on the shoulder and asked to do a very special thing—unique to him and his talents. What a tragedy if that moment finds him unprepared or unqualified for that work.

Sir Winston Churchill

## Introduction

---

Have you ever noticed during sports competition that the individual or team that tires first often loses? It's the same for Soldiers. Your ability to cope with battlefield challenges depends greatly on your level of physical fitness. Physical fitness not only determines how well you perform in combat, but also enhances your overall quality of life, improves your productivity, and brings about positive physical and mental changes.

Your physical fitness benefits both the Army and you. The Army needs physically fit Soldiers, and when you are fit, you are more likely to lead an enjoyable, productive life.

---

*As an officer, how important is your level of physical fitness? How does your fitness affect your unit's combat readiness?*

You're probably tired of hearing how important it is to be in great shape as an officer, but it's a basic truth. You don't have to be the best at everything, but you definitely need to be one of the most physically fit Soldiers in your platoon. Morale improves when your Soldiers are constantly trying to beat you in a run or in an individual event like pull-ups or the rope climb. When that happened to me as a platoon leader that meant instant respect. My Soldiers all knew I could run or road march to the end with any of them. You can't motivate Soldiers in a road march if you are visibly in bad shape. It's a sad [sight] when a lieutenant can't lead his Soldiers physically. Ask yourself: How can you lead or motivate your Soldiers if you're not at the head of the formation? When it comes to the combat environment, physical fitness is crucial. If you allow your Soldiers to deploy in poor condition, you have failed them. Being physically fit out here [in Afghanistan] will help your Soldiers bear some of the rigors of a combat tour: less sleep, very random and increasingly changing rest patterns, extreme heat, heavy weights, and less than standard nutrition, to name a few. Staying in shape in a combat environment can be a tough task, because you may lack the time or facilities to exercise as you may have been able to in garrison. However, solid cardiovascular fitness will make a significant difference in higher elevations, and upper body and leg strength may prevent exhaustion from heavy gear in hot weather (3rd Brigade, 25th Infantry Division (L), 2005).

ILT Eliel Pimentel

---

## Components of Fitness

Your physical fitness is your ability to perform physical work, training, and other activities throughout your daily work schedule. Physical fitness is multidimensional, and—based on your goals—some components will be more valuable than others.

Five key components define your physical fitness:

- *Cardiorespiratory (CR) endurance*—how efficiently your body delivers oxygen and nutrients for muscular activity and transports waste from the cells
- *Muscular strength*—the greatest amount of force your muscle or muscle group can exert in a single effort
- *Muscular endurance*—the ability of your muscle or muscle group to perform repeated movements for extended periods
- *Flexibility*—the ability to move your joints (elbow or knee, for example) or any group of joints through their entire normal range of motion
- *Body composition*—the amount of body fat you have in comparison with your total body mass.

Improving the first three of these components will improve your body composition by decreasing your body fat. Excessive body fat detracts from the other fitness measures, reduces your physical and mental performance, detracts from your appearance, and increases overall health risks. One measurement of body fat is as a percentage of your total weight. The Army's maximum allowable percentages of body fat, by age and gender, are listed in Figure 2.1.

Besides your physical fitness, you should also work to improve your *motor fitness*. Motor fitness—speed, agility, muscle power, eye-hand coordination, and eye-foot coordination—directly affect a Soldier's performance on the battlefield. Appropriate training will improve these elements up to each Soldier's individual potential.

The goal of the Army's fitness program is to improve physical and motor fitness through sound, progressive, mission-specific physical training at both the individual and unit levels.

Body Fat Standards				
Ages	17–20	21–27	28–39	40+
Males	20%	22%	24%	26%
Females	30%	32%	34%	36%

**Figure 2.1** Body Fat Standards

## Principles of Exercise

Practicing the basic exercise principles is crucial for you to develop an effective fitness-training program. The principles of exercise apply to everyone at all levels of physical training, from the Olympic champion to the weekend golfer. They apply especially to fitness training for military personnel because having standard fitness principles across the organization saves time, energy, resources—and prevents injury.

You can easily remember the basic principles of exercise if you recall the **P-R-O-V-R-B-S** acronym:

### P-R-O-V-R-B-S

the basic exercise principles—**P**rogression, **R**egularity, **O**verload, **V**ariety, **R**ecovery, **B**alance, and **S**pecificity

- P** *Progression*—The intensity and duration of exercise must gradually increase to improve your fitness level. A good guideline for improvement is a 10 percent gain at specified intervals.
- R** *Regularity*—To achieve effective training you should schedule workouts in each of the first four fitness components at least three times a week. Regularity is also key in resting, sleeping, and following a good diet.
- O** *Overload*—The workload of each exercise session must exceed the normal demands placed on your body to bring about a training effect. You’ve often heard this expressed as “No pain, no gain.” A fitness trainer, such as your ROTC instructor, can help you learn to tell the difference between pain that results from an optimum level of overload and pain that indicates potential injury.
- V** *Variety*—Changing activities reduces the boredom and increases your motivation to progress.
- R** *Recovery*—You should follow a hard day of training for a given component of fitness by an easier training or rest day for that component. This helps your body recover. Another way to promote recovery is to alternate the muscle groups you exercise every other day, especially when training for strength and muscle endurance.
- B** *Balance*—To be effective, a fitness program should address all the fitness components, since overemphasizing any one of them may detract from the others.
- S** *Specificity*—You must gear training toward specific goals. For example, Soldiers become better runners if their training emphasizes running drills and techniques. Although swimming is great exercise, it will not improve a two-mile-run time as much as a coordinated running program does.

## Frequency, Intensity, Time, Type (FITT)

To succeed in any fitness-training program you undertake, you must track your frequency, intensity, time, and type of exercise (FITT). You can use the acronym **FITT** to remember these factors easily. While FITT is just one method of developing a proper long-term physical fitness regime, fitness experts agree that you need these factors to have an effective, safe daily workout program.

### Frequency

*Frequency* is the number of workouts you perform each week. A basic guideline is three to five cardiovascular workouts, two to three strength workouts, two to five calisthenics workouts, and three to six flexibility workouts weekly.

### Intensity

*Intensity* is how hard you work out. You can measure intensity by something called RPE (Rating of Perceived Exertion), which is a psychological scale and reflects how hard the workout feels to you.

The most commonly used indicator of your workout intensity is your heart rate. Ideally, you should stay within a productive heart-rate zone. You can use your age to find your Target Heart Rate (THR).

### Finding Your THR

- Your maximum heart rate (MHR) is approximately 220 minus your age
- Your lowest target heart rate is equal to  $MHR \times .60$
- Your highest target heart rate is equal to  $MHR \times .85$ .

#### FITT

*the factors of a successful fitness-training program: frequency, intensity, time, and type*

*Rating of Perceived Exertion—Two RPE scales are in common use. The scales are either 6 to 20 or 0 to 10. Although the RPE scale of 6–20 does not measure heart rate, it theoretically correlates (for example: 6=60 heartbeats per minute, or bpm; 7 = 70bpm; 20 = 200bpm). Your RPE on the 6-20 scale should be between 12 and 16.*

**How Do You Take Your Pulse?**

The first step is to find your pulse. If you are right-handed, use the pads of your index, middle, and ring fingers to find the pulse on your left wrist. Do the reverse if you are left-handed or wearing a watch on your left wrist. Move your fingers to just below the base of your thumb on your wrist and press down with your finger pads until you feel the throb of your pulse.

Time your pulse for 10 seconds with the first beat counted as zero rather than one. Then multiply this number by six to find the number of “heartbeats per minute (bpm).” When you measure your heartbeats per minute during a workout, you want the rate to be within your target heart zone.

**P-R-I-C-E**

the procedures for early injury treatment: protect, rest, ice, compression, and elevation

Your THR zone is between the lowest and highest THR calculated above. As you begin your exercise routine, your heart rate should be on the lower end of your THR zone. Exercising above the zone increases your risk of injury and reduces your ability to perform optimally.

**Easy Versus Hard**

Exercise in moderation. Never exercise a particular muscle group hard (at a high intensity or for a long time) two days in a row. You should always follow a hard workout with a light day or a day off. For the best development, more is not always better.

**Time**

Like intensity, the *time* you spend exercising depends on the type of exercise you are doing. At least 20 to 30 continuous minutes of intense exercise will improve cardiorespiratory endurance. For muscular endurance and strength, exercise time equals the number of repetitions you do. For the average person, eight to 12 repetitions with enough resistance to cause muscle failure will improve both muscular endurance and strength. As you progress, you will make better strength gains by doing two or three sets of each resistance exercise.

Use flexibility exercises or stretches for varying times, depending on the objective of the session. While warming-up before a run, for example, hold each stretch for 10 to 15 seconds. To improve flexibility, stretch during your cool-down as well, holding each stretch for 30 to 60 seconds. If flexibility improvement is your goal, devote at least one session per week to developing that component.

**Type**

*Type* refers to the kind of exercise you perform. When choosing the type, consider the principle of specificity. Some people overemphasize cross training and you should avoid this pitfall. For example, to improve your level of CR fitness (the major fitness component in the two-mile run), do CR types of exercises. The basic rule is that to improve performance, you must practice the particular exercise, activity, or skill you want to improve. For example, to be good at push-ups, *you must do push-ups*. No other exercise will improve push-up performance as effectively.

**Safety and Smart Training**

Before you begin an exercise program, ask your physician to give you a checkup. Your doctor can advise you to avoid or participate in activities based on your current health and history. Be sure to stay within your limits. If you are injured while exercising, remember to **P-R-I-C-E** your recovery.

- P** *Protect*—Protect the injured area from further injury. You can wrap it lightly in an elastic bandage or wear a padded brace. Do not tightly or heavily tape up an injury, as good circulation is important to healing.

**Critical Thinking**

Describe a stressful physical event you have experienced (in training, sports, work, or school). How might improved physical fitness have helped you?

- R** *Rest*—Rest the injured area. Use a sling, cane, brace, or crutch as necessary to take your weight and decrease activity off the affected body part. Keep the joint or muscle as inactive as possible.
- I** *Ice*—Apply ice to the injured area for five to 15 minutes. Wrap several handfuls of crushed ice in a towel and hold it on and around the injured area. Many people instinctively try to soak an injury in warm water, and while this increases blood flow to the injury, it does not ease the inflammation and swelling.
- C** *Compression*—Wrap an elastic bandage around the ice to compress the injured area lightly—but not enough to cut off circulation to the injured area. After the cold compress, wrap the affected area lightly in an elastic bandage or use a flexible brace. Don't wrap any injury too tightly, as this will cut off good circulation to the injury.
- E** *Elevation*—Raise the affected area slightly to reduce swelling and inflammation.

In addition to P-R-I-C-E, you can talk to your doctor about using anti-inflammatory medication as needed, such as aspirin, acetaminophen, or ibuprofen. You should check to see if you have allergies to these drugs before use. *Under no circumstances* should you take them while drinking alcohol.

## Smart Training

You live in your skin and know how your body feels and works best. That is why you should take responsibility for managing your own fitness-training program. Knowing your limits and capabilities is key to setting goals for physical fitness improvement.

Smart training means observing some well-recognized guidelines:

- *Progression*—As you have seen, increasing intensity and/or duration by 10 percent at regular intervals is a good idea.
- *Warm-up*—Always take a few minutes to warm up your muscles to reduce your chances of injury. Your warm-up should include some running in place or slow jogging, stretching, and calisthenics. It should last five to seven minutes and should occur just before the CR or muscular endurance and strength part of the workout.
- *Stretching*—Critical to improving your flexibility, stretching increases your overall fitness and reduces the chance of muscle injury. After exercising, you should cool down by walking and stretching until your heartbeat reaches 100 bpm and heavy sweating stops.
- *Mechanics*—Concentrate on your form when exercising. Maintain intensity levels, but don't let your form suffer. You will not improve by doing exercises or repetitions incorrectly—you only increase your chances of injury.
- *Healthy Diet*—You've heard that "You are what you eat." Food is your source of strength and energy. What you eat will dramatically affect your ability to maintain and improve your overall fitness.

## Nutrition and Diet

Complete physical fitness is not just about exercise, but also includes good nutrition and a sensible diet. You maintain a healthy body weight and body fat percentage through sound diet and exercise to ensure the best health, fitness, and physical performance. All of these things are relevant to maintaining military readiness and achieving peak performance.

### The Food Pyramid

Knowing the US Department of Agriculture (USDA) Guidelines and understanding the **Food Pyramid** to determine your daily requirements of carbohydrates, proteins, and fat will help you make healthy food choices and improve your physical fitness. A new version

#### Food Pyramid

*an Agriculture  
Department nutrition  
tool to help you choose  
the foods and amounts  
right for you*

of the pyramid debuted in 2005 and shows the types of foods and the proportions that most healthy people should eat.

In addition, USDA has an interactive website to help you track your diet. Visit [www.MyPyramid.gov](http://www.MyPyramid.gov), where you can personalize your diet by age, gender, and general fitness level.

A healthy diet has the right kinds of foods in the right amounts. Look at the Food Pyramid in Figure 2.2. The person walking up the steps on the left represents the need for daily physical activity and different individuals' different nutrition needs. The different widths of the food group bands indicate the need for proportion—how much you should choose from each group.

The six color bands symbolize the food you need daily from each group for good health.

- Orange (grains): USDA recommends you eat at least three ounces of whole-grain bread, cereal, crackers, rice, or pasta every day. Half your grains should be whole. To make sure you're eating whole grains, look for the word "whole" before the grain name on the list of ingredients.
- Green (vegetables): You should vary vegetable servings, eating more dark green vegetables, orange vegetables, and dried beans and peas.
- Red (fruits): Eat a variety of fresh, frozen, canned, or dried fruit, but go easy on fruit juices, which may contain empty calories in the form of added sugars and sweeteners.
- Yellow (oils and fats): Most of your fats should come from fish, nuts, and vegetable oils. Limit your consumption of solid fats like butter, stick margarine, shortening, and lard. Instead, when possible, consume foods with omega fish oils, which help maintain your cardiovascular health.
- Blue (milk, an important source of calcium): Choose low-fat or fat-free milk. If you don't or can't drink milk, choose lactose-free products or other sources of calcium, such as hard cheese (cheddar, mozzarella, Swiss, or parmesan), cottage cheese, and low-fat or fat-free yogurt (including frozen yogurt).
- Purple (meat, beans, and eggs): You may notice that this band, like the yellow band for oils, is thinner than the others. This visually reminds you to "Go lean on protein." Choose low-fat or lean meats and poultry that are baked, broiled, or grilled



**Figure 2.2** The Food Pyramid

rather than fried. Vary your choices, including more fish, beans, peas, nuts, and seeds. If meat typically covers most of your plate, take another look at the Food Pyramid.

## Substances to Avoid

Proper health and fitness reflect a mature decision you make to set a good example for your unit. Moreover, it's a wise lifestyle choice that will help you live a longer, more productive life. As an officer in training, you should avoid substances that detract from your physical performance and even harm your health (drugs, tobacco, alcohol, etc.).

### Alcohol

Many people in our society have traditionally believed that alcohol—wine, beer, or hard liquor—relaxes you, increases your self-confidence, and alters your perception of stress or fatigue. It's true that for most people, light consumption of alcoholic beverages can be a pleasant social diversion. But habitual, heavy drinking or binge drinking can cause severe dehydration, decreased performance, dependence, and harm to your metabolism.

The Army expects you to exercise your judgment and drink responsibly, which includes obeying all laws regarding driving and the legal drinking age, if you choose to drink at all. And never drink to “quench your thirst” before, during, or after a workout.

### Tobacco

Cigarettes, cigars, and “smokeless” tobaccos contain a whole gamut of cancer-causing chemicals that provide no positive health effects. Some maintain that the “buzz” from tobacco leads to improved performance and reaction times, but no medical evidence supports this position. In the interest of good physical fitness, it is better if you don't smoke at all. If you do smoke, however, limit your intake and avoid smoking before, during, and after workouts. Smoking increases your heart rate and blood pressure.

### Controlled Substances

Controlled substances are those strictly regulated by the government and may require medical prescription. You should use such substances only under medical supervision. Other drugs such as amphetamines, narcotics, steroids, and other so-called “performance enhancing drugs” are illegal and banned by the military. These drugs change performance by increasing central nervous system arousal. They increase your heart rate and blood pressure and they may cause dizziness, nausea, irritability, insomnia—even death. No one interested in good physical fitness consumes these substances; they can only detract from your performance in both the short and long term. The Army forbids their use.

*You can find the Army's health-promotion and wellness website at [www.hooah4health.com](http://www.hooah4health.com).*



# CONCLUSION

Health and fitness are integral parts of military life. They are critical for readiness and important to the well-being of the individual Soldier. Although not a cure-all, a properly planned fitness program yields many physical and mental benefits. Effective physical training can improve your body composition (decrease body fat and increase lean body weight), ability to work, mental alertness, self-confidence, and general well-being. Exercise also decreases metabolic and mental health risks, such as high blood pressure, coronary heart disease, stroke, anxiety, depression, and much more.

With assistance from your ROTC instructors, you now should be able to apply the Army's general physical fitness principles to create a self-directed physical training program that meets your needs and fulfills your personal and professional goals.

## Learning Assessment

---

1. What are the components of physical fitness?
2. Describe the principles of physical fitness as expressed by the acronym P-R-O-V-R-B-S.
3. Explain the key factors of physical fitness training (FITT).
4. Explain how you can apply the USDA Food Pyramid to make improvements in your diet.

## Key Words

---

**P-R-O-V-R-B-S**

**FITT**

**P-R-I-C-E**

**Food Pyramid**

## References

---

- 3rd Brigade, 25 Infantry Division (L). May 2005. *Operation Enduring Freedom: Afghan Leader Book, April 2004–May 2005*. Retrieved 9 August 2005 from [http://rotc.blackboard.com/courses/1/CCR/content/\\_488714\\_1/Operation\\_Enduring\\_Freedom\\_Leader\\_Book\\_Apr\\_04\\_\\_\\_May\\_05.pdf](http://rotc.blackboard.com/courses/1/CCR/content/_488714_1/Operation_Enduring_Freedom_Leader_Book_Apr_04___May_05.pdf)
- AR 40-501, *Standards of Medical Fitness*. 14 December 2007.
- AR 350-15, *Army Physical Fitness Program*. November 1989.
- AR 600-9, *The Army Weight Control Program*. 27 November 2006.
- DA PAM 350-18, *US Military Academy Cadet Army Orientation Training*. 28 May 1974.
- Field Manual 7-1, *Battle Focused Training*. 15 September 2003.
- Field Manual 21-18, *Foot Marches*. 1 June 1990.
- Field Manual 21-20, *Physical Fitness Training*. Change 1. 1 October 1998.