

Chapter 6

Managing Weight and Body Composition

Lesson 1

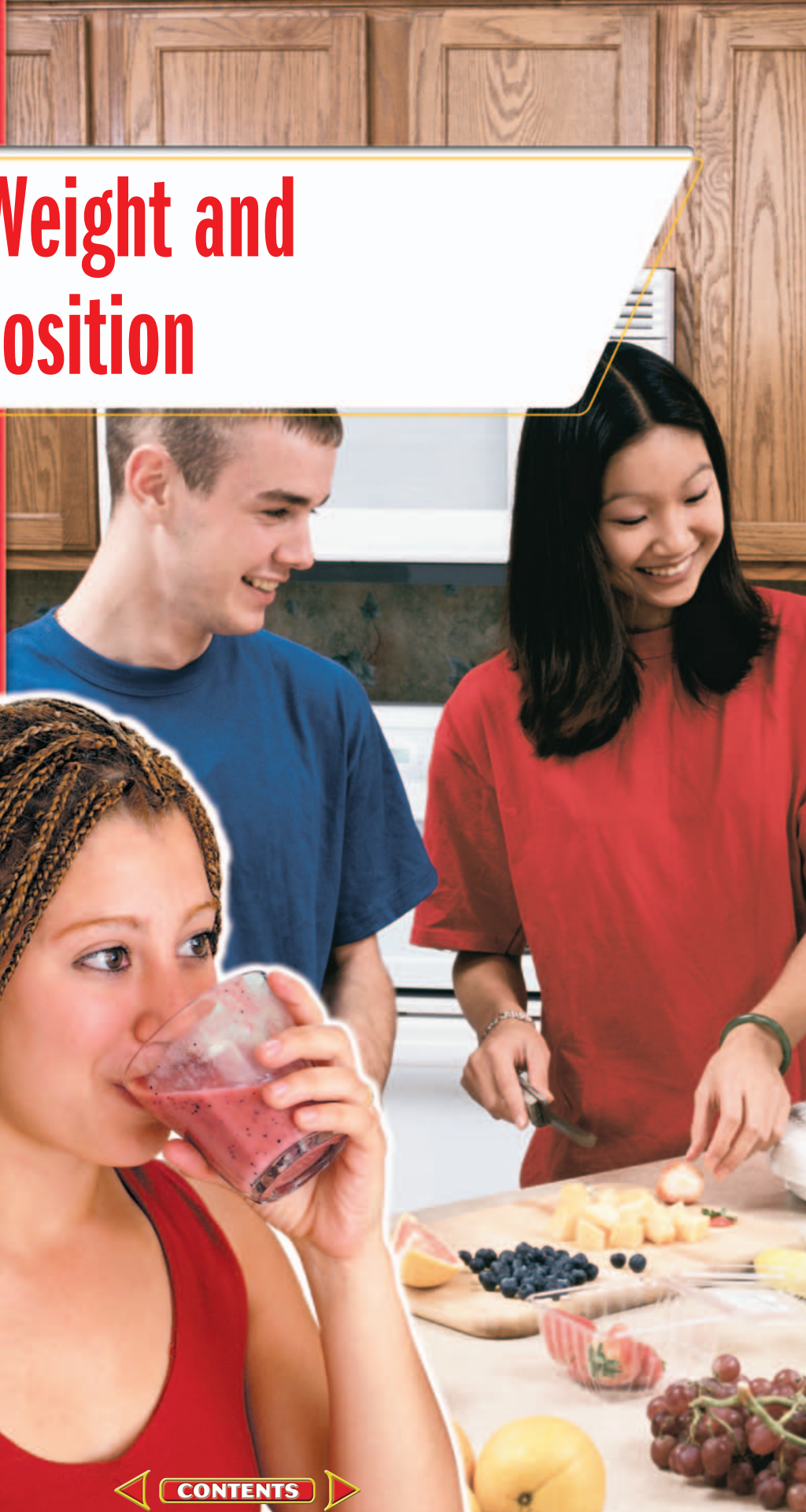
Maintaining a Healthy Weight

Lesson 2

Fad Diets and Eating Disorders

Lesson 3

Nutrition for Individual Needs



Kevin's Story

Kevin has always had a weight problem. When he was younger, it didn't seem to matter much that he was a little bigger than the other boys. In fact, the extra weight came in handy when playing his favorite sport—football.

Now Kevin is 15, and things seem very different to him. He's worried about how he looks and feels. "Being overweight is supposed to be a girl's problem," says Kevin. "It's embarrassing that I have to worry about my weight."

Kevin finds it difficult to make healthy food choices. He often eats at fast-food restaurants and snacks on candy bars and potato chips. He also doesn't get much physical activity.

In the past Kevin has tried quick fixes to lose weight. "One time I went on a fad diet, but that didn't really work," says Kevin. "I lost weight at first, but then I started feeling really run down, so I went back to my old way of eating. Before I knew it, I had regained all the weight I lost, plus a few extra pounds."

Kevin knows he has to change his lifestyle in order to lose weight, but he doesn't know what steps to take.



For instant feedback on your health status, go to Chapter 6 Health Inventory at health.glencoe.com.

Quick Write

Using Visuals. Maintaining a healthy weight involves being physically active and making healthful food choices. Write a brief paragraph describing the healthful food choices these teens are making.

Lesson 1

Maintaining a Healthy Weight

VOCABULARY

body image
body mass index (BMI)
overweight
obesity
underweight
nutrient-dense foods


YOU'LL LEARN TO

- Examine the relationship among body composition, diet, and fitness.
- Analyze the relationship between maintaining a healthy weight and disease prevention.
- Describe healthful ways to manage weight.



On a sheet of paper, list three feelings a person might have about his or her body's appearance. Then write down three factors that might influence these feelings.



 Media images can have an impact on a person's body image. *How might messages sent by media images negatively affect body image?*

When you look in the mirror, how do you feel about what you see? Are you happy with the way you look, or do you wish some things were different? *The way you see your body* is called your **body image**. Body image is affected by several factors, including media images and the attitudes of family and friends.

For many people body image is tied to perception of weight. Your own healthy weight probably won't be the same as the weight of a fashion model, a bodybuilder, or your best friend. However, you can use some general guidelines to assess your weight and keep it within a healthy range.

The Weight-Calorie Connection

To understand how to manage your weight effectively, it's important to understand calories. As you've learned, calories are units used to measure energy—both the energy in food and the energy your body uses for life processes and physical activities. Maintaining a healthy weight, even while you're growing, is a matter of energy balance: the calories you consume must equal the calories your body burns.



Calories: Their Source

Some foods have more calories than others. The specific number of calories depends on portion size as well as the amounts of carbohydrates, proteins, and fats in the food. Both carbohydrates and proteins supply four calories per gram. Fats supply more than twice that number—nine calories per gram. For this reason, even small amounts of fat in a food greatly increase its calorie content. The way a food is prepared or cooked also affects the calorie count.

The Energy Equation

Tipping the balance of the energy equation will result in weight loss or gain. If you take in fewer calories than you burn, you lose weight. If you take in more calories than you burn, you gain weight.

One pound of body fat equals about 3,500 calories. Eating 500 fewer calories per day than you need to maintain your weight will result in the loss of one pound of body fat after one week ($500 \text{ calories per day} \times 7 \text{ days} = 3,500 \text{ calories}$). Burning an additional 500 calories per day through physical activity would result in a similar weight loss.

Determining Your Appropriate Weight Range

Your appropriate weight is influenced by several factors, including gender, age, height, body frame, growth rate, metabolic rate, and activity level. As a teen you are still growing, so you need more calories than an adult does. Tall and large-framed people need more calories than short and small-framed people. Because an active person burns more calories than a sedentary person does, he or she can consume more calories without gaining weight than a sedentary person can.

Body Mass Index

One way to evaluate whether your weight is within a healthy range is to determine body mass index. **Body mass index (BMI)** is a ratio that allows you to assess your body size in relation to your height and weight. Because BMI for children and teens takes age and gender into account, different charts are used for males and females. **Figure 6.1** on page 146 explains how to determine your BMI. A different chart is used for adults.

As you calculate your BMI, keep in mind that many different ratios of height to weight can be healthy. Teens grow at different rates and in different ways. There is no single size, shape, or growth pattern that's normal for everyone.

Did You Know?



Adding just 100 extra calories to your daily food intake without changing your activity level will add 10 pounds to your weight in one year.



Height and gender are two factors that need to be considered when evaluating a person's weight.

FIGURE 6.1

DETERMINING BMI

Use this formula to find your BMI:

$$\text{BMI} = \text{weight (in pounds)} \times 703 / [\text{height (in inches)}]^2$$

Here's how to find the BMI for a 16-year-old male who weighs 145 pounds and is 65 inches tall:

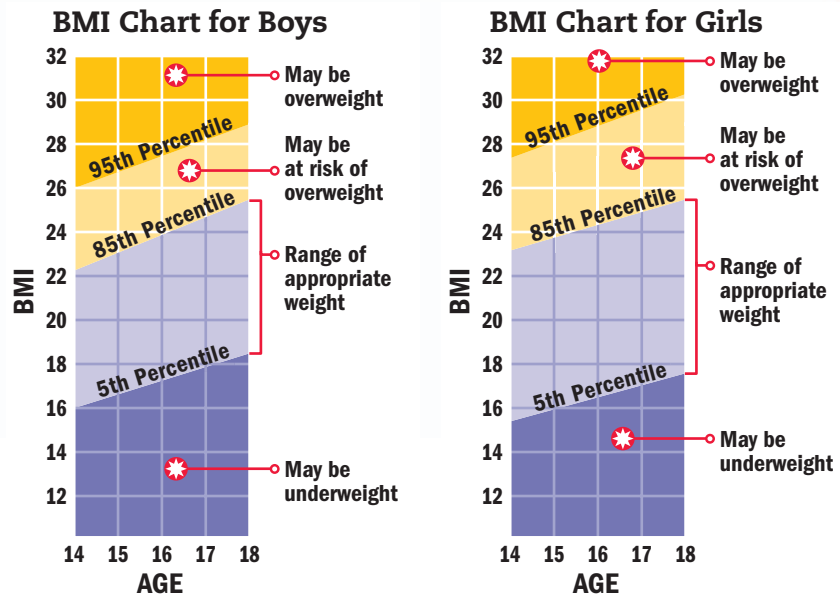
$$\text{BMI} = 145 \times 703 / 65^2$$

$$\text{BMI} = 101,935 / 4,225$$

$$\text{BMI} = 24.12 \text{ or } 24$$

Find this result in the chart. This teen's BMI indicates that he is within an appropriate weight range.

Source: Adapted from CDC information



A If your BMI falls above the 85th percentile or below the 5th percentile, consult a health care professional for further evaluation. However, keep in mind that this does not necessarily mean that you are over- or underweight.

Body Composition

Body composition, or the ratio of body fat to lean body tissue, needs to be taken into account when assessing weight. Diet and fitness affect a person's body composition. For example, a weight-lifting program will increase muscle mass. A high-calorie diet can increase the amount of stored body fat.

Body Weight versus Body Fat

The terms *overweight* and *obesity* are often used interchangeably, but they are not the same. **Overweight** is a condition in which a person is heavier than the standard weight range for his or her height. **Obesity** refers specifically to *having an excess amount of body fat*. Being overweight or obese can endanger health. In certain cases being overweight may not pose health risks. Athletes such as body-builders or football players may be overweight because of excess muscle tissue rather than excess body fat.

Weight-Related Health Risks

BMI for adults serves as a general guide to evaluate some health risks. Adults with high BMIs are at increased risk of cardiovascular disease; type 2 diabetes; cancer; high blood pressure; and osteoarthritis, a joint disease. Maintaining a healthy weight can help prevent the development of these diseases.

Overweight: A Health Risk

Being overweight is a serious problem in the United States. The latest findings from the CDC indicate that 14 percent of teens are overweight. Excess body fat strains the muscles and the skeletal system. It forces the heart and lungs to work harder and increases the risk of high blood pressure and high blood cholesterol. Being overweight or obese also increases the risk of type 2 diabetes, asthma, and some cancers.

Why are some people overweight? Genetics may play a role, but overweight and obesity usually result from consuming excess calories and from physical inactivity. To maintain a healthy weight and avoid the health risks associated with overweight and obesity, follow the ABCs of good health as described in the **Dietary Guidelines for Americans**:

- ▶ **Aim for Fitness.** Get 60 minutes of physical activity daily.
- ▶ **Build a Healthy Base.** Eat the recommended number of daily servings from each of the five major food groups in the **Food Guide Pyramid**.
- ▶ **Choose Sensibly.** Balance high-fat choices with low-fat foods, and moderate your intake of sugar.

Underweight: A Health Risk

Some teens are very thin while they are growing. Being thin may also be normal because of genetics or a fast metabolism. Other people, however, diet or exercise excessively to stay thin. A person who is too thin has little stored fat to provide the body with an energy reserve and may not be consuming enough calories and nutrients for health and growth. This may lead to fatigue and a decreased ability to fight illness. How do you know whether

you are underweight? **Underweight**

refers to *a condition in which a person is less than the standard weight range for his or her height*. A health care professional can help you determine whether you are underweight.

hotlink

Dietary Guidelines for Americans For more information on the *Dietary Guidelines*, see Chapter 5, page 122.
Food Guide Pyramid See Chapter 5, page 124, to learn more about using the Food Guide Pyramid to make healthy food choices.

▼ **Physical activities such as swimming burn calories and can help you manage your weight. What other physical activities can help you manage your weight?**



FIGURE 6.2

THE BEST WEIGHT-LOSS STRATEGY

Eat Fewer Calories

Eat more foods that are high in nutrients and low in calories.



Burn More Calories

Burn more calories through physical activity.



Healthful Ways to Manage Weight

The teen years are a period of rapid growth and change, so some fluctuations in your weight are normal during this time. Following the ABCs of good health will help most teens maintain a healthy weight. However, if you want to begin a formal weight-management plan, these strategies can help:

- ▶ **Target your appropriate weight.** Speak with a health care professional to determine a weight range that is healthy for you.
- ▶ **Set realistic goals.** Gaining or losing one-half pound to one pound per week is a safe and realistic goal.
- ▶ **Personalize your plan.** Think about your food preferences and lifestyle when designing your weight management program.
- ▶ **Put your goal and plan in writing.** You might also find it helpful to keep a journal of what and when you eat to become more aware of your eating habits.
- ▶ **Evaluate your progress.** Track your progress by weighing yourself weekly at the same time of day. Remember that time periods when your weight does not change are normal.

Healthy Weight-Loss Strategies

A health care provider is your best source of information about your appropriate weight. If he or she recommends that you lose weight, use the best weight-loss strategy, illustrated in **Figure 6.2**. Here are some other tips for losing weight.

- ▶ **Eat 1,700 to 1,800 calories daily to meet your body's energy needs.** To reach this goal, eat at least the minimum number of servings from each of the five groups in the Food Guide Pyramid. Eating fewer than 1,400 calories a day may cause you to miss out on essential nutrients.
- ▶ **Include your favorites in moderation.** Eat smaller portions of your favorite high-calorie foods, and eat them less frequently. Instead of giving up ice cream altogether, for example, have a small scoop once a week.
- ▶ **Eat a variety of low-calorie, nutrient-dense foods.** **Nutrient-dense foods** are foods that are high in nutrients as compared with their calorie content. Whole-grain products, vegetables, and fruits are examples of low-calorie, nutrient-dense foods.
- ▶ **Drink plenty of water.** Eight glasses a day will help keep your body functioning at its best.

Should Schools Limit the Use of Vending Machines?

In schools across the country, vending machines offer soda, candy, and other snacks. Some schools limit the types of foods offered in vending machines or restrict student access to the machines. Should schools set rules concerning vending machines? Here are two points of view.

Viewpoint 1: Philip S., age 16

Most of the food in vending machines is high in sugar, fat, or salt—definitely not part of a healthful eating plan. I've seen kids eat only the foods from vending machines for lunch. If access to the vending machines were limited, students would have to eat more healthful meals. I think that schools have every right to put limits on access or to change the foods offered.

Viewpoint 2: Katie T., age 15

I don't think schools need to limit the types of snacks in vending machines or restrict students' access to them. It's up to the individual to make responsible decisions about his or her food choices. Besides, eating snacks high in sugar, fat, or salt is okay once in a while.

ACTIVITIES

1. Are vending machines interfering with students' efforts to eat healthfully? Why or why not?
2. Should schools control the contents of vending machines or restrict access to them? Explain your answer.

Healthy Weight-Gain Strategies

Follow these tips to gain weight healthfully:

- ▶ **Increase your calorie intake.** Choose foods high in complex carbohydrates, such as breads, pasta, and potatoes. Limit foods high in fat and sugar.
- ▶ **Eat often and take second helpings.** Choose more than the minimum number of servings from each food group in the Food Guide Pyramid.
- ▶ **Eat nutritious snacks.** Snack two to three hours before meals to avoid spoiling your appetite.
- ▶ **Build muscle.** A supervised resistance-training program will help you gain weight by increasing muscle mass.



Go to health.glencoe.com to learn more about the basics of healthy weight management.

V Fruit and vegetable drinks are nutrient-dense snacks that can be part of a healthy weight-management plan.

What are some other examples of nutrient-dense snacks?



Physical Activity and Weight Management

Whether you want to lose, gain, or maintain weight, regular physical activity should be part of your plan. Aerobic exercise burns calories and helps you lose fat. Weight lifting or resistance training will increase muscle mass and produce a firm, lean body shape. Also, since muscle is more efficient than fat at burning calories, having more lean muscle tissue increases the number of calories your body burns, even at rest. Here are some added benefits of regular physical activity:

- ▶ It helps relieve the stress that often leads to over- or undereating.
- ▶ It promotes a normal appetite response, which helps you gain, lose, or maintain weight.
- ▶ It increases self-esteem, which helps keep your plan on track.

Research consistently shows that regular physical activity, combined with healthy eating habits, is the most efficient and healthful way to manage your weight and live a healthy life. Choose activities that you enjoy and that fit your personality. You will soon discover your body's capabilities and begin to look and feel your best.

Lesson 1 Review

Reviewing Facts and Vocabulary

1. List three factors that influence what an individual's appropriate weight should be.
2. Explain the difference between the terms *overweight* and *obesity*.
3. Examine and briefly describe the relationship among body composition, diet, and fitness.

Thinking Critically

4. **Analyzing.** How can keeping a food journal help a person manage his or her weight?
5. **Hypothesizing.** Why is it important to eat a variety of low-calorie, nutrient-dense foods if you're trying to lose weight?

Applying Health Skills

Practicing Healthful Behaviors. Vicki wants to be sure that she maintains a healthy weight range as she moves through her teen years. What behaviors can Vicki practice to help her meet this goal? Write a short story that shows how Vicki practices these behaviors.



WORD PROCESSING Word processing can give your short story a professional look. See health.glencoe.com for tips on how to get the most out of your word-processing program.



Fad Diets and Eating Disorders

VOCABULARY

fad diets
weight cycling
eating disorder
anorexia nervosa
bulimia nervosa
binge eating
disorder

YOU'LL LEARN TO

- Describe the risks of fad diets and other dangerous weight-loss strategies.
- Describe the causes, symptoms, and treatment of eating disorders.
- Provide help to someone with an eating disorder.
- Identify the presence of an eating disorder as a situation requiring assistance from professional health services.



Write the term *diet* in the center of a sheet of paper. Around this term, write five to ten words or phrases that come to mind when you hear the word *diet*.

“Miracle patch lets you lose weight without dieting!” “One pill helps you burn fat and lose pounds!” Are you familiar with promises like these? They often appear in print ads and TV commercials. You may hear them on the radio. Such ads promise quick and easy weight loss. What do they actually deliver?

Risky Weight-Loss Strategies

A number of weight-loss strategies not only fail to produce long-term results but also can cause serious health problems. Part of being a health-literate consumer involves recognizing the potential health risks associated with some weight-loss plans and products.

Fad Diets

If you see an ad like the one shown here, be wary. Such ads are often for **fad diets**, *weight-loss plans that are popular for only a short time*. These diets often are hard to stick with because they limit food variety. The “grapefruit diet” is an example of a food-limiting fad diet. Some fad diets are costly because they require dieters to buy certain products. Fad diets that severely restrict the foods a dieter eats fail to provide the body with the nutrients it needs for health and growth. Any weight lost on fad diets is usually regained.

“I Lost 100 Pounds Easy!
Eating My
Favorite Foods!!!”

“This Is The Greatest Diet Ever!”

Users Have
Dropped
Over
2 Million
Pounds!

TRY IT NOW

The advertisement is a red banner with white stars and asterisks. The text is in white and black. The stars are arranged in a pattern around the central text.

- ▲ Fad diets may promise quick and easy weight loss, but any weight lost on these diets is usually regained. *What features does a healthful weight-loss program have?*



Did You Know?

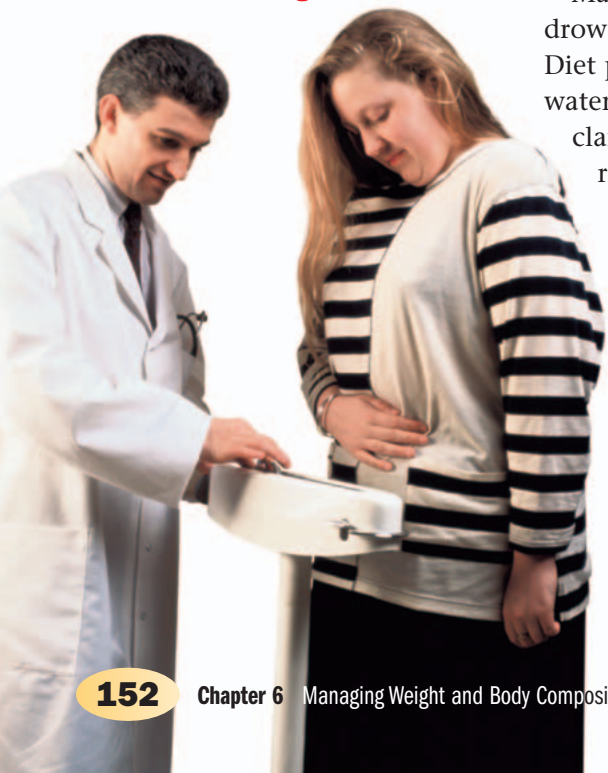


Some weight-loss products contain a substance called *ephedra*. Manufacturers may claim that ephedra can suppress appetite, promote weight loss, and increase energy and physical endurance. However, ephedra can lead to heart attacks, strokes, or even death.

Always read the labels of products before you buy or use them, and never take a product containing ephedra.



Effective weight management involves making healthy lifestyle choices. *What steps can a person take to successfully manage his or her weight?*



Liquid Diets

A person on a liquid diet replaces all of his or her food intake with a special liquid formula. These very-low-calorie diets generally do not meet the body's energy needs. As a result, they often leave the dieter feeling fatigued. Many liquid diets do not provide the body with fiber and needed nutrients. Relying on high-protein, low-carbohydrate liquids as the only source of nutrients can cause serious health problems and even death. Because of the potential dangers associated with liquid diets, the U.S. Food and Drug Administration (FDA) requires these products to carry warning labels and recommends that they be used only under close medical supervision.

Fasting

To fast is to abstain from eating. Although this may seem like a sure way to lose weight, fasting for more than short periods deprives your body of needed nutrients and energy. Without a fresh supply of nutrients each day, your body begins breaking down protein stored in muscle tissue for energy. If the person who is fasting also avoids liquids, he or she may become dehydrated.

Some religious and cultural rituals involve brief periods of fasting. Such fasting is not dangerous for the average person because the fast is of limited duration. However, fasting may not be advisable for those with diabetes or other health conditions. If you are unsure about how cultural or religious fasting may affect a medical condition, consult a health care professional for advice.

Diet Pills

Many diet pills work by suppressing appetite. They may cause drowsiness, anxiety, a racing heart, or other serious side effects. Diet pills may also be addictive. Some cause the body to lose more water than normal, which can lead to dehydration. Diet pills may claim to “burn,” “block,” or “flush” fat from the body, but a low-risk pill that meets these claims has not yet been developed.

Weight Cycling

Some diet plans or products may seem to help people lose weight quickly, but the weight loss is usually from water, not body fat. Water weight lost is quickly regained. *The repeated pattern of loss and regain of body weight* is called **weight cycling**. Weight cycling is common in people who follow fad diets. Some reports have suggested that weight cycling is harmful, although other studies do not support this finding. In general, slow and steady weight loss is the best strategy for long-lasting results.



Hands-On Health ACTIVITY

Fad Diets Harm Health

In a society obsessed by weight and appearance, the promise of quick weight loss is hard to resist. However, fad diets are not only ineffective in producing long-term weight loss, they're also potentially harmful. In this activity you will create a poster advocating against fad diets.

What You'll Need

- poster board
- markers

What You'll Do

1. As a class, brainstorm potentially harmful effects of fad diets.
2. In groups of two or three, come up with a simple concept that conveys the message that fad diets can harm

health. Your concept should be relevant to high school students.

3. Make a poster illustrating your message. Include supporting information about healthful weight-loss strategies in the poster.
4. Ask permission to display your posters at school.

Apply and Conclude

Is your poster persuasive? What advocacy techniques did you use to persuade others? How will your poster have a positive effect on the health of your audience? Why is this an important health issue for teens?

The Risks of Eating Disorders

Sometimes a person's concerns about weight and efforts to lose weight can get out of control. Becoming obsessed with thinness can lead to eating disorders. An **eating disorder** is an *extreme, harmful eating behavior that can cause serious illness or even death*. The exact cause of eating disorders is unknown. They may be brought on by mental or emotional factors such as poor body image, social and family pressures, and perfectionism. Some scientists think that the cause may be partly genetic. Teens with a family history of weight problems, depression, or substance abuse may be more at risk for developing an eating disorder.

About 90 percent of those with eating disorders are female. It's estimated that about one percent of females ages 16 to 18 have this illness. Eating disorders are a serious health problem, and people who suffer from them need professional help.



Anorexia Nervosa

Anorexia nervosa is a disorder in which the irrational fear of becoming obese results in severe weight loss from self-imposed starvation. Anorexia nervosa is a psychological disorder with emotional and physical consequences. The disorder relates to an individual's self-concept and coping abilities. Outside pressures, high expectations, a need to be accepted, and a need to achieve are characteristics associated with the development of anorexia. Medical specialists have also found that genetics and other biological factors may play an equally powerful role in the development of this disorder. Hormones and certain brain chemicals have been shown to trigger the illness in some people.

Anorexia develops most often in teenage girls and young women. Symptoms include extremely low caloric intake, an obsession with exercising, emotional problems, an unnatural interest in food, a distorted body image, and denial of an eating problem.


HEALTH CONSEQUENCES OF ANOREXIA NERVOSA

Physical consequences of anorexia are related to malnutrition and starvation. A drastic reduction of body fat may cause females with anorexia to stop menstruating. Other consequences include loss of bone density, low body temperature, low blood pressure, slowed metabolism, and reduction in organ size. People with anorexia may develop serious heart problems, including an irregular heartbeat that can lead to cardiac arrest and sudden death.

Treatment for anorexia nervosa may include a stay at a clinic or hospital where the person can receive nutrients to regain weight and strength. Anorexia nervosa also requires psychological treatment to address the problems that lead to the disorder.

Bulimia Nervosa

Bulimia nervosa is a disorder in which some form of purging or clearing of the digestive tract follows cycles of overeating. A person with bulimia often fasts or follows a strict diet and then *binges*, or quickly consumes large amounts of food. After eating, the person may vomit or take laxatives to purge the food from the body. Following a binge, the person may again try dieting to gain a sense of control and avoid putting on weight. The exact cause of bulimia has not been determined, but societal pressures, self-esteem issues, and family problems may be factors.

 People with anorexia often see themselves as overweight even when they are very thin. **What type of help does an individual with an eating disorder need?**

HEALTH CONSEQUENCES OF BULIMIA NERVOSA

Repeated bingeing, purging, and fasting can cause serious health problems or even death. Frequent vomiting and diarrhea can lead to dehydration, kidney damage, and irregular heartbeat. Vomiting also destroys tooth enamel; causes tooth decay; and damages the tissues of the stomach, esophagus, and mouth. Frequent use of laxatives disrupts digestion and absorption and may cause nutrient deficiencies. Laxative abuse can also change the composition of the blood. Treatment of bulimia nervosa usually includes both medication and psychological counseling.

Binge Eating Disorder

People with **binge eating disorder**, a disorder characterized by *compulsive overeating*, consume huge amounts of food at one time but do not try to purge. This disorder may signal the use of food as a coping mechanism for strong emotions or depression. Treatment involves professional psychological counseling and sometimes medication.

Health Skills Activity

Decision Making: Helping a Friend Get Help

Audrey and Rebecca are friends. They are both on the school basketball team. Lately, Audrey has noticed that Rebecca skips lunch and seems to be losing weight.

One day after practice, Rebecca tells Audrey that she is going to jog for at least a mile. Audrey is amazed. "What do you mean? You just ran up and down the court for two full hours."


Rebecca says, "I ate a salad for lunch today. I'm getting fat." Audrey suspects that Rebecca has an eating disorder and wonders how to help her.



What Would You Do?

Apply the decision-making steps to Audrey's problem.

1. State the situation.
2. List the options.
3. Weigh the possible outcomes.
4. Consider values.
5. Make a decision and act.
6. Evaluate the decision.

 Psychologists and clinics that specialize in the treatment of eating disorders may offer support groups for people with these disorders. **Why might support groups be helpful to individuals with eating disorders?**

HEALTH CONSEQUENCES OF BINGE EATING DISORDER

Binge eating disorder often results in unhealthy weight gain, which contributes to health problems such as type 2 diabetes, heart disease, and stroke. Gallbladder problems, high blood pressure, high cholesterol, and increased risk of certain types of cancer have also been associated with this disorder.

Help for Eating Disorders

People with eating disorders need professional medical and psychological help. They may also benefit from support groups and clinics. All eating disorders are serious. If you believe a friend might be developing an eating disorder, you may want to discuss the problem with a trusted adult such as a parent, a counselor, or a school nurse. You can also help by encouraging your friend to seek professional help and by being supportive.



Lesson 2 Review

Reviewing Facts and Vocabulary

1. Define the term *fad diets*.
2. Describe the causes, symptoms, and treatment of the eating disorder *anorexia nervosa*.
3. What is *bulimia nervosa*?

Thinking Critically

4. **Evaluating.** Describe the similarities and differences between *bulimia nervosa* and binge eating disorder.
5. **Analyzing.** Why do people with eating disorders require assistance from professional health services?

Applying Health Skills

Advocacy. Think of ways to inform teens about the dangers of fad diets and other risky weight-loss strategies. With a group of classmates, plan and create a video or public service announcement (PSA) that tells teens about these dangers and gives tips for healthy weight loss.



WEB SITES Use your video or PSA as part of a Web page you develop on healthy weight management. See health.glencoe.com for help in planning and building your own Web site.

Nutrition for Individual Needs

VOCABULARY

electrolytes
rehydration
vegetarian
vegan
dietary supplement
megadose
herbal supplement

YOU'LL LEARN TO

- Understand the specific nutritional needs of different groups.
- Explain the importance of proper nutrition in promoting optimal health for pregnant women, infants, and young children.
- Identify good nutrition as a health-promoting behavior that will enhance and maintain personal health throughout life.



An individual's nutritional needs change throughout his or her life.

Brainstorm a list of times in a person's life during which nutritional needs may change. Briefly explain each of your choices.

Does it seem to you that everyone has a different idea about proper nutrition? Some friends may tell you that eating meat is unhealthy, and others may insist that eating too many carbohydrates is bad for you. What can you believe? In truth, proper nutrition may depend on the individual. A pregnant woman, for example, has different nutritional needs than those of an older adult.

Performance Nutrition

Do you play on a sports team or take aerobics classes? Good nutrition can help you perform your best in any physical activity.

The Training Diet

No single food will help you build muscle or increase speed. The best eating plan for athletes is one that is balanced, moderate, and varied. Your body's need for protein, vitamins, and minerals does not change greatly when training for sports or competition. However, because physical activity burns calories, athletes and other active individuals need to eat more calories from nutrient-dense foods to maintain their weight and energy levels when training.




Eating well-balanced meals and snacks each day is an important part of any training program. *Why is it important for physically active people to have a well-balanced eating plan?*

hotlink

heatstroke For more information on the physical effects of heatstroke, see Chapter 4, page 99.



 Resistance training helps build muscle mass.

hotlink

anabolic steroids For more information about the dangers of anabolic steroids, see Chapter 23, page 601.

HYDRATION

Your body naturally loses fluids through perspiration, breathing, and waste elimination. The amount of fluids lost increases during physical activity, especially in hot weather. These fluids must be replaced to avoid dehydration and **heatstroke**. Becoming dehydrated can lead to an imbalance of **electrolytes**, *minerals that help maintain the body's fluid balance*. The minerals sodium, chloride, and potassium are all electrolytes.

To maintain your body's electrolyte balance, you must take in as much water and electrolytes as you lose through perspiration and body wastes. Drink 16 to 24 ounces of fluids two to three hours before a heavy workout and 6 to 12 ounces of fluids every 15 to 20 minutes during heavy workouts. **Rehydration**, or *restoring lost body fluids*, is important after physical activity and competition. Drink 16 ounces of fluid for every pound of body weight lost through sweat. It's best to drink plain water to replenish fluids lost during exercise.

“Making Weight”

In sports such as wrestling and boxing, participants compete in specific weight classes, so maintaining a certain weight is important. Always compete at a weight that's right for you.

LOSING WEIGHT

Competing in a weight class that is below your healthy weight can be dangerous. Fasting, crash dieting, or trying to sweat off extra weight before weigh-in can cause dehydration and harm your performance and your health. Over time, such practices may also lead to a loss of muscle mass. Athletes who need to lose weight should follow a sensible plan and try to lose only one-half pound to one pound each week.

GAINING WEIGHT

A program that combines balanced nutrition and exercise is the healthful way to gain weight. A supervised resistance-training or weight-lifting program can help build muscle mass. The extra calories you need for gaining weight should come from nutrient-dense foods, not from protein supplements. For best results, a slow, steady weight gain of no more than one to two pounds per week is recommended. Using **anabolic steroids** or other bodybuilding drugs to build muscle mass is not healthy. Many of these drugs have dangerous side effects ranging from acne and breast development in men to heart attacks and liver cancer. Use of these substances is illegal; athletes who test positive for steroids and similar drugs often are disqualified from their sport.

Eating Before Competition

Eating three to four hours before competition allows the stomach to empty yet gives an athlete the necessary energy and keeps him or her free from hunger pangs while competing.

Before competing, choose a meal that's high in carbohydrates and low in fat and protein, both of which stay in the digestive system for a longer period of time. Pasta, rice, vegetables, breads, and fruits are good sources of carbohydrates. Also, remember to drink plenty of water before, during, and after competing.

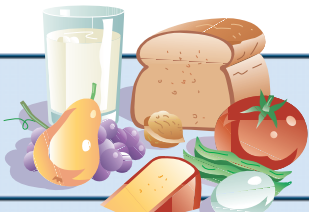



Vegetarianism

A vegetarian is a person who eats mostly or only plant foods. Some people are vegetarians for religious or cultural reasons. Others make this choice because of their concern for the environment or for how food animals are raised or slaughtered. Many people become vegetarians for health reasons. By cutting out the saturated fats and cholesterol found in many or all animal products, vegetarians may reduce their risk of cardiovascular disease and some cancers. Also, vegetarians may consume more fruits, vegetables, and whole grains—foods that are linked to a reduced risk of many health problems. **Figure 6.3** describes four vegetarian eating styles.

FIGURE 6.3

VEGETARIAN EATING PLANS

No matter which plan a person follows, a vegetarian eating style still involves choosing nutritious foods.

Plan Name	Foods Included	
Lacto-ovo vegetarianism	<ul style="list-style-type: none"> Dairy (<i>lacto</i>) foods and eggs (<i>ovo</i>) in addition to foods from plant sources. 	
Lacto vegetarianism	<ul style="list-style-type: none"> Dairy foods in addition to foods from plant sources. 	
Ovo vegetarianism	<ul style="list-style-type: none"> Eggs and foods from plant sources. Fortified soy milk and soy cheese are often substituted for dairy products. 	
Vegan	<ul style="list-style-type: none"> Foods from plant sources only. Fortified soy milk and soy cheese are often substituted for dairy products. 	

Real-Life Application

Meatless Meals

Some people have chosen to become vegetarians. A little planning can ensure that vegetarian meals contain sufficient amounts of nutrients.

Fats, Oils, and Sweets

Use sparingly

Milk, Yogurt, and Cheese Group

0–3 servings daily*

*Vegetarians who choose not to consume dairy products need to select other calcium-rich foods.

Vegetable Group

3–5 servings daily

Bread, Cereal, Rice, and Pasta Group

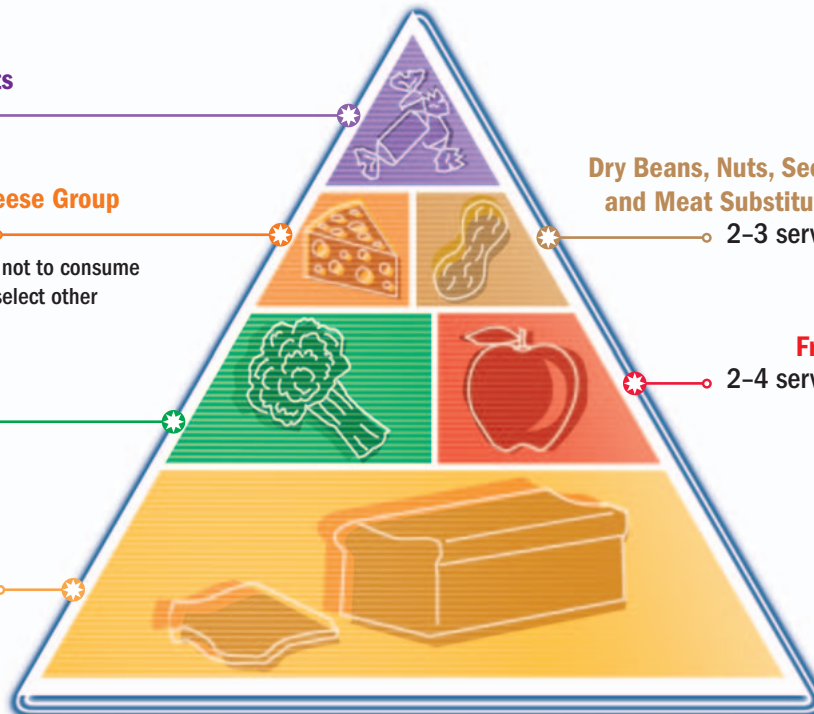
6–11 servings daily

Dry Beans, Nuts, Seeds, Eggs, and Meat Substitutes Group

2–3 servings daily

Fruit Group

2–4 servings daily



Source: American Dietetic Association

ACTIVITY

Use the Vegetarian Food Pyramid above to plan a full day's menu for a vegetarian. Plan a breakfast, a mid-morning snack, a lunch, a mid-afternoon snack, and an evening meal.

MEETING NUTRIENT NEEDS

Vegetarians need to eat a variety of incomplete proteins in a way that will yield complete protein over the course of a day. They must also make sure they get enough iron, zinc, and B vitamins, nutrients often found in animal products. For vegetarians the key to getting complete proteins and enough vitamins lies in eating adequate amounts of various nutrient-dense foods, including fruits, vegetables, leafy greens, whole grains, nuts, seeds, and legumes, as well as dairy foods or eggs. **Vegans** are vegetarians who eat only plant foods.

Because vegans consume no meat or dairy products, they must obtain vitamin D, vitamin B₁₂, and calcium from other sources.

Dietary Supplements

Do you take a multivitamin and mineral supplement regularly? These tablets are one type of **dietary supplement**, a *non-food form of one or more nutrients*. Dietary supplements may contain vitamins, minerals, fiber, protein, or herbs. Supplements can be in pill, capsule, powder, or liquid form.

Eating healthful meals and snacks based on the Food Guide Pyramid can provide you with all the nutrients your body needs. However, taking a multivitamin and mineral supplement may sometimes be appropriate. A health care provider may recommend these supplements to people with certain lifestyles or medical conditions. For example, a calcium supplement may be recommended for vegans or for people who are lactose intolerant. Iron tablets might be recommended for someone with iron-deficiency anemia.

Vitamin and mineral supplements may also be recommended for older adults, pregnant or nursing women, people receiving certain medical treatments, and those recovering from illness. If you are in doubt about your own requirements, ask a health care provider.

Risks of Dietary Supplements


Dietary supplements must be used carefully. Taking a **megadose**, or a *very large amount of a dietary supplement*, can be dangerous. Vitamins A, D, E, and K, for example, are stored in body fat and may cause toxicity if taken in large amounts.

An **herbal supplement** is a *chemical substance from plants that may be sold as a dietary supplement*. These substances are often sold as “natural” nutrition aids. However, the safety and nutritional claims of many of these products are not based on conclusive scientific evidence. Currently, manufacturers of herbal products are responsible for product safety and label claims unless the product is known to be dangerous. The Center for Food Safety and Applied Nutrition (CFSAN) of the U.S. FDA alerts consumers to potentially dangerous dietary supplements. Some herbal supplements known to have dangerous side effects include ephedra, lobelia, yohimbe, and chaparral.



Are herbal products safe because they're natural?

Just because something is natural doesn't mean it's harmless. Certain herbs are poisonous. Others may be harmless on their own, but may interact dangerously with prescription or over-the-counter drugs. Consult a health care provider before taking any herbal supplement.

 Labeling laws require manufacturers to include information about a supplement's ingredients. *Where would you go to find reliable information about supplements?*



Nutrition Throughout the Life Span

People have different nutritional needs at different stages of life. Many children and most teens, for example, need more calories each day than less active adults. While the nutritional needs of these groups vary slightly, most people can get all the calories and nutrients they need each day by following the recommendations from the *Dietary Guidelines* and the Food Guide Pyramid.

Nutrition During Pregnancy

A developing fetus depends on its mother for all its needs, so it's important for pregnant females to eat healthfully and to avoid harmful substances such as tobacco, alcohol, and other drugs. In addition to eating properly, pregnant females are encouraged to increase their intake of foods rich in the nutrients listed below. A health care provider may also recommend that a pregnant female take a multi-vitamin and mineral supplement to help meet these nutrient needs.

- ▶ **Folate.** Getting enough folate, or folic acid, early in pregnancy can prevent spinal defects in the developing fetus. Sources of this B vitamin include fruits, dark green leafy vegetables, and fortified grain products.
- ▶ **Iron.** Increased blood volume during pregnancy produces an increased demand for this mineral. Found in meat, poultry, fish, dark green leafy vegetables, and enriched grain products, iron helps build and renew hemoglobin, the oxygen-carrying compound in blood cells.
- ▶ **Calcium.** Calcium helps build the bones and teeth of the developing fetus and replaces any calcium taken from the mother's bones. Calcium is found in most dairy products, dark green leafy vegetables, canned fish with edible bones, and calcium-fortified cereals and juices.

Good nutrition during early childhood is important for the health of the individual throughout his or her life span. *Why is it important to provide a variety of foods to young children?*


Nutrition for Infants and Young Children

Breastfeeding is the best way to feed infants. If breastfeeding isn't possible, fortified formulas provide the nutrients that infants need. As a baby grows through its first year, breast milk or formula is supplemented with a variety of solid foods, usually starting with cereal grains, then vegetables and fruits, and then meat or poultry.



After a child's first birthday, many parents substitute whole milk for formula or breast milk. The fats in whole milk provide essential nutrients for a child's developing nervous system. By this time most children are eating a variety of foods. This variety provides the energy and nutrients needed for growth and encourages the child to enjoy different foods.

Between a child's second and fifth birthdays, parents should gradually replace whole milk with low- or non-fat milk to meet calcium and vitamin D needs while reducing fat intake.

 Proper nutrition and active lifestyles help many of today's older adults remain in good health.

Nutrition and Older Adults

Most older adults can get all the calories and nutrients they need each day by following the recommendations in the *Dietary Guidelines* and the Food Guide Pyramid. Older adults may be advised to follow a special diet if they have a specific health problem.

In certain cases, health care providers might recommend that older adults take a dietary supplement to help meet their nutrient needs. For example, some older adults may take medications that interfere with nutrient absorption.



Lesson 3 Review

Reviewing Facts and Vocabulary

1. What type of meal should an athlete eat before competing?
2. Define the term *vegetarian*.
3. Explain what a *megadose* is and why it may be dangerous.

Thinking Critically

4. **Synthesizing.** Explain why proper nutrition is especially important in promoting optimal health for pregnant women, infants, and young children.
5. **Analyzing.** How does good nutrition enhance and maintain personal health throughout life?

Applying Health Skills

Advocacy. Many people think that taking vitamins, minerals, and herbal supplements will improve their health. Develop a pamphlet to educate others about the best ways of getting the nutrients needed for good health. Include information on the safe use of supplements.



PRESENTATION SOFTWARE By using presentation software, you can include art and graphics in a slide show on the importance of good nutrition. Find help in using presentation software at health.glencoe.com.

Body Image in Teen Magazines

Teen magazines often feature images of very thin and fit models. Readers who feel that they don't "measure up" to these models in terms of weight may develop a negative body image. Use the activity below to help you examine messages in teen magazines about weight.



ACTIVITY

Look through a number of teen magazines. What sorts of images of teens do the magazines contain? Are a variety of body types featured? What is the magazine's take on weight management? Do the articles and ads focus on having a moderate, balanced eating plan and increasing physical activity as ways of managing weight healthfully?

As a class, produce a magazine devoted to the topic of healthy weight management for teens. Be sure to include all the elements of a magazine, including feature articles on exercise, nutrition, and body composition; a cover; letters from

readers; an advice column; and advertisements. You might also want to include recipes, fictional stories, and a Buyer's Guide/Buyer Beware column.

EXPRESS YOUR VIEWS

Some teen magazines refuse to publish articles and ads on dieting because of the potential these items have for contributing to teens' negative body image. Others continue to feature such articles and ads. As a class, discuss whether magazines should contain information and ads on dieting.

CROSS-CURRICULUM CONNECTIONS



Create a Flyer. Many communities are encouraging their members to eat healthfully and be more physically active. Using a persuasive writing style, create a flyer that gives teens tips on how to develop healthy eating habits and include more physical activity into their lives. Obtain permission from the proper school officials to distribute your flyer to the school community.



Write a Report. Eating disorders have been recorded as early as ancient Greek and Roman times. Research the history of eating disorders in the last three decades. Address theories on the possible causes of eating disorders, and determine why it was not until the 1970s that public awareness of these illnesses increased. Write a report based on your research.



Calculate Calorie Ranges. Nutritionists recommend that 55 to 60 percent of daily calories come from complex carbohydrates. What is the range of calories that should come from complex carbohydrates for a teen who consumes 2,200 calories per day? What is the range for a teen who consumes 2,800 calories per day?



Investigate the Topic. Reducing calorie intake can slow down a person's metabolism, a process that is similar to what happens in people who are suffering from starvation. Research this biological process and explain why the body responds to decreased caloric intake in this way. Present your findings in a brief report.

CAREER Corner

Registered Dietitian

Are you interested in the special nutritional needs of athletes, older adults, or pregnant women? Would you like to inspire others to make healthful food choices? If you answered yes to these questions, you may enjoy a career as a registered dietitian.

Registered dietitians use a variety of skills in their jobs. They must be critical thinkers to analyze an individual's eating habits. They must base their nutritional advice on sound science. Good communication skills are necessary to help people understand how to make food choices. Registered dietitians must show sensitivity to people's needs, cultures, and lifestyles. Find out more about becoming a registered dietitian or working in a related field by clicking on Career Corner at health.glencoe.com.



Chapter 6 Review

► **EXPLORING HEALTH TERMS** Answer the following questions on a sheet of paper.

Lesson 1 Replace the underlined words with the correct term.

Body Mass Index (BMI)	underweight
overweight	obesity
nutrient-dense foods	body image

1. The way you see your body is your BMI.
2. The ratio of weight to height used to assess body size is body image.
3. Fruits and vegetables are nutrient-poor foods.
4. Obesity refers to weighing less than the standard weight range for a certain height.

Lesson 2 Identify each statement as True or False. If false, replace the underlined term with the correct term.

bulimia nervosa	eating disorder
fad diets	anorexia nervosa
weight cycling	binge eating disorder

5. The repeated pattern of loss and regain of body weight is bulimia nervosa.
6. An extreme, harmful eating behavior that can cause serious illness or even death is an eating disorder.
7. Anorexia nervosa is a condition in which the irrational fear of becoming obese results in severe weight loss from self-imposed starvation.
8. Compulsive overeating is called weight cycling.

Lesson 3 Match each definition with the correct term.

dietary supplement	rehydration
electrolytes	vegan
herbal supplement	vegetarian
megadose	

9. Restoring lost body fluids.
10. A person who eats only plant foods.
11. A nonfood form of one or more nutrients.
12. A chemical substance from plants that may be sold as a dietary supplement.

► **RECALLING THE FACTS** Use complete sentences to answer the following questions.

Lesson 1

1. Explain the relationship between energy balance and a healthy weight.
2. Analyze the relationship between maintaining a healthy weight and disease prevention. Name three diseases that can be prevented by maintaining a healthy weight.
3. List three weight-management strategies.
4. How does regular physical activity help promote a healthy weight?

Lesson 2

5. What are some risks of long-term fasting?
6. Name three risks associated with diet pills.
7. Describe the causes, symptoms, and treatment of the eating disorder bulimia nervosa.
8. Describe the causes, symptoms, and treatment of binge eating disorder.

Lesson 3

9. Explain how dehydration and electrolyte imbalance are related.
10. How can a vegetarian diet benefit health?
11. Why might taking an herbal supplement be risky?
12. Why might a pregnant woman need to take a dietary supplement?

► **THINKING CRITICALLY**

- 1. Synthesizing.** Why might a person who is on a weight-loss plan become undernourished? How can this condition be avoided? (LESSON 1)
- 2. Analyzing.** Find two diet plans featured in magazines. Use what you know about good nutrition and the Food Guide Pyramid to identify the strengths and weaknesses of each plan. (LESSON 2)
- 3. Applying.** Apply what you have learned about nutrition and vegetarian eating by using the Food Guide Pyramid to plan a sample one-day vegan menu. (LESSON 3)

► **HEALTH SKILLS APPLICATION**

- 1. Analyzing Influences.** Many factors, including media messages, influence body image. Identify the three factors that you think have the greatest effect on a teen’s body image. Explain what role you think each factor plays in determining body image and whether the effect is positive or negative. (LESSON 1)

- 2. Communicating.** Your friend Amy confides that she maintains her weight by alternating periods of fasting with eating large amounts of food. After eating, she vomits to rid her body of the food. Amy says that this practice is not harmful and helps her control her weight. Write a script describing what you would say to Amy. With a partner, role-play your scenario for the class. (LESSON 2)
- 3. Accessing Information.** Use reliable online and print resources to find information on at least three dietary supplements known to have harmful side effects. Make a two-column chart that lists in the first column the health claims the supplement manufacturers use to promote their products and, in the second column, the potential side effects of using or abusing the product. Ask permission to post your findings in the weight-training room at your school. (LESSON 3)

 **BEYOND**
the Classroom

Parent Involvement

Goal Setting. Sometimes it’s easier to set and achieve goals if you work with others. With family members, draw up a plan for achieving a specific nutritional health goal. Your goal may be to lose weight, eat more fruits and vegetables, or anything else that applies to your own needs. Use the goal-setting steps to help you reach your goal.



School and Community

Overeaters Anonymous. Overeaters Anonymous (OA) is a group that offers support to those who are trying to overcome eating problems. Contact a branch of this organization in your community. Find out what services OA provides and how “sponsors” are used to help support people in recovery. Share your findings in a brief report.