Chapter 1

Lesson 3

You Are What You Eat

Key Words

calories
carbohydrates
deficient
diabetes
fats
fiber
metabolism
minerals
nutrients
osteoporosis
protein
stimulant
vitamins

What You Will Learn to Do

- Evaluate how diet impacts life

Linked Core Abilities

- Take responsibility for your actions and choices

Skills and Knowledge You Will Gain Along the Way

- Explain how calories consumed verses calories used affects body weight
- Identify the daily-required food and portions
- Identify sources and benefits of fiber in diet
- Describe the importance of water
- Describe the possible effects of a diet high in fat and cholesterol
- Explain why salt, sugar, and caffeine should be used in moderation
- Define the key words contained in this lesson

Introduction

A healthy lifestyle includes good nutrition as well as exercise. You need to eat well to maintain an exercise program. Just as a car will not run without fuel, your body will not work properly without the right **nutrients**. Eating a balanced diet also helps you maintain proper weight and lowers your risk of disease. This lesson explains the importance of a proper diet to your health.

Americans live in a fast-paced environment and frequently eat on the run. Eating on the run too often, however, may affect your nutrition and weight. You can end up consuming too many **fats** and too few vegetables and fruit, leaving you overweight and/or **deficient** in certain nutrients. Learning to eat balanced meals, even on the run, contributes to your overall well-being by helping to maintain proper weight, providing energy for physical activity, and supplying nutrients for good health.

Key Note Terms

nutrients – substances found in food that nourish the body

fats – nutrients made up of fatty acids that are insoluble in water and provide energy to the body

deficient – having too little of something, such as a nutrient in the body

Note

Although too many fats can be bad for you, your body needs a certain amount of fat from the foods you eat. Many necessary vitamins are fat-soluble only; without fat, these vitamins cannot be absorbed.

Balancing Calories

You must eat to fuel your body. The more active you are, the more fuel your body requires. Even if you remain very still, your body uses a certain amount of energy, or **calories**, on basic functions that work automatically all the time to keep you alive, such as your heart beating, your lungs inhaling, and your nerves delivering information. You do not have much control over the amount of calories used for these basic functions. Some people's bodies naturally use more calories to sustain their basic functions; some people use less. It's often said that those who use more have a high **metabolism**, meaning they can eat more and not gain weight.

Key Note Terms

calories – the amount of energy it takes to raise the temperature of one kilogram of water one degree Celsius; a measurement of energy

metabolism – the chemical process by which the body produces energy and maintains vital functions

Your body also uses calories to do everything else throughout the day, from brushing your teeth, to studying, to stretching. Unlike your basic functions, however, you can control how many calories you voluntarily use throughout the day by how active you are. For example, you will use more calories if you choose to walk for an hour instead of watching television for an hour. Also, the more effort you put into an activity, the more calories you burn. For example, walking at a brisk pace uses more calories than walking at a leisurely pace.

When your body uses the same amount of calories daily than you eat daily, your weight stays the same. If you eat more calories than your body uses, your body stores the unused calories as fat and you gain weight. If you eat fewer calories than your body needs, your body uses the stored fat for energy and you lose weight. It's a balancing act between numbers of calories eaten and calories used.

Karen and Andrea

Here's an example of making sensible choices when choosing the foods you eat.

Karen wonders why she keeps gaining weight—10 pounds over the last year. One Saturday, she and her friend, Andrea, meet at the local fast-food restaurant for lunch. While they wait in line, Andrea says she played tennis that morning. Karen admits she slept late and watched television. Andrea orders a small soda and a salad with grilled chicken and light Italian dressing; Karen orders a double hamburger with mayonnaise only, large French fries, and a large chocolate milkshake.

Andrea shakes her head and asks Karen if she ever eats fruit or vegetables. Karen shrugs and says "sometimes." Andrea explains that she eats hamburgers and French fries every once in a while; in fact, she had that for lunch a few days ago, which is why she ordered a salad today. Andrea tells Karen that eating fruit and vegetables more often than fried foods and sweets helps her maintain her desired weight, and she feels better, too. Karen thinks about this for a moment as they sit down to eat.

Perhaps if Karen had access to the following calorie counts, she would reconsider what she ordered. Keep in mind that most people need only between 2,000 and 3,000 total calories a day. Table 1.3.1 shows the difference between the two food orders.

Table 1.3.1: Karen and Andrea's Lunch Orders

Karen's Order	Calories	Andrea's Order	Calories
Plain double hamburger with bun (1/4 pound beef)	540	Salad with grilled chicken	200
Mayonnaise (1 tablespoon)	100	Light Italian salad dressing (2 tablespoons)	50
French fries (large order)	360		
Chocolate milkshake (large)	540	Soda (small)	150
TOTAL	1540	TOTAL	400

The calories listed here are approximate; actual calories in these food items may vary at different restaurants.

Even if Karen did not want a salad, she could cut her calories considerably by ordering a single hamburger with mustard and ketchup, a small milkshake, and a regular order of fries. She could also have lettuce and tomato on the burger to eat some vegetables. Her new calorie intake would look simliar to Table 1.3.2.

Table 1.3.2: An Alternative to Andrea's Lunch Order

Andrea's order	Calories
Plain single hamburger with bun (2 ounce patty)	275
Lettuce (1/2 cup)	5
Tomato (1 slice)	5
Mustard (1 tablespoon)	8
Ketchup (1 tablespoon)	15
French fries (regular order)	220
Chocolate milkshake (small)	330
TOTAL	858

If Karen really wants to lose those extra 10 pounds, however, she should skip the milkshake and replace the fries with a small salad and light dressing. This would reduce her calorie intake to about 400 for lunch. She should then get some exercise like her friend Andrea. Playing tennis for an hour uses three times as many calories as watching television for an hour. If Karen sticks to eating sensibly and exercises daily, she will start using more calories than she eats, losing those extra pounds. How many calories are contained in the food you eat? Figure 1.3.1 gives you an idea of the calories contained in everyday foods.

The Importance of a Proper Diet to Your Health

Just as important as eating the correct amount of calories to supply your body with energy and maintain proper weight is what you eat to get those calories. If you eat like Karen every day, you are giving your body too much fat, cholesterol, salt, and sugar, and denying your body many necessary nutrients. Many health problems are related to poor diets, and these problems can start when you are young. At your next physical examination, ask your doctor about your cholesterol, blood pressure, and blood sugar levels. You may be surprised to find you need to change your diet to improve your health.

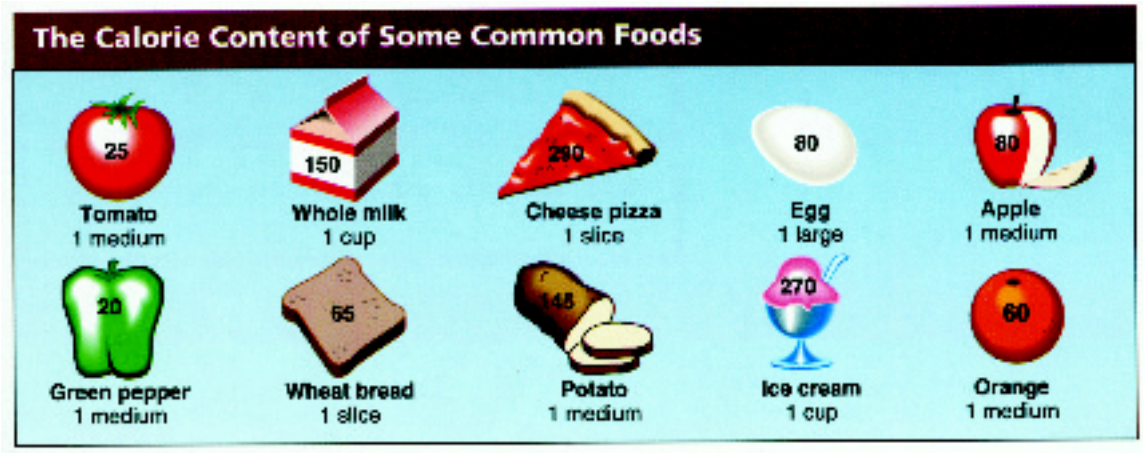

Figure 1.3.1: Of the foods shown, which two have the most calories? Which have the fewest?
Courtesy of Function thru Form.

Key Note Terms

vitamins – nutrients that occur naturally in plant and animal tissue and are required for proper function of the body

minerals – natural chemical elements of the earth used by the body to supply necessary nutrition

carbohydrates – one of the various neutral organic compounds composed of carbon, hydrogen, and oxygen (including starches and sugars) produced by green plants and used to provide energy necessary for growth and other functions

protein – nutrients that are made of amino acids and that maintain body tissues and supply energy to the body

osteoporosis – a condition characterized by a calcium deficiency in the bone mass in which the body pulls calcium from the bones, causing them to lose their density and possibly leading to fractures

What Should You Eat?

The United States Department of Agriculture (USDA) developed the Food Guide Pyramid to indicate how many servings of six different food groups you should eat daily to get the nutrients your body needs. If you follow these guidelines, you will get enough **vitamins** and **minerals** to keep your body's processes functioning properly, and you will have enough **carbohydrates**, **protein**, and fat to supply your body with energy. When you do not get enough of certain nutrients, you increase your risk of disease. For example, if you do not get enough calcium, a mineral found in milk products, almonds, sardines, leafy vegetables, and beans, you can develop **osteoporosis**.

To see the current Food Guide Pyramid, as offered by the USDA, check out http://www.nal.usda.gov/fnic/Fpyr/pyramid.html or Figure 1.3.2.

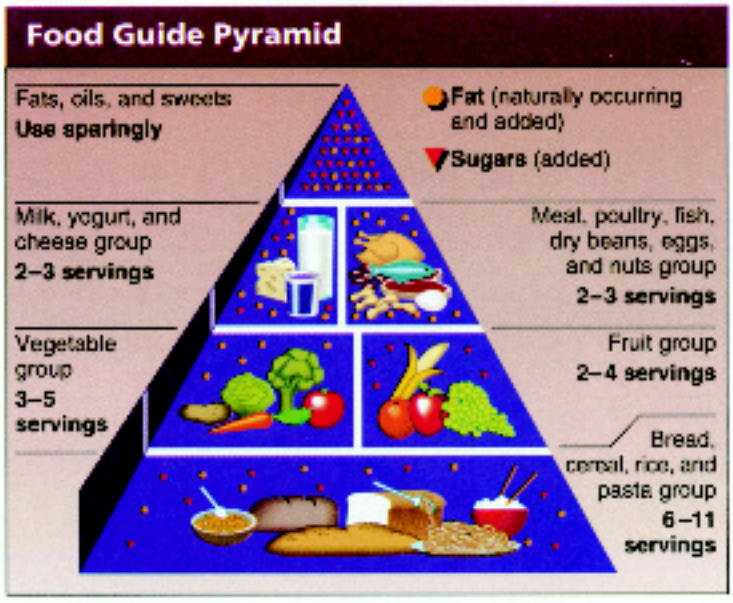

Figure 1.3.2: The Food Guide Pyramid divides foods into groups and indicates how many servings you should eat from each group every day.

Your body also needs **fiber**, the only form of carbohydrate that is not an energy source. Fiber aids in digestion. It prevents cholesterol, fats, and other toxic materials from entering the bloodstream and for this reason may lessen your chances of cancer and heart disease. It also helps balance your blood sugar levels, so it helps control **diabetes**. To obtain fiber, eat raw or lightly cooked vegetables, fresh fruit, beans, nuts, and whole wheat or bran breads, cereals, and crackers.

One final nutrient that you do not get from food that is vital to keeping you alive is water. More than 65 percent of the body is water, and, as the body loses water through normal activity and exercise, it must be replaced. Water aids in digestion, regulates temperature, carries vitamins and minerals to all parts of the body, and is important for the removal of waste products from the kidneys. Drink a minimum of five to six glasses of water a day. On the days you exercise, you may need to drink more.

Key Note Terms

fiber – coarse food made mostly of carbohydrates, such as bran or lettuce, that serves to stimulate and aid the movement of food through the intestines

diabetes – a disease that causes too much blood sugar to build up in the body

Eating in Moderation

Your body needs fat for energy, but too much fat in your diet can make you gain weight and can lead to high cholesterol. Cholesterol, a type of fat, is a natural, waxy substance produced by your body and found in animal products. Your body needs some cholesterol to remain healthy, but too much is harmful. As shown in Figure 1.3.3, cholesterol forms plaque on artery walls, restricting the flow of blood within blood vessels. This leads to high blood pressure and an increased risk of heart disease. To lower cholesterol levels, lower your intake of fat by eating less meat, using oil-free dressings, avoiding fried foods, eating low-fat dairy products, and consuming lots of fiber.

Many foods, especially prepackaged foods and restaurant foods, already have added salt, so do not shake on more. Too much salt in your diet forces your body to retain unnecessary water and may contribute to high blood pressure.

Sugary foods like candy, soda, syrup, and table sugar supply you with calories and few (if any) nutrients. These foods contain "empty calories"; they give your body calories and nothing else. Avoid them while dieting, and do not eat them as a replacement for other foods that provide nutrition. Many fruits and vegetables naturally contain sugar, but they also provide many other important nutrients.

Limit your intake of coffee, tea, and sodas that contain caffeine, a **stimulant**. Although caffeine temporarily reduces drowsiness and makes you more alert, in large quantities it can upset your stomach, make you nervous and irritable, keep you awake when you want to sleep, and give you diarrhea.

Key Note Term

stimulant – a drink, drug, or other substance that speeds up the activity of the mind or body; a drug that speeds up the activities of the central nervous system, the heart, and other organs

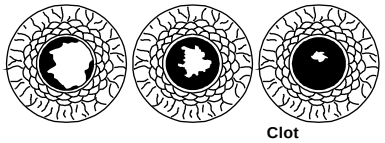

Figure 1.3.3: Cholesterol shown in artery walls.
Courtesy of CACI and the U.S. Army.

Conclusion

Your body needs food for energy, just like a car needs fuel to run. How much food your body needs depends on how active you are and how many calories your body uses to keep its basic functions operating. You know you are getting the right amount of calories from food when you maintain your ideal weight. Not only does food supply you with energy, but the right foods also provide the nutrients your body needs to operate properly and lower your risk of disease. Eating a healthy, balanced diet and exercising regularly increase your chances of a long, strong, and disease-free life.

In the next lesson, you will learn more about nutrition and what it takes to properly nourish your body.

Lesson Review

1. **Think about what you had for breakfast. How could you have balanced your calories better?**
2. **Do you feel you have a slow or fast metabolism? How can you plan your meals with this in mind?**
3. **Looking at the food pyramid, what food group do you need to eat more or less of?**
4. **Define the term *metabolism*.**