An Invitation to Health: Build Your Future

DIANNE HALES

15TH EDITION
After studying the material in this chapter, you should be able to

- List the factors that have contributed to the increase in overweight and obesity in the United States.
- Discuss factors that may influence body image.
- Define overweight and obesity.
- Identify the main health risks of excess weight.
- Assess dietary, exercise, and psychological approaches to weight loss.
- Identify and describe the symptoms, health consequences, and treatments associated with eating disorders.
- List three specific behavior changes that you could incorporate into your daily life, to achieve or maintain a healthy body weight.
Lina’s mother called it “baby fat.” “You’ll outgrow it soon enough,” she said. Yet Lina’s cheeks grew chubbier and her waist wider every year. “Wait for your growth spurt,” her mother reassured her. But Lina remained one of the shortest girls in her class—and, she was convinced, the roundest.

Managing Your Weight

Lina went on her first diet in high school. For three days she ate nothing but carrot sticks, cottage cheese, and apples. Then she scarfed down two double cheeseburgers with fries and a chocolate shake. Her other attempts at dieting didn’t last much longer. By graduation Lina was grateful to hide under the flowing black robe as she walked on stage to get her diploma.

When Lina heard about the “freshman 15,” the extra pounds many students acquire during their first year at college, she groaned at the prospect of putting on more weight. In her Personal Health class, Lina set one primary goal: not to gain another pound. Rather than going on—and inevitably falling off—one diet after another, she developed a weight management plan that included healthful food choices and regular exercise. Armed with the information and tools provided in this chapter, Lina, for the first time in her life, took charge of her weight.

You can do the same.

This chapter explains how we grew so big, tells what obesity is and why excess pounds are dangerous, describes current approaches to weight loss, discusses diets that work (and some that don’t), offers practical guidelines for exercise and behavioral approaches to losing weight, and examines unhealthy eating patterns and eating disorders. If you’re already at a healthy weight, this chapter can ensure that you remain so in the future. If, like two-thirds of Americans, you are overweight, you will find help in these pages. Remember: You can choose to lose.

The Global Epidemic

An estimated 1.1 billion people around the world—seven in ten of the Dutch and Spanish, two in three Americans and Canadians, and one in two Britons, Germans, and Italians—are overweight or obese. Overall one in ten adults worldwide is obese. In Europe, excess weight ranks as the most common childhood disorder. Since 1980, obesity rates have tripled in parts of Eastern Europe, the Middle East, China, and the Pacific Islands. More than 20 percent of Chinese children between the ages of 7 and 17 living in large cities are overweight. One in five Chinese adults is overweight or obese. In South Africa some 60 percent of women are overweight or obese.

The World Health Organization, in its first global diet, exercise, and health program to combat obesity, recommends that governments promote public knowledge about diet, exercise, and health; offer information that makes
Millions of men and women in the United States weigh more—often two times more—than their recommended ideal weight.

Healthy choices easier for consumers to make; and require accurate, comprehensible food labels.\(^3\) Although ultimately each individual decides what and how much to eat, policy makers agree that governments also must act to reverse the obesity epidemic.

Exposure to a Western lifestyle seems to bring out susceptibility to excess weight. Obesity is much more common among the Pima Indians of Arizona compared to Pimas living in Mexico, who have maintained a more traditional lifestyle, with more physical activity and a diet lower in fat and richer in complex carbohydrates. Native Hawaiians who follow a more traditional diet and lifestyle also have lower rates of obesity and cardiovascular disease.

**Supersized Nation**

Over the last 30 years the proportion of Americans considered to be overweight (with a body mass index, or BMI, of 25 or higher) or obese (with a BMI of 30 or higher) has steadily increased. (Body mass index is discussed in Chapter 8.)

Five percent of the U.S. population is morbidly obese, a number far higher than previously thought.\(^4\) In the most recent National Health and Nutrition Examination Survey (NHANES), 68 percent of adults in the United States were overweight; 34 percent of these individuals were obese. More men (72 percent) than women (64 percent) were overweight or obese. Obesity rates among young adults ages 20 to 39 have tripled in the last three decades, rising to 28 percent of men and 34 percent of women.

By some estimates, Americans are collectively more than 5 billion pounds overweight. Some 200 million men and women weigh more—often much more—than their recommended target weights. If this trend were to continue, almost half of American adults would be considered obese by the year 2020. However, there are indications that obesity rates may have reached a plateau, at least for women and most children.\(^5\)

Table 7.1 Prevalence of Obesity and Overweight

<table>
<thead>
<tr>
<th>(Percentage of Adults over Age 20)</th>
<th>All</th>
<th>White</th>
<th>Black</th>
<th>Hispanic</th>
<th>Mexican American</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Obese (BMI ≥ 30)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>34</td>
<td>33</td>
<td>44</td>
<td>38</td>
<td>39</td>
</tr>
<tr>
<td>Men 20–39</td>
<td>28</td>
<td>26</td>
<td>35</td>
<td>32</td>
<td>34</td>
</tr>
<tr>
<td>Women 20–39</td>
<td>34</td>
<td>31</td>
<td>47</td>
<td>38</td>
<td>40</td>
</tr>
<tr>
<td><strong>Overweight (BMI ≥ 25)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>68</td>
<td>67</td>
<td>74</td>
<td>77</td>
<td>78</td>
</tr>
<tr>
<td>Men 20–39</td>
<td>64</td>
<td>63</td>
<td>62</td>
<td>74</td>
<td>75</td>
</tr>
<tr>
<td>Women 20–39</td>
<td>60</td>
<td>55</td>
<td>78</td>
<td>69</td>
<td>70</td>
</tr>
</tbody>
</table>

that categorize them as overweight or obese. This percentage seems to have reached a plateau, except for the heaviest boys, who are getting even heavier over time. Young adults from immigrant families are at particular risk of becoming overweight or obese by age 25. The reasons may be that they replace outdoor activities with more sedentary ones, such as video games and Internet use; eat more fast food; and consume fewer fruits and vegetables. At highest risk are black and Hispanic youth.

Early obesity strongly predicts later cardiovascular disease, and excess weight may explain the drastic increase in type 2 diabetes, a major risk factor for cardiovascular disease (discussed in Chapter 15). Among obese children, over 70 percent have at least one additional risk factor for cardiovascular disease; almost 40 percent have two or more. Being overweight in late adolescence is as hazardous as heavy smoking in increasing the risk of dying over a 38-year period. Obese children are twice as likely to die before age 55 than normal-weight youngsters; those with elevated blood sugar levels face an even greater risk of premature death.

How Did We Get So Fat?

A variety of factors, ranging from behavior to environment to genetics, played a role in the increase in overweight and obesity. They include:

- **More calories.** Bombarded by nonstop commercials for taste treats, tempted by foods in every form to munch and crunch, in the last 30 years the average man has added 168 calories and the average woman 335 calories to their daily diets.

- **Bigger portions.** As Table 7.2 shows, the size of many popular restaurant and packaged foods has increased two to five times during the past 20 years. Some foods, like chocolate bars, have grown more than ten times since they were first introduced. Popular 64-ounce sodas can pack a whopping 800 calories. According to studies of appetite and satiety, people presented with larger portions eat up to 30 percent more than they otherwise would.

- **Fast food.** Young adults who eat frequently at fast-food restaurants gain more weight and develop metabolic abnormalities that increase their risk of diabetes in early middle age. (See discussion of fast food in Chapter 6.)

- **Physical inactivity.** As Americans eat more, they exercise less. Experts estimate that most adults expend 200 to 300 fewer calories than people did 25 years ago. The most dramatic drop in physical activity often occurs during the college years.

### Table 7.2 Supersized Portions

<table>
<thead>
<tr>
<th>Food/Beverage</th>
<th>Original Size (year introduced)</th>
<th>Today (largest available)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soda (Coca-Cola)</td>
<td>6.5 oz (1916)</td>
<td>34 oz</td>
</tr>
<tr>
<td>French fries (Burger King)</td>
<td>2.6 oz (1954)</td>
<td>6.9 oz</td>
</tr>
<tr>
<td>Hamburger (McDonald’s; beef only)</td>
<td>1.6 oz (1965)</td>
<td>8 oz</td>
</tr>
<tr>
<td>Nestlé Crunch</td>
<td>1.6 oz (1938)</td>
<td>5 oz</td>
</tr>
<tr>
<td>Budweiser (bottle)</td>
<td>7 oz (1976)</td>
<td>40 oz</td>
</tr>
</tbody>
</table>

Healthy Lifestyles

• Passive entertainment. Television is a culprit in an estimated 30 percent of new cases of obesity. TV viewing may increase weight in several ways: It takes up time that otherwise might be spent in physical activities. It increases food intake since people tend to eat more while watching TV. And compared with sewing, reading, driving, or other relatively sedentary pursuits, watching television lowers metabolic rate so viewers burn fewer calories. The combination of watching television (at least two and one-half hours a day) and eating fast food more than twice a week can triple the risk of obesity.

• Genetics. Scientists have identified a specific gene, found in one-sixth of people of European descent, that increases the risk of obesity by 30 percent or more. It also may be that various genes contribute a small increase in risk or that rare abnormalities in many genes create a predisposition to weight gain and obesity. Individuals with a family history of alcoholism—women more so than men—are more likely to become obese, perhaps because junk foods stimulate the same parts of the brain as alcohol.

• Prenatal factors. A woman’s weight before conception and weight gain during pregnancy influence her child’s weight. A substantial number of children are prone to gaining weight because their mothers developed gestational diabetes during their pregnancies. Children born to obese women are more than twice as likely to be overweight by age four.

• Childhood development. Today’s children don’t necessarily eat more food than in the past, but they eat more high-fat, high-calorie foods and they exercise much, much less. These habits have more impact on their weight than does genetics. On days when they eat fast food, youngsters consume an average of 187 more calories per day. Fewer than half of grade schoolers participate in daily physical education classes. Many spend five hours or more a day in front of a computer or television screen.

• Emotional influences. Obese people are neither more nor less psychologically troubled than others. Psychological problems, such as irritability, depression, and anxiety, are more likely to be the result of obesity than the cause. As discussed later in this chapter, emotions do play a role in weight problems. Just as some people reach for a drink or a drug when they’re upset, others cope by overeating, bingeing, or purging.

• Social networks. Friends may have a significant effect on a person’s risk of obesity.

HOW DO YOU COMPARE?

THE WEIGHT OF STUDENT BODIES

<table>
<thead>
<tr>
<th>BMI</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;18.5 Underweight</td>
<td>3.2</td>
<td>5.8</td>
<td>4.9</td>
</tr>
<tr>
<td>18.5–24.9 Healthy Weight</td>
<td>56.2</td>
<td>64.6</td>
<td>61.6</td>
</tr>
<tr>
<td>25–29.9 Overweight</td>
<td>28.3</td>
<td>18.3</td>
<td>21.9</td>
</tr>
<tr>
<td>30–39.9 Obesity</td>
<td>10.9</td>
<td>9.3</td>
<td>9.9</td>
</tr>
<tr>
<td>≥40 Morbid Obesity</td>
<td>1.3</td>
<td>1.9</td>
<td>1.7</td>
</tr>
</tbody>
</table>

HOW DO YOU COMPARE?

Using the chart on page 258 in Chapter 8, determine your BMI. Which of the above categories do you fit in? Have you ever been overweight or obese? Are you now? Do you want to lose weight? Why or why not? Record your feelings on your weight today and in the past in your online journal.

A 32-year detailed analysis of a large social network of 12,067 people found that when one close friend became obese, the others’ chances of doing the same increased by 171 percent. Young adults who are overweight or obese tend to befriend and date people who also have weight problems, according to a recent study. Researchers are not sure if overweight people seek out other overweight people or whether normal-weight individuals become heavier as a result of their relationships with people who are above-normal weight. The scientists’ suggestion: If you need to lose weight, join with your social contacts who also are heavy and work on shedding pounds together. (See Chapter 5, “Social Health,” for further discussion.)

Marriage and children. Women often blame weight gain in early adulthood on having a baby, but that is not the only influence on weight. In a study that followed young women between ages 18 and 23 for ten years, most of the women put on extra pounds but the women who remained childless and single gained least. Those who got married or moved in with a partner gained significantly more weight; those who had a child gained still more (although only with a first baby).

Living in an “Obesogenic” Environment

Is obesity an individual or a societal problem? Some experts argue that modern America has become an “obesogenic” environment that contributes to obesity by promoting overconsumption of calories and discouraging physical activity. Although each of us chooses what and how much we eat and how physically active we are, environmental factors affect our choices.

Whatever your age, wherever you live, the less money you make, the more likely you are to be overweight. One in four adults below the poverty level is obese, compared with one in six in households earning $67,000 or more. Minorities are at even greater risk. One in three poor African Americans is obese.

Location is important because where you live influences the availability of healthful food choices and the quality of your diet. In studies of diverse neighborhoods in Baltimore, Maryland, researchers found a much lower availability of healthful foods in predominantly black, low-income areas, compared with more affluent white ones. Lower-income and minority neighborhoods generally have greater access to fast-food restaurants and high-calorie foods. Obesity rates are consistently higher in neighborhoods with more small grocery stores and fast-food restaurants and fewer supermarkets.

However, suburban sprawl also directly contributes to obesity, according to research. People who live in neighborhoods where they must drive to get anywhere are significantly more likely to be obese than those who can easily walk to their destinations.

Body Image

Throughout most of history, bigger was better. The great beauties of centuries past, as painted by such artistic masters as Rubens and Renoir, were soft and fleshy, with rounded bellies and dimpled thighs. Culture often shapes views of beauty and health.

Many developing countries still regard a full figure, rather than a thin one, as the ideal. Fattening huts, in which brides-to-be eat extra food to plump up before marriage, still exist in some African cultures. Among certain Native American tribes of the Southwest, if a girl is thin at puberty, a fat woman places her foot on the girl’s back so she will magically gain weight and become more attractive.

Influenced by the media, many Americans are paying more attention to their body images than ever before, but body image fluctuates throughout life. Women of all ages tend to be less satisfied with their bodies than are men. The “perfect body” ideal popularized by television, magazines, and movies can undermine a positive body image and cause girls and women to go to extreme measures to control their weight. The more time that women spend reading fashion magazines, the more “antifat” their attitudes are and the greater dissatisfaction with their bodies. Boys’ body images also are influenced by media images depicting superstrong, highly muscular males.
Healthy Lifestyles

Male and Female Body Image

Although women generally report a more negative body image, many men are dissatisfied with their bodies for different reasons. Often they want either to lose or gain weight or to add muscle and bulk. Women compare their appearance to that of celebrities and models as well as peers more frequently than men and worry more that others will think negatively about their looks. Yet appearance matters just as much to men, who are as likely as women to engage in efforts to improve their bodies.

Women have long been bombarded by idealized images in the media of female bodies that bear little resemblance to the way most women look. Increasingly, more advertisements and men's magazines are featuring idealized male bodies. Sleek, strong, and sculpted, they do not resemble the bodies most men inhabit. The gap between reality and ideal is getting bigger for both genders. (See Chapter 8 for a discussion of “bigorexia” or muscle dysmorphia.)

College women are more likely to overestimate their weight, while men tend to underestimate their actual weight. The greater the discrepancy between a woman’s current view of her body shape and the ideal she considers most attractive to men, the more likely she is to worry about how others will view her and to doubt her ability to make a desirable impression. Such “social physique anxiety” occurs often in women who feel they do not measure up to what they or others consider most desirable in terms of weight or appearance. Women with high BMIs and greater body-related anxiety may exercise to become thinner or more attractive. Those reporting the greatest distress because of body image are at highest risk of disordered eating or actual eating disorders (discussed later in this chapter).

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Health educators are tackling the thorny issue of body image in various ways, including discussions of the media’s role in influencing how people perceive their bodies. “Health educators should demand that airbrushed, touched up, and computer-enhanced images be replaced with those of real, beautiful women complete with freckles, stretch marks, scars, and, on occasion, cellulite,” argues Catherine Rasberry of

Your Strategies for Change

How to Boost Your Body Image

Whatever your weight or shape, here are some ways to improve your body image:

- Start walking with more bounce in your step.
- Focus on the parts of your body you like. Take pride in your powerful shoulders or large eyes.
- Treat yourself with the respect you’d like to receive from others. Don’t put yourself down or joke about your weight.
- Work with hand weights. As you build your muscles, your sense of strength and self-confidence also will grow.
- Don’t put off special plans, such as learning to kayak or signing up for an exchange program, until you reach a certain magical weight. Do what you want to do now.
- Pull your shoulders back, suck in your stomach, and stand up straight. You’ll look and feel better.
Texas A&M University. Do you think more realistic media images would affect how you feel about your body?

**Understanding Weight Problems**

Weight problems don’t develop overnight. Fat accumulates meal by meal, day by day, pound by pound. Ultimately, all weight problems are the result of a prolonged energy imbalance—of consuming too many calories and burning too few in daily activities.

How many calories you need depends on your gender, age, body-frame size, weight, percentage of body fat, and your *basal metabolic rate* (BMR)—the number of calories needed to sustain your body at rest. Your activity level also affects your calorie requirements. Regardless of whether you consume fat, protein, or carbohydrates, if you take in more calories than required to maintain your size and don’t work them off in some sort of physical activity, your body will convert the excess to fat.

The average American consumes about 1 million calories a year. Given that number, what difference does an extra 100-calorie soda or 300-calorie brownie make? A lot, because the extra calories that you don’t burn every day accumulate, adding an average of two to four pounds to your weight every year.

**What Is a Healthy Weight?**

Rather than relying on a range of ideal weights for various heights, as they did in the past, medical experts use various methods to assess body composition and weight. The best indicators of weight-related health risks are body mass index...
Health on a Budget

Hold the Line!

You can leave college a whole lot smarter but no heavier than when you entered—without spending extra money. Here are some suggestions:

• Plan meals. Most campus cafeterias post the week’s menus in advance. Plan which items you will eat before you see or smell high-fat dishes.

• Don’t linger. If you use the cafeteria as a social gathering place, you may end up eating with two or three different groups of people. Set a time limit to eat—then leave.

• Develop alternative behavior. People who eat when they are stressed or bored need substitute activities ready when they need them. Make a list of things you can do—shower, phone a friend, take a hike—when stress strikes.

• Eat at “home.” If the dormitory has a small kitchen, cook some healthful dishes and invite friends to join you.

• Take advantage of physical activity programs. Many college students become less active during their years in college. Aim to maintain or increase the amount of exercise you did in high school. Join a biking club, take a salsa class, learn yoga, try tennis or racquetball.

overweight A condition of having a BMI between 25.0 and 29.9.

obesity The excessive accumulation of fat in the body; class 1 obesity is defined by a BMI between 30.0 and 34.9; class 2 obesity by a BMI between 35.0 and 39.9; class 3, or severe obesity, is a BMI of 40 or higher.

If you have a BMI higher than 25, you are overweight and at greater risk of health problems. If your BMI is between 30 and 34.9, you have class 1 obesity. If it is between 35 and 39.9, you have class 2 obesity. Both indicate increased risk of dying of weight-related problems. A BMI over 40 signifies class 3 or severe obesity and poses the greatest threat to health and longevity.

If you’re a young adult, even mild to moderate overweight poses a threat to your health because it puts you at risk for gaining even more weight—and for facing greater health risks. Obesity has been implicated as a culprit in rising rates of disability among younger Americans as well as a factor in chronic health problems. If you are older than a traditional-age student, the risks to your health are more immediate.

Weight and the College Student

Obesity rates have increased most rapidly among young adults. An estimated 43 percent of 18- to 24-year-olds are overweight or obese. One in five college students has an unhealthy weight as well as at least one risk factor for metabolic disorder, an important cause of cardiovascular disease (discussed in Chapter 15).

As many students discover, it’s easy to gain weight on campuses, which are typically crammed with vending machines, fast-food counters, and cafeterias serving up hearty meals. As discussed in Chapter 6, students who eat on the run often opt for fast food and consume more fatty foods and soft drinks, which increase their risk of obesity and other health problems. However, it is possible to hold the line on calories—and costs. (See Health on a Budget.)

Only about 5 percent of students gain the legendary “freshman 15.” According to an overview of recent research, from 62 to 76 percent of freshmen gain an average of 2.8 to 3.8 pounds. Percent body fat, absolute body fat, and BMI also tend to increase in the first semester at school. However, a certain percentage of incoming students—27 to 34 percent in different studies—lose weight their first year. The students who gain the most weight tend to be less physically active and sleep more than their peers.

Researchers have found gender differences in first-year weight gain. In men, increased alcohol consumption and peer pressure to drink account for extra pounds. In women, the strongest correlation of weight gain was with an increased workload, which may lead to more stress-related eating, greater snacking, or less exercise.

Sexual orientation also correlates with the weight of college women. In a recent study of female undergraduates between the ages of 18 and 25, lesbian and bisexual women were almost twice as likely to be overweight or obese as heterosexual women. The reason may be that these women have more available partners and less motivation to exercise. Studies have shown that lesbians report a lower drive for thinness and generally have a higher ideal weight than heterosexual women. 19

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The effects of obesity on health are the equivalent of 20 years of aging. They include increased risk of cardiovascular disease, diabetes, and cancer, as well as rheumatoid arthritis, sleep apnea, gout, and liver disease (Figure 7.1). Being overweight or obese at age 25 increases your likelihood of difficulties in walking, balance, and rising from a chair. Obesity, according to recent analysis, robs people of about 2.5 healthy, pain-free years. Total medical costs, both direct and indirect, amount to more than $117 billion a year.

Obesity kills. Researchers attribute 112,000 to 280,000 deaths every year to excess weight. Your weight in early adulthood and middle age can have an impact on how long and how well you live. Life expectancy at age 20 is five years less for someone who is obese. Obesity may be responsible for one-fifth to one-third of the life expectancy gap between the United States and other developed countries.

The Impact on the Body The incidence of diabetes, gallstones, hypertension, heart disease, and colon cancer increases with the degree of overweight in both sexes. Those with BMIs of 35 or more are approximately 20 times more likely to develop diabetes. Overweight men and women are at least three times more likely to suffer knee injuries that require surgery to repair.

Health risks may vary in different races, ethnic groups, and at-risk populations. Even relatively small amounts of excess fat—as little as five pounds—can add to the dangers in those already at risk for hypertension and diabetes. Obesity also causes alterations in various measures of immune function and increases the risk of kidney stones and disease. It may also affect the brain and contribute to cognitive problems and dementia.

Overweight young adults have a 70 percent chance of becoming overweight or obese adults. They are two to three times more likely to have high total cholesterol levels and more than 43 times more likely to have cardiovascular disease risk factors such as elevated blood pressure. They also have a higher prevalence of type 2 diabetes.

Excess pounds affect people around the clock. Overweight and obese individuals sleep less than those with normal weights. The lost sleep...
could add to the risk of medical problems. (See Chapter 2 for a discussion of sleep.) The lost sleep could add to the risk of medical problems.

Major diseases linked to obesity include:

- **Type 2 diabetes.** More than 80 percent of people with type 2 diabetes are overweight. Although the reasons are not known, being overweight may make cells less efficient at using sugar from the blood. This then puts stress on the cells that produce insulin (a hormone that carries sugar from the blood to cells) and makes them gradually fail. You can lower your risk for developing type 2 diabetes by losing weight and increasing the amount of physical activity you do. If you have type 2 diabetes, losing weight and becoming more physically active can help you control your blood sugar levels and may allow you to reduce the amount of diabetes medication you take.

- **Heart disease and stroke.** People who are overweight are more likely to suffer from high blood pressure, high levels of triglycerides (blood fats) and harmful LDL cholesterol, and low levels of beneficial HDL cholesterol. In addition, people with more body fat have higher blood levels of substances that cause inflammation, which may raise heart disease risk. Losing 5 to 15 percent of your weight can lower your chances for developing heart disease or having a stroke. Obese men face a much greater risk of dying from a heart attack, regardless of whether they have other risk factors.

People who both smoke and are obese are at especially high risk of cardiovascular disease.

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**Figure 7.1 Health Dangers of Excess Weight**

Cancer:
- Breast, ovary, cervix, endometrium (women)
- Esophagus
- Kidney
- Gallbladder
- Non-Hodgkin's disease
- Stomach
- Colorectal
- Prostate (men)

Type 2 diabetes
- High blood cholesterol
- High blood pressure
- Overall shorter life expectancy

Cancer:
- Breast, ovary, cervix, endometrium (women)
- Esophagus
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- Non-Hodgkin's disease
- Stomach
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- Prostate (men)

Type 2 diabetes
- High blood cholesterol
- High blood pressure
- Overall shorter life expectancy
Although some smokers have felt that they couldn’t lose weight until they stopped smoking, researchers have found that weight loss among smokers is possible and beneficial, leading to a reduction in other risk factors, such as lower blood pressure and lower cholesterol.

- **Cancer.** Obesity contributes to more than 100,000 cases of cancer—among them cancers of the endometrium, esophagus, pancreas, gallbladder, kidney, breast, and colon—in the United States every year. Excess weight may account for 14 percent of all cancer deaths in men and 20 percent of those in women. Losing weight, researchers estimate, could prevent as many as one of every six cancer deaths.

Body size and higher BMI are linked with increased risk of breast cancer in premenopausal women and in postmenopausal women not using hormone replacement therapy. Women who are overweight or obese tend to have more aggressive cancers and lower survival rates.\(^\text{23}\)

**The Emotional Toll** In our calorie-conscious and thinness-obsessed society, obesity also affects quality of life, including sense of vitality and physical pain. Many see it as a psychological burden, a sign of failure, laziness, or inadequate willpower. Overweight men and women often blame themselves for becoming heavy and feel guilty and depressed as a result. In fact, the psychological problems once considered the cause of obesity may be its consequence.

Obesity also has social consequences. Heavy women are less likely to marry, earn less, and have lower rates of college graduation. In a recent study, obese individuals who felt discriminated against because of their weight developed more physical problems over time than those who did not.\(^\text{24}\)

**A Practical Guide to Weight Loss**

More than half of college women and about a third of college men intend to lose weight. Readiness to change is the key to successful weight loss. However, individuals vary in their readiness to change their diets, increase their physical activity, and seek professional counseling. Take the Self Survey at the end of this chapter to determine your readiness to lose weight.

**Why We Overeat**

The answer lies not just in the belly but in the brain. Both **hunger**, the physiological drive to consume food, and **appetite**, the psychological desire to eat, influence and control our desire for food. Scientists have discovered appetite receptors within the brain that specifically respond to hunger messages carried by hormones produced in the digestive tract (Figure 7.2).

Although usually a direct result of hunger, appetite is easily led into temptation. In one famous experiment, psychologists bought high-calorie goodies—peanut butter, marshmallows, chocolate-chip cookies, and salami—for their test rats. The animals ate so much on this “supermarket diet” that they gained more weight than any laboratory rats ever had before. The snack-food diet that fattened up these rats was particularly high in fats. Biologists speculate that creamy, buttery, or greasy foods may cause internal changes that increase appetite and, consequently, weight.

**Figure 7.2  Hormones Help Regulate Our Appetites**

<table>
<thead>
<tr>
<th>Appetite receptors in hypothalamus respond to hormonal messages</th>
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</thead>
<tbody>
<tr>
<td>Ghrelin stimulates appetite before meals</td>
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<tr>
<td>Leptin regulates appetite to maintain weight</td>
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</table>
A hormone called leptin, produced by fat cells, sends signals that regulate appetite to the brain. When leptin levels are normal, people eat just enough to maintain weight. When leptin is low, the brain responds as if fat stores had been depleted and slows down metabolism. This may be one reason why it is so difficult to lose weight by dieting alone. However, vigorous exercise can lower the hormone ghrelin, which is a natural appetite stimulant. When given shots of ghrelin, people become very hungry and eat 30 percent more than they normally would. Ghrelin typically rises before meals and falls afterward. Dieters tend to have high levels of ghrelin, as if their bodies were trying to stimulate appetite so they regain lost fat.

We usually stop eating when we feel satisfied; this is called satiety, a feeling of fullness and relief from hunger. The neurotransmitter serotonin has been shown to produce feelings of satiety. In addition, several peptides, released from the digestive tract as we ingest food, may signal the brain to stop or restrict eating. However, it takes 20 minutes for the brain to register fullness.

Many people eat without regard for their body’s signals. This “non-hunger” or “emotional” eating is almost always overeating, since it’s eating for reasons other than sustenance. The psychological aspect of overeating is discussed later in the chapter.

**Weight Loss Diets**

The diet debates over low-fat versus low-carbohydrate versus high-protein have raged for years. Which is best? Several studies over recent years found little difference in the ultimate results. It doesn’t matter whether you count carbohydrates, protein, or fat—as long as you eat less.

Although people lose weight on any diet that helps them eat less, most dieters only lose about 5 percent of their initial weight and gain some of that back. However, even a modest weight loss can lower cardiovascular risk factors, such as blood pressure, total cholesterol, and elevated blood glucose.

Although a variety of dietary approaches will result in weight loss and reduce cardiac risk factors, individuals who have been identified as insulin-resistant may lose more weight, at least in the short term, from a high-protein, low-carbohydrate rather than a low-fat diet. Medical researchers do not fully understand why this is so. It could be that increased protein promotes weight loss by inducing satiety and increasing energy expenditure. It is still not clear whether high-protein, low-carbohydrate diets are safe for very long periods.

In a large-scale European study that compared more than a thousand overweight individuals on different diets, the greatest long-term success—in terms of sticking with the diet and maintaining weight loss—came with a modest increase in protein and a modest reduction in carbohydrates and the glycemic index (discussed in Chapter 6).

Following is a brief overview of some of the current approaches to dieting.

**High-Carbohydrate, Low-Fat (Ornish)**

The basic principle of Dr. Dean Ornish’s approach is that by strictly limiting fat (whether animal or vegetable) by eating high-fiber, low-fat foods, you eat fewer calories without eating less food.

**Promise**

- Weight loss plus significant health benefits, including lower blood pressure and cholesterol.

**Pitfalls**

- Many people find low-fat diets so unsatisfying that they cannot stay on them.
- The diet limits the healthy fats in fish, nuts, and olive oil.
- With so little fat, some people may not get adequate essential fatty acids.

**Low-Carbohydrate, High-Protein (Atkins)**

The late Dr. Robert Atkins theorized that eating too many carbohydrates could create a metabolic imbalance that leads to overweight or obesity. Restricting carbohydrates corrects these imbalances so people can lose weight without having to eat fewer calories.

**Promise**

- Quick, short-term weight loss without hunger.
Avoiding Diet Traps

Whatever your eating style, there are only two effective strategies for losing weight: eating less and exercising more. Unfortunately, most people search for easier alternatives that almost invariably turn into dietary dead ends or unexpected dangers (see Consumer Alert). Common traps to avoid are very-low-calorie diets, diet pills, diet foods, and the yo-yo syndrome.

Among young people the most successful weight loss strategies include drinking less soda, eating less junk food, drinking more water, increasing

Pitfalls

- Severe restriction of carbohydrates can induce ketosis, which is caused by an incomplete breakdown of fats that can lead to nausea, fatigue, and light-headedness and can worsen kidney disease and other medical problems.
- The plan is so rigid, restrictive, and complicated that many find it hard to follow.
- There is no sound scientific basis for the diet’s health claims.

Carbohydrate-Modified (South Beach)

This diet encourages eating “good carbohydrates,” such as vegetables, whole-wheat pasta, and brown rice, in order to feel full and resist cravings for “bad carbs,” such as potatoes and white rice.

Promise

- Enhanced health due to emphasis on nutritious foods such as fish, lean meats, vegetables, and unsaturated oils and restriction on fatty meats, cheeses, and sweets.

Pitfalls

- The complete exclusion of starchy carbohydrates and all fruits during the first two weeks is difficult for many people.

Low-Calorie (Weight Watchers) Nothing is forbidden on this diet. Instead, a point system assigns a value to portions of all sorts of foods, and dieters track the number of points taken in every day.

Promise

- Steady weight loss with portion control and moderation.

Pitfalls

- Hunger makes the diet hard to maintain.
- Low-carb diets may impair memory and cognition.
- A high-fat diet may increase the long-term risk of heart disease and some cancers.

Low-Carbohydrate (Zone) The premise of this approach is that eating the correct proportions of carbohydrates, fat, and protein leads to hormonal balance, weight loss, greater vitality, and less risk of disease.

Promise

- Quick weight loss because of low calorie intake.

Pitfalls

- Hunger makes the diet hard to maintain.

Your Strategies for Change

How to Design a Diet

There is no one perfect diet that will work for everyone who needs to lose weight. “Experiment with various methods for weight control,” suggests Dr. Walter Willett of the Harvard School of Public Health. “Patients should focus on finding ways to eat that they can maintain indefinitely rather than seeking diets that promote rapid weight loss.” In other words, design an eating plan that you can stick with for the rest of your life.

Whether you decide to focus on carbohydrates, fat, or calories, the following strategies can help you get to and maintain a healthy weight:

- Avoid “bad” fats, including trans-fatty acids and partially hydrogenated fats.
- Consume “good” fats, such as omega-3 fatty acids, every day.
- Eat fewer “bad” carbohydrates, such as sugar and white flour.
- Eat more “good” carbs, including fruits, vegetables, legumes, and unrefined grains like whole-wheat flour and brown rice.
- Opt for quality over quantity. Eating a smaller amount of something delicious and nutritious can be far more satisfying than larger portions of junk foods.
- Exercise more. The key to balancing the equation between calories consumed and calories used is physical activity.
- Eliminate sweetened soft drinks and drink water instead.

Avoiding Diet Traps

Whatever your eating style, there are only two effective strategies for losing weight: eating less and exercising more. Unfortunately, most people search for easier alternatives that almost invariably turn into dietary dead ends or unexpected dangers (see Consumer Alert). Common traps to avoid are very-low-calorie diets, diet pills, diet foods, and the yo-yo syndrome. Among young people the most successful weight loss strategies include drinking less soda, eating less junk food, drinking more water, increasing
physical activity, weighing themselves regularly, adding more protein to their diets, and watching less television.

**Over-the-Counter Diet Pills** An estimated 15 percent of adults—21 percent of women and 10 percent of men—have used weight loss supplements. Women between ages 18 and 34 are the highest users. In the 1920s, some women swallowed patented weight loss capsules that turned out to be tapeworm eggs. In the 1960s and 1970s, addictive amphetamines were common diet aids. In the 1990s, appetite suppressants known as fen-phen became popular but were taken off the market after being linked to heart valve problems.

In the last decade dieters tried ephedra products for weight loss, but a major study reported more than 16,000 adverse events associated with the use of ephedra-containing dietary supplements, including heart palpitations, tremors, and insomnia. The study also found little evidence that ephedra is effective in boosting physical activities and weight loss. The Food and Drug Administration has prohibited the sale of dietary supplements containing ephedra, because they present an unreasonable risk of illness or injury.

The weight loss prescription drug Orlistat is available as an over-the-counter weight loss pill called Alli. The drug, which blocks about a quarter of the fat consumed, works best with a low-fat diet. If dieters eat a meal made up of more than 15 fat grams, they can suffer nasty side effects, including flatulence, an urgent need to defecate, oily stools, and diarrhea.

**Diet Foods** According to the Calorie Control Council, 90 percent of Americans choose some foods labeled “light.” But even though these foods keep growing in popularity, Americans’ weight keeps rising. There are several reasons: Many people think choosing a food that’s lower in calories, fat-free, or light gives them a license to eat as much as they want. What they don’t realize is that many foods that are low in fat are still high in sugar and calories. Refined carbohydrates, rapidly absorbed into the bloodstream, raise blood glucose levels. As those levels fall, appetite increases.

Diet products, including diet sodas and low-fat foods, are a very big business. Many people rely on meal replacements, usually shakes or snack bars, to lose or keep off weight. If used appropriately—as actual replacements rather than supplements to regular meals and snacks—they can be a useful strategy for weight loss. Yet people who use these products often gain weight because they think that they can afford to add high-calorie treats to their diets.
What about the artificial sweeteners and fake fats that appear in many diet products? Nutritionists caution to use them in moderation and not to substitute them for basic foods, such as grains, fruits, and vegetables. Foods made with fat substitutes may have fewer grams of fat, but they don’t necessarily have significantly fewer calories. Many people who consume reduced-fat, fat-free, or sugar-free sodas, cookies, chips, and other snacks often cut back on more nutritious foods, such as fruits and vegetables. They also tend to eat more of the low- or no-fat foods so that their daily calorie intake either stays the same or actually increases.

**The Yo-Yo Syndrome**  On-and-off-again dieting, especially by means of very-low-calorie diets (under 800 calories a day), can be self-defeating and dangerous. Some studies have shown that weight cycling may make it more difficult to lose weight or keep it off (Figure 7.3). Repeated cycles of rapid weight loss followed by weight gain may even change food preferences. Chronic crash dieters often come to prefer foods that combine sugar and fat, such as cake frosting.

To avoid the yo-yo syndrome and overcome its negative effects: Exercise. Researchers at the University of Pennsylvania found that when overweight women who also exercised went off a very-low-calorie diet, their metabolism did not stay slow but bounced back to the appropriate level for their new, lower body weight. The reason may be exercise’s ability to preserve muscle tissue. The more muscle tissue you have, the higher your metabolic rate.

If you’ve been losing (and regaining) the same five or ten pounds for years, try the following suggestions for long-term success:

- **Set a danger zone.** Once you’ve reached your desired weight, don’t let your weight climb more than three or four pounds higher. Take into account normal fluctuations, but watch out for an upward trend. Once you hit your upper weight limit, take action immediately rather than waiting until you gain ten pounds.

- **Be patient.** Think of weight loss as a road trip. If you’re going across town, you expect to get there in 20 minutes. If your destination is 400 miles away, you know it’ll take longer. Give yourself the time you need to lose weight safely and steadily.

- **Try, try again.** Dieters don’t usually keep weight off on their first attempt. The people who eventually succeed don’t give up. Through trial and error, they find a plan that works for them.

However, in the long run, dieting usually doesn’t keep off excess pounds. Regardless of the diets they follow, people lose only about 5 percent of their initial weight after one year. Even in programs that provide intensive counseling by doctors, nurses, or dietitians, participants regain about half the weight they lost within three years. Five years after a successful diet, they typically have put on all the weight they lost. What can keep off extra pounds for good? A minimum of 200–300 minutes of exercise a week.

### Physical Activity

Unplanned daily activity, such as fidgeting or pacing, can make a difference in preventing weight gain. Scientists use the acronym **NEAT**—for nonexercise activity thermogenesis—to describe such “nonvolitional” movement, which may be an effective way of burning calories. In research on self-confessed couch potatoes, the thinner ones sat an average of two hours less and moved and stood more often than the heavier individuals. However, NEAT levels seem at least partially genetically predetermined.
Although physical activity and exercise can prevent weight gain and improve health, usually they do not lead to significant weight loss. However, when combined with diet, exercise ensures that you lose fat rather than muscle, helps keep off excess pounds, and promotes greater fitness. Moderate exercise, such as 30 to 60 minutes of daily physical activity, has proved effective in reducing the risk of heart disease and other health threats. But more exercise—a minimum of 200 to 300 minutes weekly of moderately intense activity—is necessary to maintain weight loss. Recommending such higher levels of activity to overweight men and women does indeed lead to more exercise—and more lasting weight loss.

Exercise has other benefits: It increases energy expenditure, builds up muscle tissue, burns off fat stores, and stimulates the immune system. Exercise also may reprogram metabolism so that more calories are burned during and after a workout.

An exercise program designed for both health benefits and weight loss should include both aerobic activity and resistance training. (See Chapter 8.) People who start and stick with an exercise program during or after a weight loss program are consistently more successful in keeping off most of the pounds they’ve shed.

**Can a Person Be Fat and Fit?** Most people assume that fitness comes in only one size: small. That’s not necessarily so. There is considerable controversy over how to define a healthy weight. But individuals of every size can improve their physical fitness.

Physical fitness can buffer some, but not all, of the ill effects of obesity. Individuals who are both overweight and sedentary face the greatest risk of disease and premature death. Those who are obese but physically active can be healthier, in many ways, than sedentary individuals whose weight is considered healthy. But working out cannot overcome all the dangers of weighing too much. In a recent study that followed participants for 30 years, overweight and obese men were at higher risk of suffering a heart attack or stroke and of dying from such a cardiovascular event than normal-weight men. “There appears to be no such thing as metabolically healthy obesity,” the authors concluded.30

**Get a Grip on Emotional Eating**

Occasionally all of us seek comfort at the tip of a spoon. However, many people use food as a way of coping with anger, frustration, stress, boredom, or fatigue. Whatever its motivation, emotional eating always involves eating for reasons other than physiological hunger. If you’re not sure whether you do this, ask yourself the following questions:

- Do you eat when you’re not hungry?
- Do you eat or continue eating even if the food doesn’t taste good?
- Do you eat when you can’t think of anything else to do?
- Do you eat when you’re emotionally vulnerable—tired, frustrated, or worried?
- Do you eat after an argument or stressful situation to calm down?
- Do you eat as one of your favorite ways of enjoying yourself?
- Do you eat to reward yourself?
- Do you keep eating even after you’re full?

If you answer yes to more than three of these, you’re eating in response to what you feel, not what you need. Diets may work for you, but the extra weight will inevitably creep back unless you confront your hidden motives for overeating. Since neither emotions nor food ever go away, you have to learn to deal with both for as long as you live.
To get a grip on your emotional eating, try this three-step plan:

**Step 1: Know Your Triggers** Whatever its specific motivation, emotional eating always involves eating for reasons other than physiological hunger. The key to getting it under control is awareness.

Did any of these possibilities hit home? If so, train yourself to take a step back and ask yourself a series of questions before you take a bite: Are you hungry? If not, what are you feeling? Stressed, tired, bored, anxious, sad, happy? Once you identify your true feeling, push deeper and ask why you feel this way. Try writing down your answers in a notebook. This is an even more effective way to help make sure that every bite you take is a conscious one.

**Step 2: Put Your Body, Not Your Emotions, in Charge of What You Eat** To keep mind and body on an even keel, avoid getting so hungry and feeling so deprived that you become desperate and panicky. If you’re facing an emotionally intense period—exam week or a visit from an ornery relative—plan your meals and snacks in advance and try, as much as you can, to stick with your program.

**Step 3: Focus on Your Feelings** Let yourself feel how you’re feeling without eating. Breathe deeply for a minute or two. Focus on the places in your body that feel tense. Rate the intensity of the emotion on a scale from ten (life or death) to one (truly trivial). Ask yourself: What’s the worst-case scenario of feeling this way? Is food going to make it better in any way? Will it make it worse?

**Maintaining Weight Loss**

Surveys of people who lost significant amounts of weight and kept it off for several years show that most did so on their own—without medication, meal substitutes, or membership in an organized weight loss group. When a National Institutes of Health panel reviewed 48 separate weight loss trials, they found that participants lost about 8 percent of their body weight on average and kept it off. “Weight loss maintainers” are more active, have fewer TVs in their homes, and don’t keep high-fat foods in their pantries.

Rather than focusing on why dieters fail, the creators of the National Weight Control Registry study the habits and lifestyles of those who’ve maintained a weight loss of at least 30 pounds for at least a year. The nearly 6,000 people in the registry have maintained their weight loss for almost six years.

No one diet or commercial weight loss program helped all these formerly overweight individuals. Many, through years of trial and error, eventually came up with a permanent exercise and eating program that worked for them. Despite the immense variety, their customized approaches share certain characteristics:

**Health in Action**

**Thinking Thinner**

Do you ease onto your scale, hoping for a certain number to appear—maybe what you weighed when you graduated from high school? If so, you may be setting yourself up for disappointment. Rather than focus on just one number, consider other ways to think about weight:

“If-only weight” A weight you would choose if you could weigh whatever you wanted—just like the height or eye color you’d have chosen if you could

“Happy weight” A weight that is not the one you’d choose as your ideal but that you’d be happy with

“Acceptable weight” A weight that would not make you particularly happy but that you could be satisfied with

“Disappointed weight” A weight that would not be acceptable

“Never-again weight” The all-time high you never want to hit again.

In your online journal, jot down your if-only weight, happy weight, acceptable weight, disappointed weight, and never-again weight. Then write down your actual weight, as of today. How many pounds is your real weight from your acceptable weight?

Assuming you can lose a pound a week, how many weeks would it take to get to that weight? How do you envision yourself feeling and behaving once you reach your acceptable weight? Do you have any plans once you reach your acceptable weight, such as buying clothes or taking a weekend trip? How will your life be different?

You can find the complete “Thinking Thinner” lab in Labs for Invitation to Personal Change.
On average, they burn about 2,545 calories per week through physical activity.

- **Monitoring.** About 44 percent of registry members count calories, and almost all keep track of their food intake in some way, written or not.

- **Vigilance.** Rather than avoiding the scale or telling themselves their jeans shrank in the wash, successful losers keep tabs on their weight and size. About a third check the scale every week. If the scale notches upward or their waistbands start to pinch, they take action.

- **Breakfast.** Although about eight in ten successful dieters in the registry always eat breakfast, recent research has challenged the impact of a morning meal on total calories consumed during the day. In one study, both normal-weight and obese individuals who ate a high-calorie breakfast consumed more calories throughout the day. The key to weight loss success may be monitoring calorie intake at every meal of the day.

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**Treating Severe Obesity**

The biggest Americans are getting bigger. The prevalence of severe or “morbid” obesity is increasing faster than obesity itself. The number of extremely obese adults—those at least 100 pounds overweight with BMIs over 40—has quadrupled in the last two decades from 1 in 200 to about 1 in every 50 men and women. The number with BMIs greater than 50 has jumped from 1 in 2,000 in the 1980s to 1 in 400.

Extreme obesity poses extreme danger to health and survival and undermines quality of life. White women report more impairment than men or African American women, even when they have lower BMIs. Severe obesity also has a profound effect on every aspect of an adolescent’s life.

**Drug Therapy**

Obesity medications are recommended only for patients with BMIs equal to or greater than 30 or those with a BMI equal to or greater than 27 with risk factors (like high blood pressure) that
increase their risk of disease. Researchers are experimenting with other medications, such as rimonabant and the epilepsy drug zonisamide, to enhance weight loss. Currently, only two weight loss drugs are FDA approved.

Xenical (orlistat) (also available in a lower dose as the over-the-counter drug Alli) blocks fat absorption by the gut but also inhibits absorption of water and vitamins in some patients and may cause cramping and diarrhea. It produces a weight loss of 2 to 3 percent of initial weight beyond the weight lost by dieting over the course of a year.

Meridia (sibutramine) is in the same chemical class as amphetamines and works by suppressing appetite. It also may increase blood pressure, heart rate, or both. Other side effects include headache, insomnia, dry mouth, and constipation. Patients taking these drugs generally lose less than 10 percent of their body weight, and many regain weight after they stop treatment.

**Obesity Surgery**

Obesity, or bariatric, surgery is becoming the most popular weight loss approach for the estimated 15 million men and women who qualify as “morbidly obese” (100 or more pounds overweight) because of their increased health risks. This year as many as 200,000 Americans will undergo obesity surgery—four times the number who did so in 2000. Eight in ten are women.

A growing number are teenagers, although adolescents make up less than 1 percent of patients having such procedures. According to the Agency for Healthcare Research and Quality, three in four bariatric patients lose 50 to 75 percent of their excess weight within two years and keep it off.

As recent research has shown, bariatric surgery eliminates or improves diabetes, high cholesterol, hypertension, and sleep apnea, and reduces patients’ odds of dying by nearly half. Weight loss surgery also may “remodel” the heart so it returns to more normal functioning. However, these operations—particularly in the hands of poorly trained or inexperienced surgeons—pose serious risks, including potentially fatal leaks, infection, bleeding, hernias, and pneumonia. According to federal estimates, four in ten patients suffer complications within six months. The mortality rate averages about two deaths in 1,000 operations. Even with excellent medical results, extreme weight loss creates drapes of excess skin that sag over the belly, buttocks, thighs, breasts, or upper arms.

Long-term dangers—both physical and psychological—are unknown, particularly for adolescents. Following gastric bypass surgery, obese teenagers lose weight and no longer suffer from diabetes, according to recent research. The benefits extend beyond the physical, with many reporting better psychological health and social ease.

The two most common types of procedures are:

- **Gastric bypass.** Surgeons create an egg-sized pouch with staples and reroute food around part of the upper intestine to block absorption of calories and nutrients. About 75 percent of bypass patients lose 50 to 75 percent of their excess weight within two years. For the “super obese,” a more extensive procedure that bypasses most of the small intestine can lead to a loss of 80 percent of excess weight. However, the latter procedure carries the highest risks of complications, including serious vitamin and mineral deficiencies. Too little thiamine, for instance, can lead to a serious neurological condition called Wernicke encephalopathy.
Unhealthy Eating Behavior

Unhealthy eating behavior takes many forms, ranging from not eating enough to eating too much too quickly. Its roots are complex. In addition to media and external pressures, family history can play a role. Researchers have linked specific genes to some cases of anorexia nervosa and binge eating, but most believe that a variety of factors, including stress and culture, combine to cause disordered eating.

Sooner or later many people don’t eat the way they should. They may skip meals, thereby increasing the likelihood that they’ll end up with more body fat, a higher weight, and a higher blood cholesterol level. They may live on diet foods, but consume so much of them that they gain weight anyway. Some even engage in more extreme eating behavior: Dissatisfied with almost all aspects of their appearance, they continuously go on and off diets, eat compulsively, or binge on high-fat treats. Such behaviors can be warning signs of potentially serious eating disorders that should not be ignored.

Unhealthy Eating in College Students

College students—particularly women, including varsity athletes—are at risk for unhealthy eating behaviors. Researchers estimate that only about a third of college women maintain healthy eating patterns.33 Some college women have full-blown eating disorders; others develop “partial syndromes” and experience symptoms that are not severe or numerous enough for a diagnosis of anorexia nervosa or bulimia nervosa. Distress over body image increases the risk of all forms of disordered eating in college women.

In a survey at a large, public, rural university in the mid-Atlantic states, 17 percent of the women were struggling with disordered eating. Younger women (ages 18 to 21) were more likely than older students to have an eating disorder. In this study, eating disorders did not discriminate, equally affecting women of different races (white, Asian, African American, Native American, and Hispanic), religions, athletic involvement, and living arrangements (on or off campus; with roommates, boyfriends, or family). Although the students viewed eating disorders as both mental and physical problems and felt that individual therapy would be most helpful, all said that they would first turn to a friend for help. Women in sororities are at slightly increased risk of an eating disorder compared with those in dormitories. Loneliness also has emerged as a risk factor for eating disorders in college women.

Extreme Dieting

Extreme dieters go beyond cutting back on calories or increasing physical activity. They become preoccupied with what they eat and weigh. Although their weight never falls below 85 percent of normal, their weight loss is severe enough to cause uncomfortable physical consequences, such as weakness and sensitivity to cold. Technically, these dieters do not have anorexia nervosa (discussed later in this chapter), but they are at increased risk for it.
Extreme dieters may think they know a great deal about nutrition, yet many of their beliefs about food and weight are misconceptions or myths. For instance, they may eat only protein because they believe complex carbohydrates, including fruits and whole-grain breads, are fattening.

Sometimes nutritional education alone can help change these eating patterns. However, many avid dieters who deny that they have a problem with food may need counseling (which they usually agree to only at their family’s insistence) to correct dangerous eating behavior and prevent further complications.

**Compulsive Overeating**

People who eat compulsively cannot stop putting food in their mouths. They eat fast and they eat a lot. They eat even when they’re full. They may eat around the clock rather than at set mealtimes, often in private because of embarrassment over how much they consume.

Some mental health professionals describe compulsive eating as a food addiction that is much more likely to develop in women. According to Overeaters Anonymous (OA), an international 12-step program, many women who eat compulsively view food as a source of comfort against feelings of inner emptiness, low self-esteem, and fear of abandonment.

The following behaviors may signal a potential problem with compulsive overeating:

- **Turning to food** when depressed or lonely, when feeling rejected, or as a reward.
- **A history of failed diets** and anxiety when dieting.
- **Thinking about food** throughout the day.
- **Eating quickly** and without pleasure.
- **Continuing to eat** even when no longer hungry.
- **Frequently talking about food** or refusing to talk about food.
- **Fear of not being able to stop** eating after starting.

Recovery from compulsive eating can be challenging because people with this problem cannot give up entirely the substance they abuse. Like everyone else, they must eat. However, they can learn new eating habits and ways of dealing with underlying emotional problems. An OA survey found that most of its members joined to lose weight but later felt the most important effect was their improved emotional, mental, and physical health. As one woman put it, “I came for vanity but stayed for sanity.”

**Binge Eating**

**Binge eating**—the rapid consumption of an abnormally large amount of food in a relatively short time—often occurs in compulsive eaters. The 25 million Americans with a binge-eating disorder typically eat a larger than ordinary amount of food during a relatively brief period, feel a lack of control over eating, and binge at least twice a week for at least a six-month period. During most of these episodes, binge eaters experience at least three of the following:

- **Eating much more rapidly** than usual.
- **Eating until they feel uncomfortably full.**
- **Eating large amounts of food** when not feeling physically hungry.
- **Eating large amounts of food** throughout the day with no planned mealtimes.
- **Eating alone** because they are embarrassed by how much they eat and by their eating habits.

Binge eaters may spend up to several hours eating, and consume 2,000 or more calories worth of food in a single binge—more than many people eat in a day. After such binges, they usually do not do anything to control weight, but simply get fatter. As their weight climbs, they become depressed, anxious, or troubled by other psychological symptoms to a much greater extent than others of comparable weight.

Binge eating is probably the most common eating disorder. An estimated 8 to 19 percent of obese patients in weight loss programs are binge eaters.

If you occasionally go on eating binges, use the behavioral technique called **habit reversal**, and replace your bingeing with a competing behavior. For example, every time you’re tempted to binge, immediately do something—text-message a friend, play solitaire, check your e-mail—that keeps food out of your mouth.
Eating Disorders

According to the American Psychiatric Association, patients with eating disorders display a broad range of symptoms that occur along a continuum between those of anorexia nervosa and those of bulimia nervosa.

As many as 10 percent of teenage girls develop symptoms of or full-blown eating disorders. Among the factors that increase the risk are preoccupation with a thin body; social pressure; and childhood traits such as perfectionism and excessive cautiousness, which can reflect an obsessive-compulsive personality. Teenage girls who diet and have four specific risk factors—a high BMI, menarche (first menstruation) before sixth grade, extreme concern with weight or shape, and teasing by peers—are most likely to have an eating disorder.

The best known eating disorders are anorexia nervosa, which affects fewer than 1 percent of adolescent women, and bulimia nervosa, which strikes 2 to 3 percent. The American Psychiatric Association has developed practice guidelines for the treatment of patients with eating disorders, which include medical, psychological, and behavioral approaches. One of the most scientifically supported is cognitive-behavioral therapy.

Who Develops Eating Disorders?

Eating disorders affect an estimated 5 to 10 million women and 1 million men. Despite evidence that 5 to 10 percent of those with eating disorders are male, many college students believe mainly young white women develop eating disorders.

More people—and more types of people—are developing full-blown or “partial syndrome” eating disorders, including more young children, boys and men, people of color, and individuals with lower socioeconomic backgrounds. Among young people, those at highest risk are athletes (including gymnasts and wrestlers), performers, dancers, and models. In the few studies of eating disorders in minority college students that have been completed, African American female undergraduates had a slightly lower prevalence of eating disorders than did whites. Asian Americans reported fewer symptoms of eating disorders but more body dissatisfaction, concerns about shape, and more intense efforts to lose weight.

In a survey of health-care professionals at the country’s largest colleges and universities, 69 percent have professionals on staff who specialize in diagnosing and treating eating disorders. Of all the hurdles to helping students with eating disorders, 39 percent said denial is the biggest, while 24 percent felt it was unwillingness to seek treatment, and 20 percent blamed pressure from peers and the media to stay thin.

Eating disorders affect every aspect of college students’ lives, including dating. Both men and women tend to avoid dating individuals with eating disorders, but men are far less accepting of obesity than women.

Male and female athletes are vulnerable to eating disorders, because of the pressure either to maintain ideal body weight or to achieve a weight that might enhance their performance. Many female athletes, particularly those participating in sports or activities that emphasize leanness (such as gymnastics, distance running, diving, figure skating, and classical ballet) have subclinical eating disorders that could undermine their nutritional status and energy levels. Male wrestlers, cyclists, triathletes, and Nordic skiers are also developing unhealthy eating behaviors. However, there is often little awareness or recognition of their disordered eating. On the other hand, a recent study found that many female athletes rely on exercise rather than vomiting or diet pills to control their weight. Websites and smart phone “apps” that count calories and monitor every morsel eaten may push some vulnerable teens and young adults over the edge of self-motivating into an eating disorder.

If you binge twice a week or more for at least a six-month period, you may have binge-eating disorder, which can require professional help. Short-term talk treatment, such as cognitive-behavioral therapy, either individually or in a group setting, has proven most effective for binge eating.
Your Strategies for Prevention

Do You Have an Eating Disorder?

Physicians have developed a simple screening test for eating disorders, consisting of the following questions:

• Do you make yourself sick because you feel uncomfortably full?
• Do you worry you have lost control over how much you eat?
• Have you recently lost more than 14 pounds in a three-month period?
• Do you believe yourself to be fat when others say you are too thin?
• Would you say that food dominates your life?

Score one point for every “yes.” A score of two or more is a likely indication of anorexia nervosa or bulimia nervosa.


Anorexia Nervosa

Although anorexia means “loss of appetite,” most individuals with anorexia nervosa are, in fact, hungry all the time. For them, food is an enemy—a threat to their sense of self, identity, and autonomy. In the distorted mirror of their mind’s eye, they see themselves as fat or flabby even at a normal or below-normal body weight. Some simply feel fat; others think that they are thin in some places and too fat in others, such as the abdomen, buttocks, or thighs.

The characteristics of anorexia nervosa include:

• A refusal to maintain normal body weight (weight loss leading to body weight of less than 85 percent of that expected for age and height).
• An intense fear of gaining weight or becoming fat, even though underweight.
• A distorted body image so that the person feels fat even when emaciated.
• In women, the absence of at least three menstrual cycles.

The incidence of anorexia nervosa has increased in the last three decades in most developed countries. The peak ages for its onset are 14½ to 18 years. According to the American Psychiatric Association’s Work Group on Eating Disorders, cases are increasing among males, minorities, women of all ages, and possibly preteens. About 1 percent of American women develop anorexia.

In the restricting type of anorexia, individuals lose weight by avoiding any fatty foods and by dieting, fasting, and exercising. Some start smoking as a way of controlling their weight. Some college women may numb their pain by drinking alcohol, a problem the media have dubbed “drunkorexia.” In the binge-eating/purging type, they engage in binge eating, purging (through self-induced vomiting, laxatives, diuretics, or enemas), or both. Obsessed with an intense fear of fatness, they may weigh themselves several times a day, measure various parts of their body, check mirrors to see if they look fat, and try on different items of clothing to see if they feel tight.

What Causes Anorexia Nervosa? Many complex factors interact and contribute to this disorder, including biological, psychological, and social ones. Anorexia is more common among close relatives, particularly sisters, than it is in the general population. The relatives of anorexics also have a higher than expected frequency of depressive disorders.

Anorexia is associated with changes within the brain, including abnormalities in the stress hormone cortisol and the neurotransmitters dopamine, serotonin, and norepinephrine—all of which influence appetite and satiety. Brain chemistry returns to normal after treatment and recovery.

Anorexia also may be a response to a personal loss or a sign of a driven, perfectionist personality. Often young anorexics have above-average grades and an unwarranted fear of failure. Girls who develop anorexia often have little insight into or awareness of their feelings, needs, and wants.
In one study that followed 21 college women with eating disorders for six years, 11 got better during their post-college years, while 10 continued to struggle with disordered eating. The major difference between the two groups revolved around issues of autonomy and relation. Those who could better negotiate the tension between being independent and relating to others had higher self-esteem, a more positive self-concept, and a healthier relationship with food.

About one-third of those with anorexia initially were mildly overweight and cut back on food just to lose a few pounds. Others had normal weights but began to diet to look more attractive or, in the case of male and female athletes and dancers, to gain a performance advantage. Sometimes illness, stress, or surgery triggers weight loss. Often the initial response to their weight loss—from parents, coaches, or friends—is positive. However, starvation seems to take on a life of its own, and anorexics cannot return to a healthy eating pattern. In time, they may place so much value on thinness that they cannot recognize the dangers to their health.

Health Dangers and Treatment The medical consequences of anorexia nervosa are serious (Figure 7.4). Menstrual periods stop in women; testosterone levels decline in men. Adolescents with this disorder do not undergo normal sexual maturation, such as breast development, and may not reach their anticipated height. Even individuals who look and feel reasonably healthy may have subtle or hidden abnormalities, including heart irregularities and arrhythmias that can increase their risk of sudden death. Women who do not menstruate for six months or more may develop osteoporosis and suffer irreversible weakening and thinning of their bones as a result.

Even when they realize that they are jeopardizing their health, people with anorexia tend to fear that treatment will make them worse—that is, fatter. They need repeated reassurance that they will not become overweight and that they can and will find healthier ways of coping with life.

According to current practice guidelines, treatment of anorexia nervosa includes medical therapy (such as “refeeding” to overcome malnutrition) and behavioral, cognitive, psychodynamic, and family therapy. Antidepressant medication sometimes can help, particularly when there is a personal or family history of depression. Most people who get help do return to normal weight, but it can take a long time for their eating behaviors to become normal and for them to deal with troubling body image issues. Nutritional therapy is critical for a return to regular menstrual periods and an improvement in bone density.

Bulimia Nervosa

Individuals with bulimia nervosa go on repeated eating binges and rapidly consume large amounts of food, usually sweets, stopping only because of severe abdominal pain or sleep, or because they are interrupted. Those with purging bulimia induce vomiting or take large doses of laxatives to relieve guilt and control their weight. In nonpurging bulimia, individuals use other means, such as fasting or excessive exercise, to compensate for binges.

The characteristics of bulimia nervosa include:
- Repeated binge eating.
- A feeling of lack of control over eating behavior.

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Managing Your Weight

Family conflicts, life stresses such as going away to school, and struggles with the transition to independent adulthood also may play a role. Bulimia also may be a symptom of depression. About 20 to 30 percent of those with this problem are chronically depressed; others have a history of depressive episodes. Bulimic individuals also are more likely to experience other problems, including anxiety disorders, substance abuse, and impulse disorders, such as shoplifting (kleptomania) and cutting themselves. A significant percentage of bulimics—from a quarter to a half, by some estimates—may have been victims of incest, sexual molestation, or rape, but this correlation is controversial.

Health Dangers and Treatment

Bulimia may continue for many years, with binges alternating with periods of normal eating. Physiological consequences are cumulative. Often dentists are the first to detect bulimia because they notice damage to teeth and gums, including erosion of the enamel from the acid in vomit. Repeated vomiting can lead to other complications as it robs the body of essential nutrients and fluids, causes dehydration and electrolyte imbalances, and impairs the ability of the heart and other muscles to function. Bulimia can trigger cardiac arrhythmias and, occasionally, sudden death.

Cognitive-behavioral therapy has proved more effective than other approaches in improving bulimia symptoms.

What Causes Bulimia Nervosa?

Bulimia usually begins after a rigid diet that lasted from several weeks to a year or more. Strict dieting may affect brain chemistry in such a way as to disrupt the normal mechanisms for appetite and satiety. Semi-starvation eventually sets off a binge; bingeing leads to purging. Once dieters realize that vomiting reduces the anxiety triggered by gorging, they no longer fear overeating. When this happens, bingeing may become more frequent and severe until, in time, it becomes an all-purpose way of coping with stress. However, the driving force in this disorder may not be the overeating but the vomiting or laxative use. If individuals felt they couldn’t get rid of food, they might not overeat.

Obesity in adolescence may increase the likelihood of bulimia in adulthood. Extremely obese individuals may lose weight by vomiting and not want to stop because they fear regaining it. Sometimes bulimia develops after recovery from anorexia. Purging becomes an alternative way of staying thin. People with bulimia may spend thousands of dollars—a third of their food budget—on foods for binge episodes and for laxatives and diet pills.

As with anorexia, bulimia is associated with changes in brain chemistry, particularly low levels of the peptide cholescystokinin, which produces feelings of satiety. The cycle of bingeing and purging seems to wreak havoc on the biological controls that keep weight at a certain level. Neuroimaging scans show differences in areas of the brain responsible for regulating behavior in individuals with bulimia.

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Cognitive-behavioral therapy has proved more effective than other approaches in improving bulimia symptoms.
Taking Control of Your Weight

No diet—high-protein, low-fat, or high-carbohydrate—can produce permanent weight loss. Successful weight management, the American Dietetic Association has concluded, “requires a lifelong commitment to healthful lifestyle behaviors emphasizing sustainable and enjoyable eating practices and daily physical activity.” Studies have shown that successful dieters are highly motivated, monitor their food intake, increase their activity, set realistic goals, and receive social support from others. Another key to long-term success is tailoring any weight loss program to an individual’s gender, lifestyle, and cultural, racial, and ethnic values.

Are you following these practical guidelines?

- **Be realistic.** Trying to shrink to an impossibly low weight dooms you to defeat. Start off slowly and make steady progress. If your weight creeps up five pounds, go back to the basics of your program. Take into account normal fluctuations, but watch out for an upward trend. If you let your weight continue to creep up, it may not stop until you have a serious weight problem—again.

- **Recognize that there are no quick fixes.** Ultimately, quick-loss diets are very damaging physically and psychologically because when you stop dieting and put the pounds back on, you feel like a failure.

- **Note your progress.** Make a graph, with your initial weight as the base, to indicate your progress. View plateaus or occasional gains as temporary setbacks rather than disasters.

- **Adopt the 90 percent rule.** If you practice good eating habits 90 percent of the time, a few indiscretions won’t make a difference. In effect, you should allow for occasional cheating, so that you don’t have to feel guilty about it.

- **Look for joy and meaning beyond your food life.** Make your personal goals and your relationships your priorities, and treat food as the fuel that allows you to bring your best to both.

- **Try again and again.** Remember, dieters usually don’t keep weight off on their first attempt. The people who eventually succeed try various methods until they find the plan that works for them.

Are You Ready to Lose Weight?

As discussed in Chapter 1, people change the way they behave stage by stage and step by step. The same is true for changing behaviors related to weight. If you need to lose excess pounds, knowing your stage of readiness for change is a crucial first step. Here is a guide to identifying where you are right now.

If you are still in the **precontemplation** stage, you don’t think of yourself as having a weight problem, even though others may. If you can’t fit into some of your clothes, you blame the dry cleaners. Or you look around and think, “I’m no bigger than anyone else in this class.” Unconsciously, you may feel helpless to do anything about your weight. So you deny or dismiss its importance.

In the **preparation** stage, you’re gearing up by taking small but necessary steps. You may buy athletic shoes or check out several diet books from the library. Maybe you experiment with some minor changes, such as having fruit instead of cookies for an afternoon snack. Internally, you are getting accustomed to the idea of change.

In the **action** stage of change, you are deliberately working to lose weight. You no longer snack all evening long. You stick to a specific diet and track calories, carbs, or points. You hop on a treadmill or stationary bike for 30 minutes a day. Your resolve is strong, and you know you’re on your way to a thinner, healthier you.

In the **maintenance** stage, you strengthen, enhance, and extend the changes you’ve made. Whether or not you
have lost all the weight you want, you’ve made significant progress. As you continue to watch what you eat and to be physically active, you lock-in healthy new habits.

Where are you right now? Read each of the following statements and decide which best applies to you.

1. I never think about my weight.  
   Precontemplation Stage

2. I’m trying to zip up a pair of jeans and wondering when was the last time they fit.  
   Contemplation Stage

3. I’m downloading a food diary to keep track of what I eat.  
   Preparation Stage

4. I have been following a diet for three weeks and have started working out.  
   Action Stage

5. I have been sticking to a diet and engaging in regular physical activity for at least six months.  
   Maintenance Stage

For a guide to strategies most likely to help you at your particular stage of readiness to change, see “Making Change Happen: A Stage-by-Stage Approach to Weight Loss.”

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**Making Change Happen**

**A Stage-by-Stage Approach to Weight Loss**

**Get Real**

- **Start paying attention** to what, when, where, and why you eat. Take note of the times you eat or continue eating even though you’re not hungry.

- **List what you see** as the cons of physical activity. For example, do you fear it will take up too much time? Write down three activities you could do if you woke up half an hour earlier.

**Get Ready**

- **Start drinking more water.** Get used to the idea of ending every meal with water to wash away the taste of what you’ve eaten and signal that you’ve stopped putting food in your mouth.

- **Find an image of a slimmer body** you’d like to have—from a magazine advertisement, for example—and post it where you can see it often.

**Get Going**

- **Record everything you put in your mouth.** List calories and carbs next to each entry. Also describe how you feel as you eat.

- **Find new comfort foods.** Good options include air-popped popcorn, chocolate fruit sundaes (fresh fruit with a spoonful of rich syrup), hot chocolate (with skim milk), and fudgsicles (creamy but low in calories).

**Lock It In**

- **Avoid boredom.** Think through ways to vary your exercise routine. Take different routes on your walks. Invite different friends to join you. Alternate working with free weights with resistance machines at the gym.

- **Try new athletic and sports skills.** Try snowshoeing, kayaking, rock climbing, dancing. Don’t expect instant expertise. It usually takes four to six weeks to feel competent and get in the swing of a new activity.
Review Questions

1. If you have gone online to check out weight reduction support groups in your area, which stage of readiness for weight behavior change are you in?
   a. precontemplation stage
   b. contemplation stage
   c. preparation stage
   d. action stage

2. Successful weight management strategies include which of the following?
   a. Learn to distinguish between actual and emotional hunger.
   b. Ask friends for recommendations for methods that helped them to lose weight quickly.
   c. Practice good eating habits 50 percent of the time so that you can balance your cravings with healthy food.
   d. Look at celebrity photos and pick one for a model.

3. Jacob is an average-build, 26-year-old college student who is much thinner than his friends. What should he focus on to gain more weight?
   a. Consume more calories than he burns on an average day.
   b. Eat a large lunch and dinner each day.
   c. Eat foods that will provide at least 50 percent of caloric intake from fats.
   d. Bench press more weights to build up muscle mass.

4. Individuals with anorexia nervosa
   a. believe they are overweight even if they are extremely thin.
   b. typically feel full all the time, which limits their food intake.
   c. usually look overweight, even though their body mass index is normal.
   d. have a reduced risk for heart-related abnormalities.

5. What is basal metabolic rate?
   a. Another way to define body mass index.
   b. The number of calories needed to maintain the body after physical activity.
   c. Another term for breathing rate.
   d. The number of calories needed to sustain the body at rest.

6. People gain weight when
   a. their basal metabolic rate increases.
   b. they consume more calories than they use up in daily activity.
   c. they eat fast food more than two times a week.
   d. they watch two hours of television a day.

7. Bulimia nervosa
   a. is characterized by excessive sleeping followed by periods of insomnia.
   b. is found primarily in older women who are concerned with the aging process.
   c. is associated with the use of laxatives or excessive exercise to control weight.
   d. does not have serious health consequences.

8. Which of the following statements is incorrect?
   a. I can lose weight successfully on a low-carbohydrate diet.
   b. I can lose weight successfully on a low-fat diet.
   c. I can lose weight successfully on a low-calorie diet.
   d. I can lose weight successfully by working out once a week.

9. Which of the following statements is true?
   a. Ephedra supplements are a safe and effective way to increase metabolism.
   b. An individual eating low-calorie or fat-free foods can increase the serving sizes.
   c. Low-carbohydrate diets have been shown safe over the short term but long-term studies have not been completed.
   d. Yo-yo dieting works best for long-term weight loss.

10. Satiety occurs when
    a. one’s caloric needs have been met.
    b. one feels full.
    c. one has had dessert.
    d. one has no appetite.

Answers to these questions can be found on page 672.
Critical Thinking

1. Do you think you have a weight problem? If so, what makes you think so? Is your perception based on your actual BMI measurement or on how you believe you look? If you found out that your BMI was within the ideal range, would that change your opinion about your body? Why or why not?

2. Suppose a good friend appears to have symptoms of an eating disorder. You have told him or her of your concerns, but your friend has denied having a problem and brushed off your fears. What can you do to help this individual? Should you contact his or her parent or spouse? Why or why not?

Media Menu

Visit www.cengagebrain.com to access course materials and companion resources for this text that will:
- Help you evaluate your knowledge of the material.
- Allow you to prepare for exams with interactive quizzing.
- Use the CengageNOW product to develop a Personalized Learning Plan targeting resources that address areas you should study.
- Coach you through identifying target goals for behavioral change and creating and monitoring your personal change plan throughout the semester using the Behavior Change Planner available in the CengageNOW resource.

Internet Connections

www.obesity.org
The American Obesity Association is the leading organization for advocacy and education on the nation’s obesity epidemic. This comprehensive website features statistics on overweight and obesity in the United States, research articles, consumer protection links, prevention topics, library resources, fact sheets on a variety of weight management topics, and more.

http://win.niddk.nih.gov
This government-sponsored website features a variety of publications in English and Spanish on nutrition, physical activity, and weight control for the general public and for health-care professionals. In addition, there are links for research, a newsletter, statistical data, and a bibliographic collection of journal articles on various aspects of weight management and obesity.

Key Terms

The terms listed are used on the page indicated. Definitions of the terms are in the Glossary at the end of the book.

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