

Fitness and Nutrition : Introduction to Managing Personal Health

Lesson 1 Overview

You might be a seasoned veteran of exercise classes or a diligent walker. You might already work in some capacity in the healthcare industry. Or, you might be a fitness “newbie,” eager to take charge of your own health and wellness. In this lesson, you’ll learn how being fit will help you feel good, both physically and mentally. You’ll learn about the basic components of a fitness plan, how to identify and handle stress, how to shop for healthy foods, and how to choose healthy meals when dining out. After all, mental and physical health often plays an important role in academic and career success.

As you continue through this lesson, you’ll learn how to set fitness goals and choose exercise plans that work toward your goals and fit your lifestyle. In the last section of this lesson, you’ll learn how to evaluate the legitimacy of fitness programs.

Fitness and nutrition is an ever-evolving field as we discover more and more about how human bodies use nourishment, grow stronger, and stay healthier longer. Health and wellness has never been more attainable. Most people want to live long, healthy lives, and many will look to others for help in reaching their fitness goals. If you’re up for the challenge, grab your workout clothes and a bottle of water, and let’s get started!

1.1 Discuss the basic elements of fitness and metabolism

The Benefits of Fitness

READING ASSIGNMENT



[Child with Ball]

When you were a young child, you probably played outside after school and on weekends.

When you were a child, your “work” was play. You likely were expected to “go outside and play,” participate on a sports team, and run around at recess. No matter what part of the world you grew up in, you were probably encouraged to “get physical” for some portion of the day. In Japan, teachers traditionally led their young students in morning calisthenics; in India, yoga was the first activity of the day; in Norway, brisk indoor exercises helped chase away some of the gloom of the polar night (nearly six months of the year with barely any sun). Parents and teachers knew that fitness was an important part of healthy physical and mental development.

However, before you knew it, you were on your own. As you got older, you began to sleep until the last minute, gulp down coffee and a vitamin tablet in the morning, slouch through the school day or workday, and spend evenings on the couch. You started off so well; what happened? Sure, you can say there’s no time to exercise or the gym is too crowded or you’re too tired to exercise. They’re great excuses, but how do you feel? More than likely you’re sluggish, moody, tired, and just a little grouchy—feelings that often result from poor fitness.

You’re probably all too aware of the effects of poor fitness, but do you know the real benefit of *good* fitness? Most exercise and physical fitness experts agree that good fitness benefits you both physically and mentally. Let’s take a quick look at the physical benefits of exercise.

Regular exercise can lower your resting heart rate. Your heart is a muscle, and muscles get stronger and more efficient with exercise. In fitness terms, *cardiovascular* exercise can improve the efficiency of your cardiovascular system. The average resting heart rate is about 72 beats per minute. In comparison, marathon runners and many aerobically fit athletes report resting heart rates as low as 40 beats per minute.

Cardiovascular refers to the heart and blood vessels.

Think of your body as a smooth-running car. If the engine is properly tuned and burning gas efficiently and all of the mechanical parts are in working order, the car will cover the most distance with the least amount of work. Similarly, if your muscles (including your heart) are healthy and strong, your body will operate more efficiently with the least amount of work. Just as a car engine is most efficient when it operates at the lowest RPM (revolutions per minute), your heart is most efficient when it's beating as few times per minute as needed. Exercise strengthens the heart muscle and promotes cardiovascular efficiency.



[Cardiovascular Exercise]

Regular cardiovascular exercise can lower resting heart rate, as well as the heart rate at a level of performance.

Regular exercise and a healthy diet keep veins and arteries elastic and free from obstruction. Think of the veins and arteries in your body as the hoses in a car. Just as regular maintenance keeps those hoses strong and clear, cardiovascular exercise keeps your veins and arteries healthy and clear. Healthy veins and arteries help the heart to work properly and keep blood pressure within normal limits.

Regular exercise is good for your lungs. What do you need most when you exercise? More oxygen! The more you use your lungs, the easier it is for them to absorb oxygen and

remove waste products. When you don't exercise regularly, your lungs are like a dusty old storeroom with all of the windows shut. When your lungs get regular exercise, it's like opening up those windows and filling that storeroom with clean, fresh air. As you probably already know, it's very important to keep your "storeroom" clean by avoiding tobacco products.

Regular exercise burns more calories. When you stick to a regular exercise program, your body burns calories more efficiently. You'll learn much more later in this study unit about how to naturally increase your *metabolism*, which will help you increase your muscle mass, burn more calories, and reduce the percentage of fat in your body.

Metabolism refers to all of the physical and chemical processes within the body that create and use energy. These processes include digestion, elimination, respiration, circulation, and temperature regulation.

Weight-bearing exercise strengthens bones and joints. Everyone should strive to maintain strong bones and flexible joints throughout their lives. Regular weight-bearing exercises, such as walking, running, and aerobics, help to keep bones and joints strong.



[Woman Walking]

In addition to the aerobic benefits, walking helps maintain strong bones and

flexible joints at any age.

Regular exercise strengthens muscles. Muscles will become stronger, firmer, and toned with proper exercise. Firm, well-toned muscles can also improve your physical appearance.

Regular exercise can reduce the risk of disease. Along with a healthy lifestyle, exercise can help reduce the risk of diabetes and heart disease—two chronic and often deadly diseases.

Regular exercise can help to alleviate the harmful effects of stress. Stress can take a large toll on your body. Exercise can reduce the harmful effects prolonged distress can have on your body. This course covers many stressors and their effects on the body, as well as identify ways to reduce or eliminate “bad” stress. After learning just a few of the benefits of physical activity, you might be motivated to get up, get moving, and have your recliner carted away. But wait, there’s even more good news about exercise. Let’s take a quick look at the mental benefits of exercise.

Exercise produces endorphins, which are naturally produced hormones that create feelings of happiness and well-being. When you exercise regularly, your lungs become more efficient. More efficient lungs take in more oxygen. Oxygen activates endorphins. When you put it together, being physically fit and mentally satisfied creates happy people who look and feel great.



[Woman Toning Arms]

Exercise helps to tone and strengthen your body, and it's great for emotional health.

Exercise increases the ability to better handle stress and tension. People who exercise regularly say they feel less tired, which makes it easier to cope with everyday whims and whines. The connection between body and mind becomes more apparent day by day. What might be old news to people from Eastern cultures is just now being explored in the West. Throughout your course, you'll see how your physical and mental well-being are closely related to each other.

Exercise reduces stress-related ailments. At one time or another, you've probably felt you've suffered from a stress or tension headache or stomach upset. With any luck, you haven't developed stress-related *hypertension* (high blood pressure) or elevated cholesterol, with resulting heart disease. If not controlled, your body's reactions to stress can be damaging. Regular exercise can help lessen the physical damage caused by stress. In just these few examples, you can see both the physical and mental benefits of routine, physical exercise. Regular physical exercise can reduce stress, as well as reduce the risks of many diseases and conditions that harm the body. As you develop a physical fitness routine, you'll have more energy, be better able to handle stress, and start to feel great about yourself.

Endorphins are painkilling chemicals that occur naturally in your body.

Key Points and Links

READING ASSIGNMENT

Key Points

- The benefits of exercise and healthy diet include heart health, strengthening bones and muscles, reducing disease and the effects of stress, and a sense of well-being.
- Cardiovascular refers to the heart and blood vessels.

Links

- [American Heart Association](http://www.heart.org/HEARTORG/) (www.heart.org/HEARTORG/)
- [American Heart Association: Physical Activity](http://www.heart.org/HEARTORG/HealthyLiving/PhysicalActivity/Physical-Activity_UCM_001080_SubHomePage.jsp) (www.heart.org/HEARTORG/HealthyLiving/PhysicalActivity/Physical-Activity_UCM_001080_SubHomePage.jsp)
- [Centers for Disease Control and Prevention](http://www.cdc.gov) (www.cdc.gov)

Exercise: The Benefits of Fitness

Based on what you've read, answer the following questions

1. If a person were to begin to exercise regularly, would his/her metabolism increase or decrease? What effect might this have on his/her body?
2. Define the following terms:
 - a. Cardiovascular
 - b. Metabolism
 - c. Endorphins
 - d. Hypertension

Exercise Answer Key:

Exercise: The Benefits of Fitness

1. Increase. Increased metabolism allows the body to burn calories more efficiently.
2.
 - a. A term that refers to the heart and blood vessels
 - b. All of the physical and chemical processes within the body that create and use energy
 - c. Pain-killing chemicals that occur naturally in your body
 - d. High blood pressure

1.2 Identify the components of physical fitness and stress management

The Road to Fitness

READING ASSIGNMENT

Whether you're beginning this course with the goal of improving your own personal wellbeing or you're considering seeking a career in the fitness industry, you need to start at the beginning. The road to fitness is strewn with technical jargon and misinformation. In future study units, you'll learn about many aspects of fitness and nutrition in greater detail. For now, let's take a look at the basic components of personal fitness and nutrition.

The Components of Fitness

A dictionary definition of *fit* in the context of being physically fit is "capable of surviving." There aren't many of us who don't want to survive as long as possible! But before we map

our road to fitness, let's take a look at the major components of physical fitness.

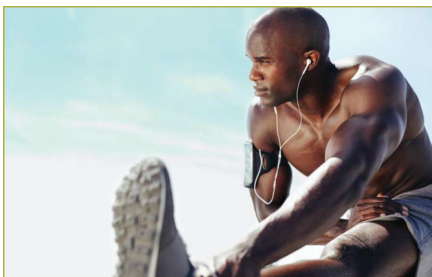
Aerobic Fitness

Sometimes called *cardiorespiratory endurance*, aerobic fitness measures how well your heart gets oxygen-rich blood to all your muscles while you're exercising. If you're aerobically fit, your heart is pumping efficiently, your blood is loaded with oxygen, and your muscles are able to use oxygen and make energy. You can consider yourself aerobically fit if you can sustain exercise for 30 to 60 minutes without unusual fatigue.

Muscular Strength and Endurance

Lifting bags of groceries, moving furniture, carrying textbooks, and lifting free weights all require *muscular strength*. Performing these tasks for extended periods of time requires *muscular endurance*.

Different exercises strengthen different muscle groups. For example, weight training (also called *strength training*, *bodybuilding*, and *weightlifting*) will build muscle strength. Swimming, cycling, and running will help build endurance and will also help to contour muscles.



[Man Stretching]

Learning to stretch correctly increases flexibility.

Flexibility

If muscles and joints aren't exercised, they become short and tight. If you're flexible, you may be able to prevent some common injuries, reduce lower-back and shoulder and neck pain, and feel better about performing everyday jobs.

Body Composition

Body composition refers to the overall makeup of the body, including the percentage of fat, the ratio of fat to muscle, the level of hydration, and bone density. Athletes and physically fit individuals generally have a lower percentage of body fat than people who don't exercise. Increased body fat can be related to an increased risk for diabetes, heart disease, and obesity. A consistent and regular exercise program reduces body fat and increases muscle. What you eat obviously affects your body composition as well. Exercise and food intake go hand-in-hand when it comes to a healthy body composition. Too many calories going in and too few being burned contribute to body fat.

Core Conditioning

Fitness is about making the whole person healthy. Many traditional exercises help you to strengthen or flex particular muscle groups, and that's a good thing. *Core conditioning* is about getting your entire body moving as one entity and producing a stability that comes from the trunk and the spine. Many exercises in core conditioning might look like traditional abdominal exercise. However, core conditioning involves learning how to do exercises correctly, rather than just going through the motions. Core conditioning also makes you aware of how you're using a muscle.

Preventing Injury

Properly done, exercise is very, very good for you. Improperly done, exercise can lead to muscle strains, pain, and muscle soreness. Selecting the right exercises, wearing the proper footwear, and using the right equipment and training area will lessen the chance of injury. Exercise, done properly, can help strengthen many body parts, reducing soreness during and after a workout. Proper exercise instruction will teach you how and when to move different body parts for maximum benefit and minimum injury.

Mental Health

Undue mental and emotional stress takes a toll on your body. Exercise and relaxation techniques can help alleviate stress and make you a happier, all-around healthier person.

Okay, so you're asking yourself, Where do I sign up? You already have! By beginning this fitness and nutrition course, you've taken a huge step toward your own health and wellbeing. So what's the next step toward a more fit, healthy you?

Lifestyle Changes

Fitness is a “whole picture” package. Exercise is a component, as is healthy eating and stress reduction. While you’re reading through this study lesson, consider what will work for you over the years. Fitness isn’t a sometimes thing; it’s an all-the-time thing. Reacting calmly when someone cuts you off on the road, selecting a juicy apple instead of a bag of chips, and making time to go for a walk are all part of your fitness plan. You decide what will work for you and what you’ll be able to continue over the years. Be realistic, and start slowly and surely. As you begin to form a fitness plan, consider the following tips.

Rest and Relaxation

Rest is as important to fitness as exercise and healthy eating. Without sufficient rest, your body won’t be strong enough to derive any benefits from exercise or good diet. It’s sometimes very hard to make time for enough sleep in this hectic world. Easier said than done, but you’ll have to try.



[Woman Sleeping]

A regular waking and sleeping schedule and a routine before going to sleep will set the stage for a restful, revitalizing sleep that’s essential for a healthy body and mind.

Using the old strategy of “I’ll sleep on my day off” won’t work. Many studies show that there’s no way to “catch up” on sleep; once it’s gone, it’s gone. The best way to guarantee getting all the benefits from your sleep time is to keep as regular a schedule as possible, going to sleep and waking up at the same time each day. Remember that sleep is tied to particular hormones in your body that ebb and flow at certain times of the day and night.

Watch your cat, dog, or goldfish throughout the day. Animals go through periods of activity and rest many times during the day. You should do that, too. Depending on your needs and your schedule, your downtime might be a full-fledged stretch-out-on-the-couch-for-20-minutes, or it might be a quiet rest at your desk with your eyes closed. Keep in mind that a rest is a rest—no TV, no laptop, no interruptions, if possible. Learn how to ignore outside sound or buy a pair of earplugs. Your rest time is a temporary shutdown to recharge your batteries.

How Much Sleep Do I Need?

Sleep is certainly a precious commodity in adult life. Although it might be difficult for you to find the time to do this test, it will provide you with helpful information on your sleep needs. You'll need about two weeks to do it properly. To determine how much sleep you need, get up at the same time every day, but change the time you go to bed over a period of 10 days. Keep a journal, noting how you feel when you wake up. Notice if you feel groggy after six and a half hours of sleep, but feel great after seven hours of sleep. Notice if you feel great after seven hours of sleep, but groggy after nine hours, and so on. You'll notice that too little or too much sleep can make you feel tired and unrested. You have to pay attention to your body's needs to find your ideal sleep time. Adjusting your daily schedule to accommodate your sleep needs might not be easy, but just think of how much energy you'll have when you wake refreshed and rejuvenated after a good night's sleep!

Stress Reduction

Believe it or not, a little bit of stress seems to be essential for success in life. Many healthcare professionals will tell you that humans need a little stress, or push, to achieve their goals. Examples of good stress might be when you need to be at school or work by a certain time each day or when you need to meet a work deadline. This type of stress helps to give many people the little prod they need to do well in life.

Stress is nothing new. For the earliest humans, stress came in the form of hunger. The feeling of hunger "stressed" the caveperson into seeking out a berry bush or catching a fish. You get the idea.

Unfortunately, most of us are very well acquainted with bad stress, or the type of stress that

doesn't lead to a productive end. Traffic jams and the neighbor's loud music are examples of everyday stress that cause us emotional upset that's physically and mentally damaging. If you're stressed, you won't sleep well. If you don't sleep well, you won't benefit from exercise. If you don't exercise, then you won't be healthy.

You can't eliminate stress, but you can learn to reduce it. The first step in stress reduction is to identify the causes of stress. List all the things that cause undue stress in your life. You may find that there are some stressors you can eliminate without too much difficulty.

There are techniques you can use to reduce your stress over stressors that you have little control over—barking dogs, traffic jams, demanding employers, delayed flights, and so on. Breathing exercises, biofeedback, meditation, exercise, and prioritizing schedules can all help lessen the effects of negative stressors. Stress and stress reduction will be examined in much more detail in future units. Until then, close your eyes, take a deep breath, and imagine yourself in a peaceful place.

Healthy Exercises

Okay, you say, here it comes. Here's the part where I'm told to live on bran flakes with low-fat soymilk, boiled Brussels sprouts, and wheat germ. Well, you aren't that far from the truth. Healthy eating should include whole-fiber foods, lower-fat foods, and fresh fruits and vegetables. In fact, you'll learn much more about good nutrition in future study units. In the next section of this study unit, you'll briefly explore healthy eating as it supports an exercise program.

Key Points and Links

READING ASSIGNMENT

Key Points

- Fitness includes these components: aerobic exercise, muscular strength and endurance, flexibility, body composition, core conditioning, preventing injury, and mental health.
- Becoming fit is an ongoing process that requires lifestyle changes. Sufficient rest and relaxation are necessary to give your body strength.
- Stress can be beneficial, or it can be damaging. Reducing "bad" stress is an important element in fitness.

- A healthy diet is balanced and includes fruits and vegetables, whole grains and lean protein.
- Weight management uses the equation, calories in equal calories out.

Links

- [Creative Visualization](http://visualization-techniques.org) (visualization-techniques.org)
- [American Heart Association—Stress Management](http://www.heart.org/HEARTORG/GettingHealthy/StressManagement/Stress-Management_UCM_001082_SubHomePage.jsp) (www.heart.org/HEARTORG/GettingHealthy/StressManagement/Stress-Management_UCM_001082_SubHomePage.jsp)

Exercise: Stress Reduction

Based on what you've read, answer the following questions

1. Define the following: a. Cardiorespiratory endurance b. Muscular strength c. Muscular endurance d. Flexibility e. Body composition
2. What are two examples of good stress in your life? Is it possible for good stress to turn into bad stress? Explain.
3. What are two examples of bad stress in your life? How can physical activity affect your overall stress level?
4. What are some stress management techniques that you currently use in your life?
5. Why is sleep so important in regards to your overall health?

Exercise Answer Key:

Exercise: Stress Reduction

1. a. How well your heart gets oxygen-rich blood to all your muscles while you're exercising
b. How much your body can do for a short amount of time
c. How much your body can do for an extended period of time
d. When the muscles and joints are long and loose
e. The overall makeup of the body, including the percentage of fat, the ratio of fat to muscle, the level of hydration, and bone density.
2. Two examples of good stress are deadlines and being on time. Good stress can become bad when a person has too many stresses and becomes overwhelmed.

3. Examples of bad stress are dogs barking, traffic jams, loud music, bad relationships, and other similar occurrences. Physical activity can help reduce stress and lessen the negative effects of bad stressors.
4. Breathing exercises, biofeedback, meditation, exercise, and prioritizing schedules are all examples of how a person can reduce stress.
5. Sleep allows the body to recover and reenergize. Without enough sleep, the body won't be strong enough to gain any benefits from a good diet or exercise.

1.3 Evaluate meal plans using healthy eating principles

Principles of Weight Management

READING ASSIGNMENT

Healthy eating is about keeping your body lean and mean. Overall weight isn't so much of a concern as is overall body fat. Eating healthy, balanced, lower-fat meals will help you build more muscle, reduce fat, have more energy, and give you that ruddy glow of good health. Just as in the story about Goldilocks and the three bears' beds, you don't want to be too thin and you don't want to be too fat—you want to be just right.

In future study lessons, you'll have the opportunity to study nutrition in depth. For now, let's take a quick look at why healthy eating habits are essential to a successful wellness plan. Just as a car can't run without fuel, your body can't meet the physical demands of exercise without healthy food intake.

Healthy eating is necessary to

- Supply energy and nutrients so your body can build muscles
- Develop and maintain your body's strength and endurance
- Maintain flexible joints and muscles
- Promote a proper muscle-to-fat ratio
- Prevent many avoidable conditions and diseases

The Definition of Diet

From a nutritional standpoint, a diet might be prescribed for weight loss, but it might just as easily be prescribed for weight gain, or simply for healthful weight maintenance over a lifetime. Yet, the word *diet* evokes a negative reaction from almost everyone. Many of us have been on and off weight-reduction diets with little to show for it but low self-esteem and a sense of failure. It's time to start thinking of our diets as a purposeful matter of living well.

Did you know that the word *diet* is from a Greek word that means “matter of living”? Today, the meaning of diet is simply “nourishment with food and drink.”



[Fruits, Vegetables, and
Grains]

A balanced diet filled with whole grains, fruits and vegetables, lean protein foods, and nuts, seeds, and vegetable oils will contribute to your overall fitness plan.

A regular diet of cupcakes and chips doesn't contribute to the nutrition your body needs to do its important work. Don't despair, however. There's no such thing as a good food or a bad food (unless you have food allergies). Balance is the key. If you establish a basic healthy diet, there's room for extra food now and again. A healthy diet (or manner of living) should include

- Five or more servings of fruits and vegetables (coming from juices; salads; soups; or fresh, dried, or frozen fruits or vegetables)
- Lots of whole grains, such as barley, brown rice, whole wheat or vegetable pasta, and whole-grain hot or cold cereals (such as oatmeal or raisin bran)
- Beans and lentils and lean protein foods, such as chicken, turkey, fish and seafood, and

low-fat soy products (such as tofu or tempeh, and nonfat dairy products)

Tofu is bean curd, which is a soft vegetable cheese made with soybean milk. *Tempeh* is an Asian food prepared with fermented soybeans.

Everyone needs a little fat in his or her diet—yes, it's true! However, according to the National Institutes of Health, only 30 percent of your daily calories should be from fat. Try to use unsaturated fats from plant sources, such as

- Vegetable oils, such as canola, olive, and corn oils
- Nuts, such as walnuts, pecans, or nut butters
- Seeds, such as sesame seeds or pumpkin seeds

Unsaturated fats are less likely to gum up the works, as in arteries, than saturated fats from butter, bacon, and coconuts.

A healthy diet needs to include a moderate amount of a wide variety of foods, including whole grains, fruits, vegetables, lean protein, nuts, and seeds. Imagine trying to get great performance from your car's engine by putting water in the gas tank. Or worse, soda. The same goes for your body. Eating nachos and soda won't give your body the fuel it needs for top performance.

Kilocalories, often referred to simply as *calories*, are the energy received from food and burned through activity. In other words, calories are the fuel your body burns.

The basic rule of weight management is *calories in equal calories out*. This equation will be referred to again and again as you study fitness and nutrition.

Using the equation, calories in equal calories out, you'll determine that if you consume more calories than you burn off, you'll gain weight. If you consume fewer calories than you burn, your body will convert body fat into calories to burn for fuel. With this equation in mind, review the following rules of weight control:

1. If the calories eaten equal the calories burned throughout the day, the result will be no weight loss (or weight maintenance).
2. If the calories eaten are *fewer* than the calories burned, the result will be weight loss.
3. If the calories eaten are *more* than the calories burned, the result will be weight gain.

4. To *gain* one pound, you must increase your intake by 3,500 calories. To *lose* one pound, you must decrease your intake by 3,500 calories.
5. Never try to gain or lose more than two pounds per week.
6. Establish an eating plan and pattern you can use over the long term. Short-term diets yield short-term results.
7. Establish the weight you feel will be healthy for you. To estimate a healthy weight range, refer to the weight charts or a body mass index (BMI) table.
8. Consult a healthcare professional. Before taking your car out for a long road trip, you have the oil, tires, and air filter checked. Before you march headlong into significant lifestyle changes, take your body in for a check-up. Make your healthcare professional part of your fitness team.

Visit [Choose My Plate](http://www.choosemyplate.gov/) (www.choosemyplate.gov/) for more information on healthy foods, serving sizes, and nutritional information.

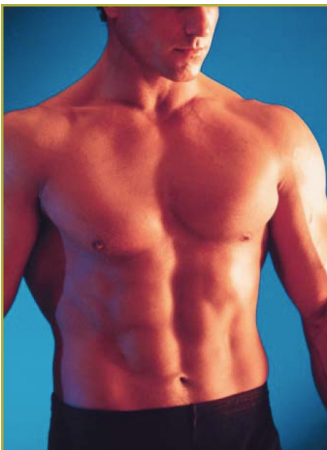
Body Mass Index

BMI, or *body mass index*, involves nothing more than a ruler, a scale, and a chart.

Remember that a simple weigh-in doesn't give a full picture of physical condition, because the percent of fat to muscle isn't shown on a scale.

Body mass index (BMI) is a measure of mass that's calculated as weight divided by height squared and then multiplied by 703. For example, a person weighing 220 pounds who is 6 feet, 3 inches (75 inches) tall has a BMI of 27.5.

$$220 \text{ lbs} \div (75 \text{ in})^2 \times 703 = 27.5$$



[Fit Man]

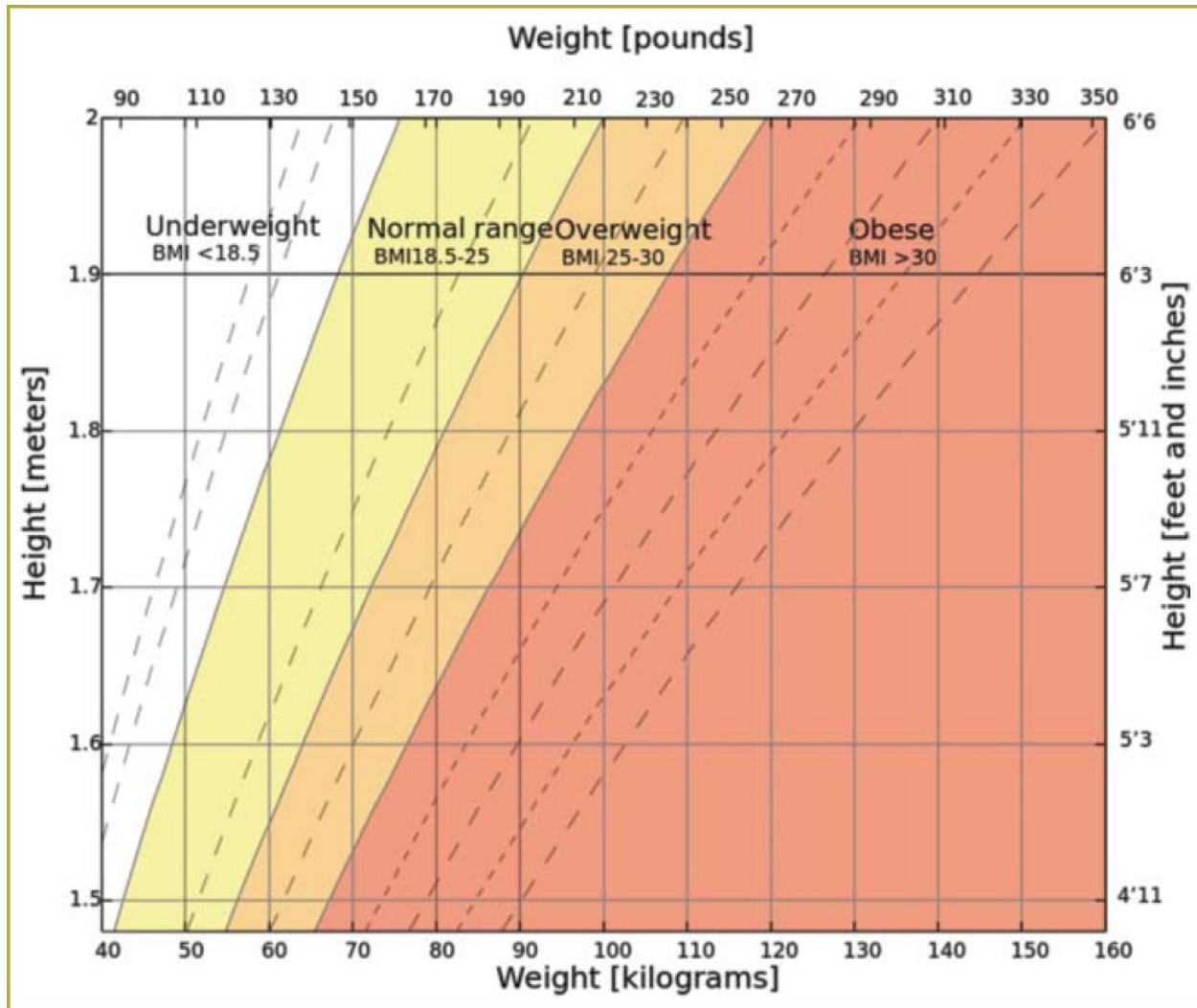
*With a healthy eating
and exercise program,
your body will consist of
more lean muscle and
less fat.*

Many health professionals feel that the BMI is more useful than a height-and-weight chart. You're familiar with those charts—you look up your height and then see what you're supposed to weigh. That's okay, but it doesn't take into account how much of your body is muscle and, more important, how much is fat. What you weigh isn't as important as how much of you is fat. Why is that? Moderate muscle reflects healthy living, and high fat indicates risk of high blood pressure, diabetes, cancer, and circulatory diseases.

Your BMI is just another indicator of overall health. The bodies of people who include weightlifting, skiing, and swimming in their regular exercise program will probably be composed mostly of lean muscle. When referring to a height-and-weight chart, these people might seem overweight because their denser muscle mass weighs more than fat. Now don't jump up and say that a pound of muscle is as heavy as a pound of fat. Of course it is. However, picture it this way: If your skin was a hollow shell and you filled it with muscle, it would weigh more than if your skin was filled with fat. That's because, by volume, muscle is denser than fat, and therefore an equal volume of muscle weighs more than an equal volume of fat.

The BMI has ranges for height and takes other factors into consideration. Another perk of the BMI is that it can be used for all ages. Other height-and-weight charts, such as insurance tables, are geared specifically to adults or children.

Review the BMI chart. Locate your height along the sides and then your weight across the top. Look where the two meet in the center of the chart for your BMI. As shown in the chart, a BMI of 18.5–25 indicates a healthy weight, a BMI of 25–30 is considered overweight, and a BMI higher than 30 indicates obesity.



[Body Mass Index Table]

Basic Nutritional Truths

“Miracle” diets have been around for centuries. Many different types of foods and the nutrients they contain have been sold over the years as cures for everything from cancer to flat feet. To understand how the truth gets twisted, let’s establish some basic nutritional truths.

Calories in equal calories out. Sound familiar? Though incredibly simple, we seem to forget this formula each time another fad diet hits the newsstand.

Weight can’t be lost in the spot you select. You can tone an area or tighten up some muscles, but you can’t lose weight in one specific spot rather than another.

There are no exclusively nutritional cures for most diseases. Eating a specific diet alone can't cure cancer, AIDS, hepatitis, or warts. Good nutrition is very important in helping the body to combat any disease. However, no one food has been shown to be a cure.

There's no one food that will reverse or prevent aging, get rid of wrinkles or cellulite, or whiten your teeth. Swallowing a vitamin or mineral tablet won't erase the effects of stress, sunlight, or a sedentary lifestyle. Good nutrition is a combination of lots of different types of food and fluids. Slowing the signs of aging includes not only good nutrition, but also exercise, ultraviolet protection, and not smoking, just to name a few. If some people have found the elixir of life, they're keeping it a secret.

It's important to understand that herbs should be considered medication, just like aspirin, penicillin, and Verapamil. Just because a product is advertised as "all natural from herbs" doesn't mean it doesn't have side effects, such as elevating blood pressure or causing kidney damage.

Extremes are never good. Eating absolutely no fat or exercising in a superheated room will leave you dehydrated and unable to absorb vitamins A, D, E, and K. These vitamins are fat-soluble. To be properly used by the body, they must be eaten with a small amount of fat, such as a few swallows of low-fat milk or a handful of nuts.

Separating Fact from Fiction in Advertising

The ad says you can lose 10 pounds over the weekend. What do you think? Remember the calorie equation: *calories in equal calories out*. Many, many different products on the market guarantee weight loss. You've probably heard about grapefruit juice or vinegar preparations that will "burn" fat away. Not only is this not possible, but it could also be dangerous to drink acetic acid (the acid contained in vinegar) over extended periods of time. In addition, grapefruit juice shouldn't be consumed with several common hypertension medications.

Not only is it impossible to lose real weight (fat) quickly, but it can also be dangerous to lose more than one or two pounds per week. Certain pharmaceutical and herbal preparations can induce the loss of fluid in the body—referred to as the *diuretic effect*. Along with losing water from your body, you lose essential minerals, such as potassium and magnesium. Lose enough of these minerals and your blood pressure will rise, your heartbeat will become irregular, and your kidneys will fail. Every year people are seen in emergency rooms after

taking certain weight-loss formulas. In the past several years, deaths have even been associated with some of these products. Drinking enough water is important; note that thirst isn't a good indicator of the body's need for fluids.

Any plan that guarantees that you can “lose all the weight you want and eat everything you want” is obviously false advertising. Either it doesn't perform the way it promises or it's so dangerous that no one should use it.

But what about products that seem reasonable? Many years ago there was a “diet bread” that was very popular. You were to eat a slice of this thin bread before meals and follow the diet plan that came with the bread. People lost weight on this plan, crediting the bread for having special properties.

How did it work? Well, to give you a hint, if you replaced the bread with a glass of water, you would have had the same effect. If you take a small portion of a low-calorie food before you sit down to a meal, you're already partially full. This will usually lead you to eat less and still feel full. The diet plan that came with the bread was a reasonable, low-fat menu. Was this product false advertising? No—just a way to make the wallets of nonnutrition-savvy people a little lighter.

There are no foods that burn or absorb calories. There's no single food that will enhance athletic performance or guarantee an “A” on your next exam. Of the two recent top-selling “diet” books in the country, one tells you to eat protein foods almost exclusively, and the other claims carbohydrate foods are the way to go. How can they both be right? The only way to lose weight is to take in fewer calories than you need. The only way to enhance performance—scholastic, athletic, or otherwise—is to eat a balanced diet, drink lots of fluids, and get reasonable amounts of exercise and rest.

But, you say, I feel better when I take the herbal study aid or I lose weight when I make my favorite diet soup. The mind is a wonderful thing! The power of suggestion makes many things possible. If you think and believe that that herbal study aid will help you concentrate, then it probably will. That diet soup you make is probably low in calories and fat, and you're probably careful about the other foods you eat with it. That's what's working!

Your Eyes Are Bigger than Your Stomach

You already know food-shopping rule number one: Don't shop when you're hungry. Each of

us has done it, and we know the results: buying treats and snacks on impulse in an attempt to quickly satisfy our hunger. If you don't have time to eat before you shop, grab something from the market salad bar or deli section before you do your shopping. Your body and your wallet will thank you.

When you're shopping, become an avid label reader, especially for the treats you think you can't live without. Take a moment and read the label. Each cookie has 200 calories, and the box has 20 cookies—that's 4,000 calories! One serving of chips is eight chips. Are you really going to eat only eight of them? One little pint of ice cream contains five servings—are you really going to divide that pint into five separate desserts? Reading the label and thinking about the amount of exercise necessary to burn off all those calories might just convince you that you can live without it.



[Ice Cream Nutritional Label]

You might be surprised at how small the serving size is or how much fat, sugar, or salt is in many of the packaged foods you buy.

You might also use price comparison when you're making your grocery choices. If you haven't paid attention in the past, you might not realize that you can buy five medium apples or five pears for the cost of one large bag of chips. Not only will you lose the extra calories, but you'll also save money on your grocery bill, too!

But I deserve a treat, you say. That's true, so use the money you've saved at the grocery store to treat yourself to a book, movie, or massage.

Have It Your Way

Going out to eat is fun. Saying, “No thanks, I’m on a diet,” isn’t. You can go out to eat and have a satisfying meal without a lot of excess fat and calories—that is, if you’re up for the challenge. Obviously, there’s no way to turn a double-bacon cheeseburger into a lean meal.

It’s possible to have a lower-calorie, lower-fat restaurant experience. First, unbooby-trap the table. If bread or rolls are served, move the butter out of the way. Believe it or not, most breads actually taste good without butter. Savor the flavor and texture as you chew each bite slowly. If there’s a basket of peanuts, take a handful and pass the basket down. Out of sight, out of mind.

Next, ask for gravies, sauces, and salad dressings on the side. If you have to think about adding them, you’ll probably use less.

Last, but not least, remember what your mother taught you: share! Start out with one appetizer and share it with a dining partner. You can always order another one, but chances are your entrees will be just around the corner. When it comes to oversized dinner portions, you can share with yourself! Divide the meal and enjoy half at dinner and take half home for lunch or dinner the next day.

Key Points and Links

READING ASSIGNMENT

Key Points

- A measure of body mass index (BMI) gives a fuller picture of physical condition than a height-weight chart.
- Myths about diets that cause weight loss and cure diseases have existed for centuries and are often touted in advertisements.
- Careful shopping includes reading labels and not shopping on an empty stomach.
- A restaurant meal can be healthy with wise choices.

Links

- [US Department of Agriculture Choose My Plate](http://www.choosemyplate.gov) (www.choosemyplate.gov)
- [Academy of Nutrition and Dietetics](http://www.eatright.org/) (www.eatright.org/)
- [Discovery Fit & Health—Healthy Eating Tips](http://health.howstuffworks.com/wellness/food-nutrition) (health.howstuffworks.com/wellness/food-nutrition)

Exercise: Diets and Healthy Eating

Based on what you've read, answer the following questions.

1. List five benefits of healthy eating.
2. How can a person safely and effectively lose weight?
3. Give some reasons that a person might have to go on a diet?
4. What's the difference between a 2,000-calorie diet that contains sugary, fatty foods and a 2,000-calorie diet that is well-balanced in carbohydrates, fats, and proteins?
5. If a person needs 2,000 calories per day yet regularly consumes 3,000 calories per day, what most likely will happen, according to the "calories in equal calories out" equation?
6. According to the BMI chart, under what category do you fall? Why is BMI not always the best indicator of overall health?
7. Describe some ways to eat healthy when eating at a restaurant.

Exercise Answer Key:

Exercise: Diets and Healthy Eating

1. Healthy eating is about keeping your body lean and mean. It will help you build more muscle, reduce fat, have more energy, and give you a ruddy glow of good health.
2. By balancing diet and exercise and following the principle of calories in versus calories out.
3. Lose weight, feel better, prevent diseases, and control diseases
4. A well-balanced diet, although the same amount of calories as a sugary diet, will give the body what it needs in regards to nutrition. A sugary diet doesn't provide the body with anything it can use to function or be healthy.
5. The person will gain weight.
6. Use the formula or an online resource to calculate your BMI. Determine where your BMI falls (normal, overweight, or obese). BMI doesn't take into consideration a person's percentage of body fat, nor does it analyze a person's diet or exercise habits.
7. If bread or rolls are served, move the butter out of the way. If there's a basket of peanuts, take a handful and pass the basket down. Ask for gravies, sauces, and salad dressings on the side. Share your appetizer. Divide your meal into two portions and take one portion home.

1.4 Develop short- and long-term physical fitness goals

Planning an Exercise Program

READING ASSIGNMENT

You're getting lots of rest, walking away from stress, and chomping on carrots. What else is there to do? That's right, exercise! Exercise is another important component orbiting you in your fitness universe.

A well-thought-out plan is essential. So, set your fitness goals, check them out with a healthcare professional, and then start working toward them. You might have to try several different exercise classes, convince the family you're serious about having an hour of private time to work toward your fitness goals, or tweak your goals and schedule until you find a plan that works in your best interests. Don't forget to assess your goals periodically to see if you're moving toward them. If not, make the changes necessary to get moving in the right direction. Before you know it, you'll be amazed at what you've accomplished.

Determine Your Goals

As you begin your fitness plan, you'll need to think about your fitness goals, types of exercise you can do or would like to learn, budget restraints, and the time you'll be able to allocate. See the following image for a sample table that will help you determine what some of your short- and long-term exercise goals might be.

Don't shortchange yourself by jumping into some type of exercise before having a clear plan of where you want to be and how you're going to get there. Before you can do it, you need to plan it.

Planning exercise goals means sitting down and figuring out reasonable short- and long-term goals and identifying what the obstacles could be to these goals. While you're planning, be sure to consider the following:

- Genetics (For instance, do you have a family history of congenital back problems? Gymnastics might not be an ideal exercise for you.)

- Age
- Current level of fitness
- Physical injuries (Bad knees? Jumping rope might not be the best cardiovascular exercise for you.)
- Availability of facilities (The sidewalk's always available; the swimming pool might not be.)
- What you're seeking to achieve

| Category | Current Status | Short-Term Goal | Long-Term Goal |
|-----------------|-----------------------|--|---|
| Aerobic Fitness | Fair | Work up to 30-minute swim three times a week | 60-minute swim three times a week |
| Strength | Poor | Enroll in resistance-training class | 30-minute free-weight workout every other day |
| Endurance | Poor | Begin 10- to 15-minute stationary or outdoor bicycle workout | Increase time and intensity on bicycle to at least 30 minutes three days per week |
| Flexibility | Fair | Take a hatha yoga class | 45-minute morning or evening yoga routine |

[Setting Exercise Goals]

Write down your goals so you can remind yourself what they are from time to time.

Plan Realistically

We all tend to do a bit of dreaming when we're setting goals. You might picture yourself exercising on the beach, doing yoga at dawn, or running five miles after work each day. Unfortunately, what you'd like to do and what you're able to do might not be the same. If you're realistic when developing your goals, you'll increase your chances of achieving them. Understand that your first plan of action might include a bit of wishful thinking. Take a realistic

look at your new goals and identify any legitimate obstacles. Revise your original plan to take into consideration available time, exercise preferences, and budget.

For example, you might envision meeting your flexibility fitness goal by attending a two-hour sunrise yoga class four times a week. Sounds good, but be realistic. Are you really going to wake up at 4 A.M., travel to a mountain yoga center, spend two hours doing yoga, travel back home to shower, dress, and commute to work four mornings a week? Do you think you'll really enjoy a two-hour class that starts at 5 A.M. and leaves you 30 minutes to shower, change, and get to work? If your answer is *absolutely*, then go for it. If you're having some reservations, aren't a morning person, and need an hour to prepare for work each day, you need to be honest with yourself and revise your game plan. Perhaps there are after-work yoga classes that fit the bill. Perhaps you can take a class or two and continue flexibility training on your own, following along with yoga videos. There are always ways to accomplish realistic goals.

If one of your exercise goals is to become aerobically fit, your first thought might be to walk for an hour after work. But if you have three children who need to be picked up from soccer practice and need dinner and homework help, you might end up falling into bed rather than walking. A better, more realistic goal might be to walk for a total of one hour a day. Two 15-minute walks at break times and a 30-minute walk at lunch will better fit your schedule and leave you more relaxed and refreshed during work.

There are many, many ways to include exercise in your day. You'll have your established Monday, Wednesday, and Friday fitness classes or your Tuesday, Thursday, and Friday running club or your five-days-a-week swim sessions. This type of scheduled exercise is crucial for a consistent fitness program. Then there's the extra, added exercise that you can work into your day. You know some of the ways already:

- Use the stairs instead of the elevator.
- Park at the end of the lot and walk.
- Get off the bus or the train one stop ahead and walk to work from there.
- Walk and cycle to destinations instead of driving.
- Wash and wax the car yourself instead of going through the automatic carwash.
- Put some extra effort into household cleaning chores.

Keys to Exercise Success

So, you've put some thought into where, when, and for how long you'll exercise. As you develop your fitness plan, keep these keys to success in mind:

- Establish short- and long-term fitness goals.
- Choose activities that you enjoy.
- Choose convenient workout locations.
- Have a regularly scheduled time to exercise.
- Keep your enthusiasm and motivation up by rewarding yourself for reaching mini-goals along the way.
- Read articles about your chosen exercise.
- Hang out with people who do the same exercises.
- Exercise with a friend if it helps keep you on target.
- Adjust your goals and routine to suit your schedule and your body's needs.
- Incorporate physical activity into your day whenever possible.

Take a look at some more exercise ideas in the box that follows.

IMPROMPTU EXERCISE IDEAS

- Instead of watching the news at the end of the day, throw on your iPod and stroll while you listen to a podcast.
- Walk around downtown or go bowling instead of playing video games.
- Rent a canoe instead of going to the movies.
- Take a bike ride instead of a drive in the country.
- Join a friend for a lunchtime walk rather than eating a heavy lunch.
- Dance around the house to music while cleaning rather than dragging through chores.

Principles of Building Fitness

Once you've considered your needs and interests and are ready to design your physical activity program, you must keep in mind the four key principles of building a fitness program: specificity, overload, progression, and regularity.

Specificity

Specificity refers to choosing the right activities to improve a certain fitness element. For example, if your fitness goal is to build muscular strength, you should include activities in your plan that will help build muscular strength, such as resistance-training activities. If your fitness goals are to improve flexibility, then including stretching exercises, yoga, or Pilates in your exercise plan is crucial.

Pilates refers to a body-conditioning system created more than 80 years ago by Joseph H. Pilates. Pilates exercises concentrate on integrating the mind, body, and breath to create strong abdominal muscles, as well as strong and flexible back muscles.

Overload

For a fitness program to be successful, the overload principle must be applied. The *overload principle* means that you're exercising at a more intense level than in your daily activities. You won't see very much change in your fitness level if the exercises that you perform don't place a higher demand on your body than what you're used to doing. It's the increase in demand that will force your body to adapt and ultimately grow stronger.

Progression

As your body grows stronger, you must gradually increase the demands on your body. This process, known as *progression*, is essential in the continual improvement of your fitness level. Progression means working a little harder or for a longer period of time during each workout than you did during the workout before. You can even achieve progression by increasing how often you work out.

Regularity

Finally, for any fitness plan to be effective, you must work out on a regular basis. Your weekly goal should be to include at least three balanced workouts, which will help to maintain your fitness level. To avoid boredom, choose a variety of activities that will allow you to achieve your recommended amount of activity each day.

Fitness Fads and Facts

Urban myths, superstitions, and just generally incorrect information abound about, well, just about everything! Remember the "if someone hits you on the back when you're crossing your

eyes, your eyes will stay crossed?” Do you avoid walking under ladders so you won’t have bad luck? There are hundreds of superstitions and urban myths that circulate around the world and move through generations.

For example, in times past, it was thought that a woman lost a tooth for every baby she delivered. Unfortunately, many women probably did lose teeth due to calcium loss, but it wasn’t because of having a child; rather, it was due to poor diet. Many of these tall tales or superstitions arose out of a need to explain commonly occurring events.

Not crossing your eyes or walking around ladders probably won’t hurt your daily schedule, but faulty information about fitness might prevent you from doing certain exercises or accepting certain limitations as fact.

Take a moment to see how you shape up in the urban myth department. You might be surprised that what you accepted as fact was simply misinformation.

- *True or False?* As you get older, you lose muscle and gain fat, no matter how active you are or what you eat.

False! Certainly as you age, your shape may change a little. You can’t defy gravity or the effects of being exposed to sun and wind. However, physically active people who maintain a healthy weight can continue to increase their lean body mass (muscle) and decrease the percentage of body fat. It’s true that you require fewer calories as you get older—and this starts sooner than you think. You actually begin to require fewer calories as early as 18 years of age, not 80. Most people don’t change their eating habits as they age, so they continue to consume the same number of calories while becoming less active, which results in more fat and less muscle. More fat and less muscle results in weight gain and flabby bodies.

- *True or False?* The more you exercise, the more protein you need.

False! Your body uses carbohydrates, protein, and fats for different types of energy. Protein is usually saved for repair (for cuts, burns, tears, and other such injuries) and for maintaining tissues. A balanced diet will give your body the correct fuel it needs to exercise at maximum efficiency. And, by the way, eating more protein doesn’t help to build muscles. In fact, many professional bodybuilders are vegans!

A *vegan* is a vegetarian who doesn’t eat any animal products.

- *True or False?* You should have a doctor or healthcare professional checkup before starting a fitness routine.

True! A solid fitness routine requires a decent amount of planning. Part of the plan should be to get a checkup. You can undergo a treadmill stress test to determine your cardiovascular fitness, or a body fat percentage test to determine your present body composition. Many healthcare professionals can help you determine the types and duration of exercise best suited for you. Do your own research and also take advantage of a healthcare professional's expertise.



[Personal Trainer Helping Man on Treadmill]

Maintaining an adequate level of activity counters the need for fewer calories and continues to strengthen muscles and joints.

- *True or False?* No pain, no gain.

False! Pain is never a good thing and should *not* be accepted as part of fitness program. An occasional sore muscle or a little tenderness here or there may be part of starting a fitness program or trying out a new exercise. But “working through the pain” is bad advice at best and a serious injury at worst. Listen to your body. If an exercise is painful, it could be that your muscles aren't warmed up enough or you aren't using the correct technique. Pain can also indicate that your body simply isn't suited for that particular

type of exercise or isn't strong enough yet to endure the length of the workout. *Pain* means *stop*. *Soreness* means you should allow your body to recover and muscles to heal.

- *True or False?* Drinking water while you're exercising is a good idea.
True! Sipping water before, during, and after exercise is a good idea. When you exercise, your muscles generate heat. Water helps to keep the body cool so that you don't overheat. Also, if you don't replace the water you lose during exercise, you can become dehydrated. (Remember that 60 to 70 percent of your body is composed of water.) Dehydration can lead to confusion, fatigue, dizziness, and irregular heartbeat and is eventually life-threatening.
- *True or False?* You don't need to drink water when you exercise if you don't get thirsty.
False! Thirst is a very poor indicator of dehydration. By the time you feel thirsty, you're probably already on the road to dehydration. During exercise, drink water early and often.



[Woman Drinking Water]

Sipping water before, during, and after exercise will keep your body hydrated and healthy.

- *True or False?* To lose weight, you need to limit starches, such as pasta, rice, beans, breads, and potatoes.

False! Carbohydrates and proteins both have four calories per gram when eaten.

There's no point in totally eliminating one or the other from your diet. Many times, it isn't the carbohydrates we eat that are fattening—it's the fat we add to the carbohydrates.

Baked potatoes don't come from nature with sour cream, shredded cheddar cheese, and butter! Your body requires carbohydrates for fuel and doesn't work efficiently without sufficient amounts of carbs. It's never a good idea to eliminate an entire category of food.

- *True or False?* You shouldn't work out with joint pain, especially weak ankles.

False! Fitness training helps to improve joint flexibility, increase blood circulation, and keep the joints mobile. There are exercises for every muscle that can be done with care to develop and strengthen joints. Consult a healthcare professional and devise a workout plan that will work for you without pain.

- *True or False?* Warm-ups are for wimps.

False! Soft-tissue injuries are no fun for anyone. There are different methods to warm up your entire body, and a warm-up should be a part of every exercise routine. Warm muscles are more flexible, making them less prone to injury.

- *True or False?* I can work out at any time of the day and get the same exercise benefit.

True! Some people believe that if you don't exercise in the morning, you won't get any benefit. Not so! The best time to work out is the time you've got! Though exercise at any time of the day benefits your body, a good workout gives an energy boost, so you might not want to work out too close to bedtime.

Carefully Examine Fitness Claims

Well, how did you do? Hopefully, you knew many of the correct answers already. If not, you're on the path to learning the facts about nutrition, exercise, and wellness that will last you a lifetime.

There has always been fitness and nutrition information that sounds reasonable on the surface but has no backing in science. There may be a kernel of truth in the information, but not enough to make it reliable. At the least, following such information might cost you some

money or time, but not necessarily cause harm. For example, you might have been told that brushing your hair 100 strokes each day will make it look silky and lustrous. There's no scientific proof that 100 brush strokes will provide any benefit to your hair, but it might make your arms a little stronger!

At worst, bad information can lead to illness, physical harm, or even death.

Fitness and nutrition are relatively new fields of study and are combinations of many subjects, including physiology, psychology, biology, economics, and medicine. The more you study fitness, the more you'll learn about all these sciences and their impact on the body and mind. The more you arm yourself with accurate, scientific information, the better prepared you'll be to sort out fact from fiction.

Current Fitness Trends

Fitness and nutrition programs have been with us since the gladiators, but never have they been so readily available and accepted as they are now. The ancient Greeks and Romans believed that athletes belonged to a special class; you either were one or you weren't. If you weren't, you didn't need to exercise. Fortunately for all of us, we've come a long way from an all-or-nothing attitude about fitness. We now know that everyone can strive for wellness and longevity.

Look at a catalogue of classes from most cities' parks and recreation departments, community colleges, or public and private gyms and exercise facilities. You'll find prenatal exercise sessions, "Mommy (or Daddy) and Me" exercise classes, gymnastics for toddlers, preschool tumbling, amateur sports leagues or clubs for all ages, aerobic belly dancing, yoga weekends, and water aerobics for seniors. You'll also often find several 5K or 10K runs scheduled in your area.

Take a stroll around the supermarket. Healthy is in. More and more stores are offering not only organic produce, but also organically manufactured bread, hot and cold cereal, canned soup, fruits and vegetables, meat, milk, and frozen entrees.

Organic refers to food grown and processed without chemicals, hormones, or pesticides.

Products with lower fat and salt content are tastier than they've ever been and are available in greater variety. Healthy-cooking classes are springing up all over, as are healthy living

columns in newspapers and website articles. Check out your favorite online retailer: An array of cookbooks is available, devoted to healthy cuisine that tastes as great as it looks.

You don't have to go to specialty stores anymore to find fitness clothing, shoes, and equipment. You can find a wide range of products in a wide range of prices for just about any fitness activity in which you're interested.

What does all this emphasis on fitness mean to you? It means you should have an easy time finding the resources you need to get yourself ready to get in better shape.

Key Points and Links

READING ASSIGNMENT

Key Points

- An effective exercise program requires realistic planning and reasonable goal setting.
- A successful exercise plan includes activities you enjoy, regular times for exercise, and adjustments to fit your schedule and your body's needs.
- Fitness building incorporates specificity, the overload principle, progression and regularity.
- Evaluate fitness claims for scientific proof.

Links

- [Health Quiz](http://www.allthetests.com/health-tests-quizzes.php) (www.allthetests.com/health-tests-quizzes.php)
- [Shape Fit](http://www.shapefit.com/fitness-games.html) (www.shapefit.com/fitness-games.html)

Exercise: Planning for Fitness

Based on what you've read, answer the following questions.

1. What are some points to consider when you begin to plan an exercise program?
2. Why is the principle of progression essential to increasing fitness? Name two ways progression can be applied to a fitness program.
3. List the four principles of building fitness.
4. Why is being well-educated in fitness fads so important to your overall health?

Exercise Answer Key:

Exercise: Planning for Fitness

1. When planning an exercise program, consider genetics, age, current level of fitness, physical injuries, availability of facilities, and the goals you're trying to achieve.
2. Progression improves physical fitness because the person is forcing the body to work harder each time he or she exercises. It can be achieved by working out for a longer period of time, more frequently, or with increased difficulty.
3. Specificity, overload, progression, and regularity
4. A person should be aware of the claims that some fitness fads make because misinformation can lead to serious health consequences. A person should know what's safe and effective for his or her own body and be aware that certain claims made by fitness fads are unreliable and dangerous.

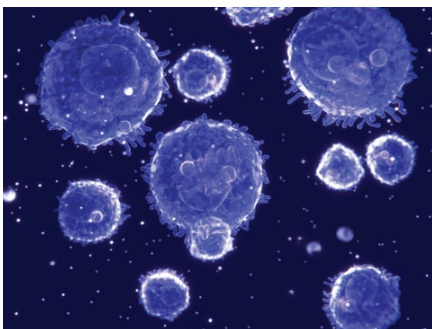
HIV and AIDS Awareness

READING STUDY MATERIAL

This supplement was developed to provide a basic introduction to HIV/AIDS. You need to be aware of what AIDS is, how HIV is transmitted, and how to prevent HIV infection.

Access the [AIDS.gov](http://www.aids.gov/hiv-aids-basics/) (www.aids.gov/hiv-aids-basics/) website to learn more about the prevention and treatment of HIV/AIDS, or contact your local healthcare provider.

What Is AIDS?



[T Cells]

T cells, shown here, are attacked and destroyed by HIV, weakening the immune system.

*When less than 200 T cells
exist per cubic milliliter of blood,
AIDS is diagnosed.*

Acquired Immunodeficiency Syndrome (AIDS) is a disorder of the immune system that destroys the body's ability to fight off infection. Eventually, people with AIDS can't fight off opportunistic infections and certain types of cancer. *Opportunistic organisms* don't usually cause disease in a person with a properly functioning immune system. Opportunistic infections result when a person's immune system can't fight off these organisms found in the environment.

AIDS is caused by a virus known as the *human immunodeficiency virus (HIV)*. When HIV enters the body, it attacks and destroys certain white blood cells called *T cells*, or *CD4⁺ cells*. The stages of HIV infection are usually divided into four phases: acute HIV infection, a latency period, persistent generalized lymphadenopathy, and AIDS diagnosis. Each of these periods is discussed briefly next.

Acute HIV Infection

Initial infection can occur years before a person suspects HIV infection. HIV is first experienced as a severe flu-like illness characterized by fever, sore throat, muscle aches, and diarrhea. At this point, the body reacts to the infection and the virus enters an inactive phase.

Asymptomatic Latency Period

After the initial symptoms subside, the carrier goes through a long period (up to 10 years) with no symptoms. During this phase, the individual may not realize HIV infection is present. A blood test, known as a *viral load test*, that looks for HIV antibodies may reveal the presence of HIV infection during this period. However, it can be many months before there are sufficient antibodies to be detected, so accidental transmission is greatest during this phase. HIV isn't dormant during this phase. The activity, however, is confined to the lymph nodes.

Persistent Generalized Lymphadenopathy

Before the development of full-blown AIDS, many individuals experience

a period of lesser symptoms known collectively as persistent generalized lymphadenopathy. These symptoms include enlarged lymph nodes, fever and sweats, skin rashes, diarrhea, chronic fatigue, weight loss, memory loss, and nervous disorders. The symptoms appear because the immune system is failing.

AIDS

The last stage of the HIV infection cycle, AIDS is officially diagnosed when there are fewer than 200 T cells detected per cubic milliliter of blood. As AIDS progresses, opportunistic infections can't be fought by the body's immune system, and the individual eventually dies as a result of AIDS-related disorders.

Who Gets HIV?

When HIV was first identified in the United States in 1981, it was thought to be exclusively a disease among the homosexual male population. It became evident that HIV infection was being passed not only between homosexual males, but also through blood transfusions, intravenous drug use, male-to-female sexual contact, female-to-female sexual contact, a mother to her baby, and exposure in the workplace, such as from patients to health care workers.

As of December 2013, the number of people living with HIV/AIDS worldwide was 35 million. Of those 35 million, about 2.1 million were newly diagnoses cases. Approximately 1.5 million people died from AIDS-related illnesses in 2013.



[Children in Sub-Saharan Africa]

*More than 3 million children
under 15 are living with AIDS all*

over the world, with 91 percent of them in Sub-Saharan Africa.

In the United States, the disease is spreading primarily among young people, with half of all new infections in people under 25. And although the rates of infection are highest in large metropolitan areas, smaller metropolitan areas and rural areas are also showing increased incidence of HIV infection (Figure 1). Around the world, Africa is by far the hardest hit. More than 3 million children under 15 are living with AIDS all over the world, with 91% of them in Sub-Saharan Africa. In all, more than 39 million people have died of AIDS since 1981.

HIV Transmission

The human immunodeficiency virus is most commonly found in blood, semen, and vaginal secretions. The greatest risk factors for contracting HIV infection are participating in unprotected sexual activity and in intravenous drug use. The virus can also be passed along from a mother to a fetus and from a mother to an infant during delivery. The virus has also been found in lower numbers in urine, saliva, exhaled breath, sweat, stool, and breast milk.

Before 1985, transmission occurred by transfusion of HIV-contaminated blood products, but this form of transmission has virtually stopped due to blood screening. Research has shown that HIV isn't transmitted by casual contact (even extensive contact such as that among family members or friends).

AIDS Prevention

The only way to prevent the spread of HIV infection is to avoid specific activities or to take safety precautions when engaging in activities known to spread the infection.

Prevention During Sexual Contact

The most effective way to prevent the spread of HIV infection through heterosexual or homosexual contact is to avoid high-risk activities. Do not have unprotected vaginal, oral, or anal sex, unless

- You and your partner are in a long-term, monogamous relationship. (*Monogamous* means that you have only one sexual partner at a time.)
- Both you and your partner have tested negative

- Neither of you has engaged in any unsafe sexual activity for at least six months prior to HIV testing

Another high-risk situation is having multiple partners, even when using protection against infection. Engaging in sexual activity when you or your partner also has another sexually transmitted disease is also considered a high-risk activity.

PROPER USE OF A CONDOM

Condoms can be highly effective in preventing HIV and other sexually transmitted diseases. However, there's still a risk of transmission if you only use condoms, use them inconsistently, or use them incorrectly. To effectively protect yourself,

- Use a condom every time you have sex.
- Use condoms only from undamaged packages. Never keep a condom in a wallet or pocket.
- Check the expiration date before using a condom.
- Use only latex condoms to prevent HIV.
- For latex condoms, use water-based lubricants, such as K-Y Jelly, not petroleum-based lubricants, such as Vaseline. Lubricants that aren't specifically made to use with latex condoms can damage condoms, making them useless against infection.
- Place the condom on the penis before any risk of leakage occurs.
- Don't attempt intercourse unless the penis is fully erect. The condom must remain in place from the beginning to the end of intercourse.
- Withdraw the penis while it's still erect, while holding the condom in place to prevent slippage.
- Properly dispose of the condom.

Prevention for Intravenous Needle Users

Intravenous needle users are at risk for HIV infection when they share needles with an infected person. The most effective way to prevent the spread of the disease among needle users is to not share or reuse needles. Other types of needles, such as those used for tattooing and body piercing, can also spread the HIV if they're reused without being sterilized.

Prevention for Health Care Workers

If you're involved in any aspect of health care in the medical environment, you must take precautions to prevent the spread of infection among patients and between yourself and a patient. You must also prevent transmission from contact with equipment, supplies, and instruments that may be contaminated. You should always adhere to strict Universal Precautions when working in a medical setting.



[Needles Being Put into a Sharps Container]

Gloves, needles, and other medical waste must be properly and carefully in hazardous waste containers.

You must use gloves and other personal protective equipment whenever there's risk of contamination from blood, tissue, or body fluids. You must dispose of gloves and other medical waste properly. You need to be especially careful when handling sharp or pointed instruments and equipment. Always dispose of needles in puncture-proof biohazardous waste containers. Pick up glass and other sharp objects with tongs and dispose of such material in puncture-proof biohazardous waste containers.

Recognizing the Symptoms of AIDS

Although the following symptoms can also be the signs of other diseases, if you have any of these symptoms, you should consider having an HIV test. The earlier the infection is detected, the earlier treatment and the prevention of

transmission can begin.

- Unexplained fatigue
- Weight loss of more than 10 pounds in less than two months without dieting
- Unexplained fever, chills, and night sweats for more than two weeks
- Unexplained swollen glands for more than a month
- Unexplained persistent dry cough, shortness of breath, or difficulty in breathing
- White patches on the tongue or mouth that can't be scraped off

HIV/AIDS Treatment

There is no cure for AIDS, and no vaccine can prevent HIV infection. The wide variety of opportunistic infections that may affect persons with AIDS makes treatment a challenge. There are about 37 HIV treatment drugs approved in the United States right now. All attack the virus a little differently, so a combination of treatments is most effective. A regimen of at least three of these drugs taken in combination is called *highly active antiretroviral therapy (HAART)*. The first of these potent combinations was developed in 1996, and in the following year, the number of people dying of AIDS-related opportunistic infections dropped by 47 percent. Because of HAART, newly diagnosed patients can expect to live much longer than they used to. In the 1980s and early 1990s, the average life expectancy after diagnosis was about 6 years. Today, with adherence to a medication regimen, AIDS can be a manageable chronic condition. People with HIV can live full and healthy lives, and there are more breakthroughs made every year.

Important tests conducted to determine treatment are *CD4⁺ (T cell) counts* and *plasma HIVRNA (viral load)*. These two tests indicate how many T cells are still present to help fight infection and how much of the virus is actively replicating in the system.

The HAART regimen is effective at lowering the viral load and preserving the T cells, both of which allow the body to maintain its immune system. One of the problems of the HAART regimen is that it must be strictly followed for the lifetime of the patient. Noncompliance with the regimen will allow the viral load to increase, which destroys the T cells and creates an opening for an opportunistic infection. Even with complete compliance of the regimen, CD4⁺ counts and viral load must be measured every few months to make sure the regimen is doing its job. An increase in CD4⁺ counts means the body is becoming resistant to one or more of

the drugs, and the regimen may need to be changed to provide optimal viral suppression again.

There have been two big steps in recent care for HIV/AIDS patients. One is a part of the Affordable Care Act, called the *HIV Care Continuum Initiative*. This initiative makes preventive care, screening, and other testing more accessible to all Americans, especially those in high-risk categories. The initiative calls for screening of all individuals 15–65 and treatment for all adolescents and adults with HIV. Previously, treatment started only when an opportunistic infection signaled the change from HIV to AIDS infection.

The other big step being investigated in 2014 is referred to as *anti-retroviral (ARV) Pre-exposure Prophylaxis (PrEP)*. Some research has suggested that a regimen of ARV PrEP in healthy, yet high-risk, patients may prevent HIV infection in the first place. This is very promising research and may move us closer to our hope of an AIDS-free generation.

There are still many millions of dollars spent every year on research in the HIV/AIDS field. Doctors are using new genetic information to determine if a vaccine can be made or a cure can be found. Viruses use RNA to replicate, and the new information from mapping the human genome has provided new insights into DNA and RNA. Scientists are certain that we're entering a new era of AIDS research and hope to make great progress in the near future.

Lesson 1 Review

Self-Check

1. Which one of the following refers to all of the physical and chemical processes within the body that create and use energy?
 - a. Cardiovascular
 - b. Hypertension
 - c. Endorphins
 - d. Metabolism
2. Which one of the following are painkilling chemicals that occur naturally in your body?

- a. Hypertension
 - b. Metabolism
 - c. Cardiovascular
 - d. Endorphins
- 3.** Which one of the following measures how well your heart gets oxygen-rich blood to all your muscles while you're exercising?
- a. Metabolism
 - b. Endorphins
 - c. Muscular Endurance
 - d. Cardiorespiratory Endurance
- 4.** Performing tasks for extended periods of time requires?
- a. Endorphins
 - b. Muscular Strength
 - c. Cardiorespiratory Endurance
 - d. Muscular Endurance
- 5.** Which one of the following is about getting your entire body moving as one entity and producing a stability that comes from the trunk and the spine?
- a. Body Composition
 - b. Strength Training
 - c. Cardiorespiratory Endurance
 - d. Core Conditioning
- 6.** Which one of the following is an Asian food prepared with fermented soybeans?
- a. Tofu
 - b. Lentils
 - c. Soy Milk
 - d. Tempeh
- 7.** Which one of the following are the energy received from food and burned through activity?
- a. Endorphins
 - b. Metabolism
 - c. Diet
 - d. Calories
- 8.** Which one of the following means that you're exercising at a more intense level than in your daily activities?
- a. Pilates

- b. Specificity
- c. Progression
- d. Overload Principle

9. Which one of the following refers to choosing the right activities to improve a certain fitness element?

- a. Pilates
- b. Progression
- c. Specificity
- d. Overload Principle

10. Which one of the following refers to food grown and processed without chemicals, hormones, or pesticides?

- a. Vegan
- b. Organic
- c. Tofu
- d. Tempeh

Self-Check Answer Key

1. Metabolism

Explanation: Metabolism refers to all of the physical and chemical processes within the body that create and use energy. These processes include digestion, elimination, respiration, circulation, and temperature regulation.

Reference: Section 1.1

2. Endorphins

Explanation: Endorphins are painkilling chemicals that occur naturally in your body.

Reference: Section 1.1

3. Cardiorespiratory Endurance

Explanation: Sometimes called cardiorespiratory endurance, aerobic fitness measures how well your heart gets oxygen-rich blood to all your muscles while you're exercising.

Reference: Section 1.2

4. Muscular Endurance

Explanation: Performing these tasks for extended periods of time requires muscular endurance.

Reference: Section 1.2

5. Core Conditioning

Explanation: Core conditioning is about getting your entire body moving as one entity and producing a stability that comes from the trunk and the spine.

Reference: Section 1.2

6. Tempeh

Explanation: Tempeh is an Asian food prepared with fermented soybeans.

Reference: Section 1.3

7. Calories

Explanation: Kilocalories, often referred to simply as calories, are the energy received from food and burned through activity. In other words, calories are the fuel your body burns.

Reference: Section 1.3

8. Overload Principle

Explanation: The overload principle means that you're exercising at a more intense level than in your daily activities.

Reference: Section 1.4

9. Specificity

Explanation: Specificity refers to choosing the right activities to improve a certain fitness element.

Reference: Section 1.4

10. Organic

Explanation: Organic refers to food grown and processed without chemicals, hormones, or pesticides.

Reference: Section 1.3

Flash Cards

1. Term: Cardiovascular System

Definition: The system that consists of the heart and blood vessels

2. Term: Metabolism

Definition: All of the physical and chemical processes within the body that create and use energy, including digestion, elimination, respiration, circulation, and temperature regulation

3. Term: Endorphins

Definition: Painkilling chemicals that occur naturally in your body

4. Term: Diet

Definition: Nourishment with food and drink

5. Term: Tofu

Definition: Bean curd, which is a soft vegetable cheese made with soybean milk

6. Term: Tempeh

Definition: An Asian food prepared with fermented soybeans

7. Term: Kilocalories

Definition: The energy received from food and burned through activity, often called calories

8. Term: Body Mass Index (BMI)

Definition: A measure of mass that's calculated as weight divided by height squared and then multiplied by 703

9. Term: Pilates

Definition: Body-conditioning exercises that concentrate on integrating the mind, body, and breath to create strong abdominal muscles, as well as strong and flexible back muscles

10. Term: Vegan

Definition: A vegetarian who doesn't eat any animal products

11. Term: Organic

Definition: Food grown and processed without chemicals, hormones, or pesticides

12. Term: Hypertension

Definition: High blood pressure

13. Term: Body Composition

Definition: The overall makeup of the body, including the percentage of fat, the ratio of fat to muscle, the level of hydration, and bone density

14. Term: Weight-Bearing Exercise

Definition: Exercises that help keep bones and joints strong, such as walking, running, and aerobics

15. Term: Fit

Definition: Capable of surviving

16. Term: Cardiorespiratory Endurance

Definition: Aerobic fitness that measures how well your heart gets oxygen-rich blood to all your muscles while you're exercising

17. Term: Core Conditioning

Definition: Getting your entire body moving as one entity and producing a stability that comes from the trunk and the spine

18. Term: Muscular Strength

Definition: Having the strength to lifting bags of groceries, moving furniture, carrying textbooks, and lifting free weights

19. Term: Muscular Endurance

Definition: The ability to perform tasks for extended periods of time

20. Term: Specificity

Definition: Choosing the right activities to improve a certain fitness element

21. Term: Overload Principle

Definition: Exercising at a more intense level than in your daily activities

22. Term: Progression

Definition: Working a little harder or for a longer period of time during each workout than you did during the workout before

23. Term: Regularity

Definition: Working out on a regular basis

Exercise

1. Review Exercise: Fitness and Lifestyle Quiz

The following quiz will help you to become aware of your fitness level and lifestyle health. Awareness is the first step to making changes that will increase your fitness level and help you to live a healthy life. Put a checkmark to the left of each of the statements that best describe you. You may select as many statements as you like.

Stress

- I can easily relax anywhere.
- I very rarely feel anxious or tense.
- I cope well with day-to-day stresses, such as traffic jams, delays, and long checkout lines.

Auto Safety

- I haven't had an auto accident in the past two years.
- I always use a seatbelt when I drive, no matter how short the trip.
- I very, very rarely exceed the speed limit.

Sleep and Rest

- I get seven to eight hours of sleep every night.
- I fall asleep easily (within 15 minutes).
- I don't wake up during the night.

Playing with Others

- I have a great relationship with my spouse/significant other.
- I have a few close friends who are an important part of my life.
- My family provides good support.

Alcohol, Tobacco, and Drug Use

- I have fewer than two drinks per day.
- I never get drunk.
- I would never drink and drive.
- I've never smoked cigarettes, pipes, or cigars.
- I don't live or work in an environment with second-hand smoke.
- I never use illegal drugs.

Diet and Eating

- I eat a balanced diet every day.
- I eat five servings of fruits and vegetables a day.
- I very rarely overeat.
- I stick to low-fat foods.
- I avoid a lot of sweet foods, like soda and candy.

Body Composition

- There's no place on my body where I can pinch more than an inch of fat.
- I'm fairly satisfied with how my body looks.

Physical Fitness

- I have good posture and don't stoop or slouch.
- I exercise for at least 30 minutes at least five times per week (weight training, swimming, aerobics class, and other physical exercises).
- During my daily schedule, either at work or school or during an exercise session, I walk

at least 15 minutes six to seven days per week.

- I participate in team sports (soccer, tennis, softball) or in active sports (cycling, running) two to three times per week.

Total up your checkmarks for all sections.

Exercise Answer Key:

Review Exercise: Fitness and Lifestyle Quiz

How did you do? If your total is - 23–29: Congratulations! Keep on doing what you're doing! You lead a very healthy and fit lifestyle. - 17–22: Good job, so far. You lead an average healthy and fit lifestyle that leaves just a little room for improvement. - 0–16: You need to get off the couch, throw out the potato chips, or both! Your lifestyle needs to be better. By beginning your fitness and nutrition program now, you've already taken the first step in becoming a healthy, new you! Before you move on, take a look at the individual topics in the quiz. Are there topics with no checkmarks? If so, you need to work at incorporating one or more of those statements into your lifestyle to be healthy and fit in all areas of your life.

2. Review Exercise: Fitness and Healthy Eating

Based on what you've read, answer the following questions.

1. Aerobic fitness is related to how well your heart gets _____-rich blood to your muscles.
2. Body composition refers to body makeup, including percentage of fat, the ratio of fat to muscle, level of hydration, and bone _____.
3. Core conditioning is concerned with the strength and stability of the _____ and _____.
4. No more than _____ percent of your daily calories should come from fat.

Exercise Answer Key:

Review Exercise: Fitness and Healthy Eating

1. oxygen
2. density
3. trunk, spine
4. 30