

Health & Wellness

Eleventh Edition

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PREFACE

Our goal in writing this textbook has always been to provide you with information needed to understand and implement the basic principles of physical, mental, and spiritual wellness. For the *Eleventh Edition*, we have updated the book's information, exercises for health, and humor to help you plan and make healthy changes in your life so that you will develop a lifestyle that promotes lifelong wellness. We believe that the major factors to living healthfully are the following:

- Being responsible for one's behaviors; for example, not smoking cigarettes or overusing alcohol and other drugs; maintaining healthy body weight; getting sufficient exercise; consuming nutritious foods rather than fast and junk foods; managing stress; and living in harmony within oneself and the environment.
- Contributing to the health of one's social and physical environments; for example, supporting laws that enhance the health and safety of all, especially children; ensuring safe food and medicines; and making the air, water, and land healthy and safe for everyone.
- Realizing that health and wellness encompass one's entire being—body, mind, spirit, and relationships with the environment—rather than the medical management of illness and the repair of diseased and broken body parts.

What does it mean to be healthy and well? Often, students' answers include eating right, not being sick, and being physically fit. But a holistic view of health encompasses many more of our behaviors. Answer the following questions and see if your opinion about your health changes:

- Are you able to cope with stress without getting angry, anxious, or depressed?
- Do you get enough sleep (at least eight hours a night)?
- Does your diet consist of several daily servings of fruit, vegetables, and whole grains?
- Do you exercise regularly?
- Do you take time to enjoy nature?
- If you drink alcohol, do you drink responsibly (e.g., you do not get drunk or drink and then drive)?
- If you are sexually active, do you use fertility control and practice safer sex?
- Are your interpersonal relationships satisfying?
- Are you involved in your community?
- Do you not smoke cigarettes?

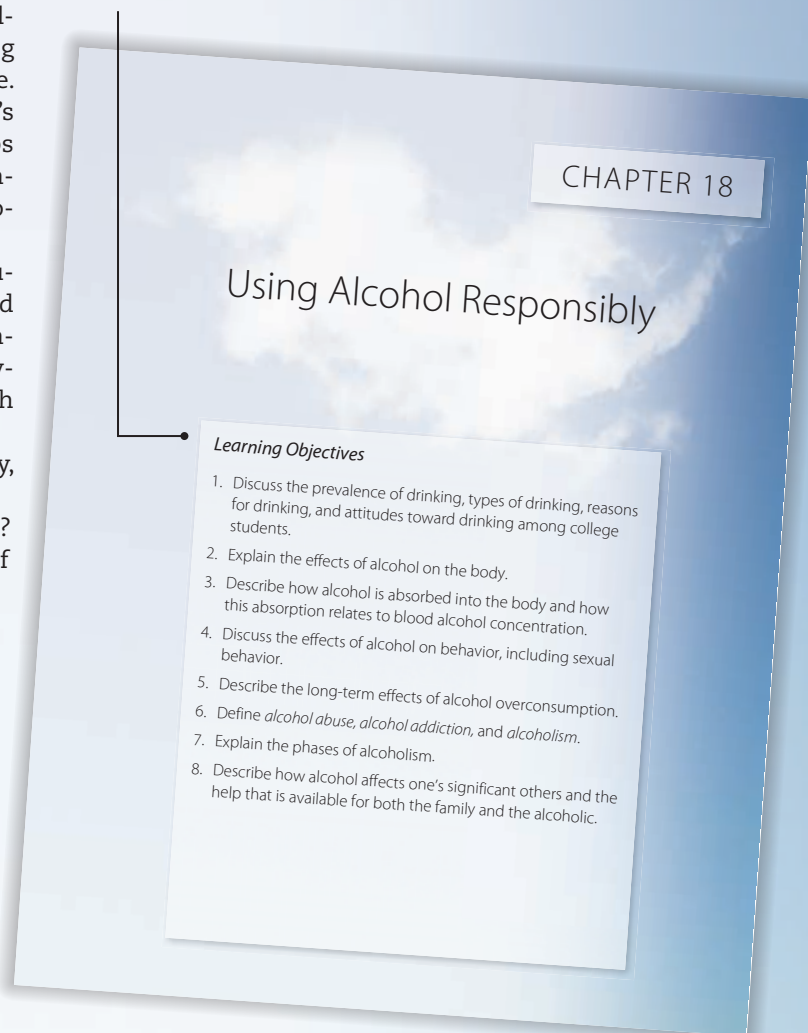
Robust health and overall well-being are not achieved in a few days, weeks, or months. Improving and maintaining optimal health is a lifelong process requiring lifelong commitment. The amount of food

you need and the degree of physical activity you engage in will change over time. Life will bring problems to be solved and adversities that must be overcome. We hope that the information, tools, and encouragement provided in this textbook will motivate you to adopt healthier behaviors and improve all aspects of your well-being now and into the future. Taking responsibility for your health is the first vital step toward attaining optimal health and wellness.

Pedagogical Features

We have developed a number of features to help you learn about health and wellness in this book.

Each chapter of the book begins with a list of *Learning Objectives* to help you focus on the most important concepts in that chapter.



the newborn. **Antibodies** are proteins that recognize and inactivate viruses, bacteria, and harmful substances that can cause disease. Babies also receive antibodies in breast milk, which help to protect them while their own immune systems mature during the first year or so of life.

Many factors can adversely affect the development and functioning of the immune system. Perhaps the most important factor is poor nutrition, especially early in life. Without a healthy diet, a child is extremely susceptible to infections that a weak immune system cannot fight. Inadequate nutrition and infectious diseases are the principal reasons that children die in many undeveloped and impoverished countries of the world. Other factors that affect the development or functions of the immune system are hereditary disorders, viral infections, stress, and many drugs and chemicals, including alcohol and tobacco.

The Lymphatic System

The immune system, which is part of a larger and more complex system called the **lymphatic system**, has many organs and cells that must act in concert to protect people from infectious diseases (Figure 12-7). The lymphatic ves-

sels contain fluid called lymph. At various intervals along the lymphatic vessels are nodules called **lymph nodes**. The "swollen glands" that people experience in the neck,

TERMS

- antibodies:** proteins that recognize and inactivate viruses, bacteria, and other organisms and toxic substances that enter the body
- immune system:** an interacting system of organs and cells that protect the body from infectious organisms and harmful substances
- lymph nodes:** nodules spaced along the lymphatic vessels that trap infectious organisms or foreign particles
- lymphatic system:** a system of vessels in the body that trap foreign organisms and particles; the immune system is part of the lymphatic system

Key Terms are defined on or near the page on which they are introduced as well as in the glossary at the end of the book. For review, terms are available on the text's website (go.jblearning.com/Edlin11eCWS) in the form of flashcards, crossword puzzles, and an interactive glossary.



located at the periphery of large institutions to encourage walking.

Many health insurers and employers have begun to offer financial incentives to employees to make healthy changes in their lifestyles. Some companies give employees time off to exercise during work hours and financial rewards for losing weight. Some companies also penalize and even fire employees who violate no-smoking rules. In a 2008 poll, 91% of American employers believed that they could reduce their healthcare costs by getting employees to adopt healthier lifestyles (Mello & Rosenthal, 2008).

Nearsightedness

Another dramatic example of how modern lifestyles affect health concerns vision. Many children and a majority of adults in modern societies wear glasses or contact lenses to correct for nearsightedness (myopia). When our ancestors had to forage and hunt for food, acute vision was probably essential to survival and, of course, corrective lenses were unknown. During early development, a child's eyes adapt to the visual information the eyes receive from the environment. Looking at distant objects tends to produce normal vision or eyes that are slightly farsighted. Today, almost all children watch TV and computer screens for many hours a day and also read books, magazines, and newspapers—all of which require close-up vision. These activities tend to cause myopia in many children.

The influence of modern lifestyles on vision was documented by measuring the vision of young people in rural China compared with the vision of Chinese students in Hong Kong (Wallman, 1994). Most of the young people in the rural environment had normal vision whereas most of the Hong Kong students were myopic (Figure 1.4). In contrast, most of the Chinese farsighted (Figure 1.4). In contrast, many of the Chinese students in Hong Kong were nearsighted, many to a considerable degree. Thus, if one considers 20/20 vision as desirable, our modern lifestyle, which involves much close-up vision, is likely to affect eye development and may produce myopia. Until we understand more about the environmental and genetic cues that affect visual development, children should be encouraged to spend time outdoors, where their eyes are more likely to focus on distant objects.

Healthy People 2020

Each decade, the U.S. government issues health objectives for the nation, the latest of which is Healthy People 2020 (Office of Disease Prevention and Health Promotion, 2010). The main goals of Healthy People 2020 are (1) to help individuals of all ages live longer and improve their quality of life, and (2) to eliminate health disparities among segments of the U.S. population, including differences by gender, race or ethnicity, education or income, disability, geographic location, or sexual orientation. To foster the health of the diverse American population, Healthy People 2020 recognizes that families,

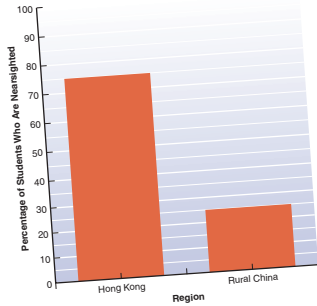


Figure 1.4 Comparison of visual acuity of 18- to 28-year-old students in Hong Kong and Rural China. Most of the rural youths have normal vision, whereas most of the Hong Kong students are myopic. Source: Data from J. Wallman (1994), Nature and nurture of myopia. *Nature*, 371, 201-202.

schools, worksites, communities, states, and national organizations must help individuals live healthfully. This means that not only are individuals asked to make healthy lifestyle choices based on sound health knowledge, but also that communities strive to provide quality education, housing, and transportation; health-promoting social and physical environments; and access to quality medical care. For example, informing people that it is healthy to consume five servings of fresh fruits and vegetables each day is insufficient if their community does not have stores or other sources of healthy food. Also, advising people to walk more is insufficient if their communities are not safe or lack parks or sidewalks.

Healthy People 2020 consists of nearly 1,500 specific health objectives grouped into 42 topic areas (Figure 1.5) each with a specific goal. Examples of specific goals are the following:

- Cancer: reduce the number of new cancer cases as well as the illness, disability, and death caused by cancer.
- Disability and Secondary Conditions: promote the health of people with disabilities, prevent secondary condi-

The only way to keep your health is to eat what you don't want, drink what you don't like, and do what you'd rather not.
Mark Twain

Epigrams enliven each chapter with thought-provoking (and often humorous) quotations about health.



When choosing an exercise, pick one that's fun and convenient for you.

- an injurious activity or set an unattainable goal and have a failure experience. Because they are not experts, consulting friends may be of limited usefulness.
3. Make a plan. Having defined your goals and acquired information on how to accomplish them, make a realistic and feasible plan for putting and maintaining physical activity in your life. Be sure your activity plan fits into your schedule; use a time audit to identify times of the week during which you can exercise. Also, choose activities that are interesting (or likely to be) and enjoyable. That way you are more likely to want to do them. Write down your plan; perhaps discuss it with a coach, teacher, or health professional. Even better, take a class. That way you will learn proper technique, have a built-in schedule, and will have the enjoyment of being with others.
 4. Get a physical checkup. Consult a health professional if you have been inactive for many months or have concerns about your body's ability to perform at the level you want.
 5. Progress slowly. Deliberate progress enables you to assess the feasibility of your choices and also to integrate them into your normal life routine. Try not to let your enthusiasm for beginning your plan stimulate you to take on too much too soon. You don't want to get sore or injure yourself.
 6. Track progress. Keep a diary of your activity. For each activity day, record the time you spent do-

Walking in Balance

Native Americans have an expression that helps when trying to understand our place in the physical world. The expression "walking in balance" means engaging your body with your mind in the natural world, feeling a sense of connectedness with nature. Walking in balance suggests that we combine the powers of the mind and body to become more aware of ourselves in our environment.

During your next workout try this. While you dress and warm up, remind yourself that you are taking time away from your problems and worries—a mini vacation, if you will, from daily responsibilities. The mission during this exercise period (preferably walking or running) is to see where you are exercising as if you were seeing it for the first time. Notice the trees, the birds, the clouds in the sky, and so on. Try to feel that you are a part of nature by noticing as much about the natural world as you can.

ing the activity, what you experienced doing the activity, any obstacles that prevented you from carrying out a day's activity, and strategies for overcoming any obstacles.

7. Evaluate. Each week, ask yourself if your plan is working to accomplish your goals. If so, continue. If not, identify the obstacles and make course corrections, for example, by changing the choice of activities, the time devoted to them, and perhaps even your goals themselves.

Health Tips in every chapter enable students to make immediate changes to their behavior.

Current topics are highlighted in boxes to give a complete perspective in your study of health and wellness. Global Wellness boxes explore health and wellness topics as they affect different countries and cultures.

Healthier Eating: One Step at a Time

If you want to improve your diet, make one healthful change at a time. Here are some suggestions:

- Eat a breakfast consisting of at least a whole-grain product and a fruit.
- Substitute one daily serving of real fruit juice (not colored sugar water) for a soda.
- Substitute one daily serving of a fruit or nuts for a candy bar or a handful (or two) of chips.
- Substitute a lean meat sandwich with tomato on whole-wheat bread for a fast-food hamburger, fried fish entree, taco, or burrito.

Chapter Five Choosing a Nutritious Diet 95

dition label may not indicate the true relative amount of sugar or fat in a product. For example, a snack product's ingredients label could list separately sucrose, fructose, and corn sweetener, all of which are sugars.

Unlike the ingredients label, the nutrition facts label provides quantitative information on calorie content and certain nutrients in a food. The amounts indicated for each nutrient and the calorie count are for a "serving," which is all or a portion of the contents of the package, as determined by the manufacturer. The manufacturer's definition of a serving is given at the top of the nutrition facts label as the "serving size."

The nutrition facts label also lists the **percent daily value (PDV)** for each nutrient, which is the percentage of

TERMS

ingredients label: label on a manufactured food that lists the ingredients in descending order by weight

nutrition facts label: label on a manufactured food that lists the quantity of certain nutrients in the food and the percent daily value for those nutrients

percent daily value: percentage of the recommended daily amount of a particular nutrient found in a food

The Mediterranean Diet

The Mediterranean diet is associated with longer life and reduced risk of heart disease and cancer. It's a diet based on whole grains, fresh fruits and vegetables, minimal animal and trans fat, and little red meat.

What is a Mediterranean diet?

- Meals based on whole-grain foods: breads, pasta, couscous, polenta, bulgur
- Abundant fresh vegetables and fruits
- Generous amounts of beans, nuts, and seeds
- Olive oil as the principal source of fat
- Use of garlic, onions, and herbs as condiments
- Moderate use of fish
- Moderate use of dairy
- Minimal use of red meat
- Low-to-moderate intake of alcohol

What makes the Mediterranean diet healthy?

- Low in saturated fat and cholesterol
- Energy supplied by unsaturated fat (in olive oil and nuts)
- No trans fats (artificial fats in packaged pastries and margarine)
- High in fiber
- High in antioxidants
- Low in refined sugar and flour
- High in plant-based vitamins and micronutrients

Researchers in France have determined that the Mediterranean diet lowers the risk of heart disease and many types of

cancer. Even though a large percentage of calories is derived from fat, mono- and polyunsaturated fats predominate, and are animal fats (saturated fats and cholesterol) and manufactured trans fats, which raise LDL (so-called bad cholesterol). The Mediterranean diet's high levels of antioxidants and other micronutrients reduce the risk of cardiovascular disease and cancer.

The typical American dinner, with a slab of meat in the center and one or two "sides," consisting of an overcooked vegetable and a butter-drenched potato, is a far cry from a typical Mediterranean dinner: pasta made of unrefined flour topped with a variety of minimally cooked vegetables (tomatoes, onions, peppers), some beans (peas, fava beans), and a sprinkle of hard cheese (Parmesan or Romano). For dessert, the Mediterranean diet calls for almonds and fresh fruit instead of cake, cookies, or ice cream.

It's too much to ask Americans to replace generations of dietary habits overnight. However, there are ways to incorporate some of the healthier aspects of the Mediterranean diet without radically changing customary eating patterns:

- Cut back on fast food, which is generally 50% saturated fat and cholesterol.
- Replace cake/ice cream desserts with fruit salad and nuts.
- Replace meat-centered meals with grain- and bean-centered ones.
- Replace doughnuts and sugar-laden snacks with fruit and mixed nuts.

Bon appetit!

Wellness Guides offer tips, techniques, and steps toward a healthy lifestyle and self-responsibility.



Saving a Life with a Life

Once in a while all the futuristic medical and genetic technologies work as scientists envision they will and an imagined remarkable cure becomes a reality. Several medical technologies came together for Molly Nash, an extremely sick 6-year-old who had inherited Fanconi's anemia. This is a severe blood disease that usually kills children before age 10 unless a bone marrow transplant is performed successfully. To be successful, the donor's bone marrow cells must be very closely matched to the recipient's human leukocyte antigen (HLA) cell type to prevent rejection of the transplanted tissue.

In 2000, Molly Nash's parents were offered a never-before-tried solution to their daughter's fatal condition: Her parents would have another child whose genes would closely match Molly's so a successful transplant would be possible. On August 29, 2000, Adam Nash was born and Molly received her bone marrow transplant and it worked. Here's what happened: Doctors removed eggs from Molly's mother's ovaries. They were then fertilized in a laboratory dish using sperm from Molly's father and grown for a while *in vitro* (in glass dishes in the laboratory). When the embryos were ready to be implanted into Molly's mother's uterus, each one was genetically tested;

only an embryo with precisely the right combination of HLA genes would lead to a cure for Molly. An embryo with the matching HLA genes was obtained and successfully implanted. At its birth, the umbilical cord blood was saved and later used in a bone marrow transplant for Molly. The cells in her sibling's blood were so closely matched to Molly's cells they were not rejected. Her new bone marrow cells flourished and Molly's blood disease was cured. Many things had to go just right for this procedure to work, and they did.

In 2010, Molly received her 10-year checkup. She was 16 years old and healthy. So is her 10-year-old brother Adam. Since this pioneering medical success, the procedures have been successfully performed on other children with fatal blood diseases. Today, all the major *in vitro* fertility (IVF) clinics can perform genetic testing of laboratory embryos. Most of the not carry genes that cause serious inherited diseases. But some scientists and others worry that the time may come when parents may want to have embryos tested for genes that confer talents, such as athletic or musical ability, eliminate susceptibility for cancer or heart disease, or prolong life. The list is endless, as are speculations about abuses. As the great Yankee baseball catcher, Yogi Berra, supposedly said, "Prediction is very difficult—especially if it's about the future."

Two examples serve to illustrate the complex issues surrounding genetic testing. Symptoms of Huntington's disease do not appear until midlife or later. Folksinger Arlo Guthrie died of Huntington's disease, and his son, Arlo Guthrie, did not know whether he had inherited the abnormal gene from his father. (Arlo had a 50-50 chance of having inherited the gene. The genetic test for Huntington's disease had not yet been developed.) Arlo took the chance and had his children before he reached the age when symptoms appear. Luckily, Arlo did not inherit the gene from his father, so his children will not get Huntington's disease either.

If a parent has died of Huntington's disease, the children of that parent can be tested for the presence or absence of the gene. Suppose a child finds out at age 15 that the Huntington gene has been passed on and that symptoms likely will begin to appear in midlife followed by disability and premature death. For a child or young adult to cope with that knowledge may well be too much of a psychological burden. Some people whose families have a history of members with Huntington's disease choose not to know or to be tested; others want to know their status. Either choice is difficult and may result in serious psychological stress whether the result is positive or negative. (A negative result may produce overwhelming feelings of guilt if a sibling's result is positive.)

Another dilemma arises with breast cancer susceptibility genes. The risk of developing breast cancer in women is strongly influenced by inheriting one or both cancer

susceptibility genes called BRCA1 and BRCA2. Inheriting both susceptibility genes means a woman has an 80% to 90% probability of developing breast cancer at some time in her life, usually while quite young. In families whose female members have a high incidence of breast cancer, susceptibility genes can be tested for the presence of these susceptibility genes. If both genes are found to be present, a young woman is faced with two demoralizing choices. She can worry and wait for signs of breast cancer. Or she can elect to have prophylactic mastectomy in which both breasts are surgically removed while she is young to avoid the development of breast cancer later in life.

In Great Britain, women who carry breast cancer susceptibility genes can choose to have a child using *in vitro* fertilization. A single cell from the embryo can be tested to make sure it does not carry BRCA1 or BRCA2 genes before it is implanted. In this way, parents can be sure the harmful genes will not be passed on to their child.

Genetic tests for serious diseases are a great medical advance but also create serious psychological and ethical problems. Any person thinking about getting a genetic

TERMS

genetic counseling: information to help prospective parents evaluate the risks of having or delivering a genetically handicapped child



Relaxation with Music

Many people know that listening to or playing music can be relaxing. Music can focus the mind just as meditation, hypnosis, and prayer do. Thus, listening to or playing music can reduce stress. In medical settings, music can help patients' lessen anxiety and stress. One study found that patients undergoing surgery were just as likely to be calmed by music as by sedative drugs (Berber, Mou, & Quintana, 2007). Music can help reduce the chronic pain that accompanies rheumatoid arthritis, herniated discs, or fibromyalgia. Music can help those who have experienced stroke, Alzheimer's, and other neurological diseases.

The kind of music that people find helpful varies according to individuals' preferences. In general, soft music is preferred to loud; gentle rhythms and moderate beats that approximate the heart rate (65–75 beats per minute) are preferred to vigorous

or complex rhythms and fast beats. The "background music" found in doctors' and dentists' offices is known to reduce heart and breathing rates and reduce anxiety. To use music as a therapy for insomnia, pain, stress, anxiety, or other problem, use the following guidelines:

- Choose music that you enjoy and find relaxing. Many types of classical music, soft jazz, Celtic and Native American music, and chants are suitable. Most people prefer music with flowing rhythms.
- Pick a time and place where you will not be disturbed and can let go of daily concerns. Plan to spend at least an hour in a relaxed state.
- You can listen at low volume or may feel more comfortable using ear-cupping headphones that reduce outside noise and distractions.
- Consider consulting a music therapist for additional advice and help.

become more skilled at focusing on breathing and the calm state of being that it brings, and will be able to let your thoughts stream in the background of your mind without paying much attention to them.

Contrary to what some people think, having a quiet mind is not being zoned out, without thoughts ("clearing your mind"), or deadening your feelings. Instead, a quiet mind is observing what your senses sense, what your mind thinks, and what it is like to observe. Practicing your mind almost every day can help you manage burnout and stress, increase your sense of well-being, lessen out and stress, increase your sense of harmony with your social and physical surroundings, get a good night's sleep, improve performance on tasks, and become aware of how your mental processes affect your life. College students take note! A mere four days of meditation training for 20 minutes a day can improve cognition and working memory (Zeidan et al., 2010).

Practice this meditation twice a day, particularly if you are upset, tired, or in pain. Once you are comfortable with a breathing meditation, you may want to explore other forms of meditation. Meditation has many documented health benefits—lowered blood pressure, decreased heart rates, less stress, increased blood flow, reduced pain, and relief of many chronic conditions such as asthma, arthritis, and irritable bowel syndrome.

The faster the world becomes, the more we need to slow down.

The Power of Suggestion

Any time the mind becomes focused and relaxed, it also becomes more open to suggestion. This can be very beneficial or it can create problems, depending on the kind of suggestions being received by the mind. Suggestions given as warnings, especially to children, who are par-

ticularly vulnerable to suggestion, can affect behaviors and cause health problems throughout life. For example, here are some common admonitions given to children that can cause health problems because young children believe what they are told.

- Put on your boots when you go out in the snow or you will catch cold.
- If you keep eating cookies, you'll get fat.
- If you don't try harder, you'll be a failure in life.
- If you climb those trees, you'll fall and get hurt.
- If you go out at night, the ghosts will get you.

Each of these suggestions predicts a negative outcome. To a child's mind, which is usually in a trance-like, suggestible state, these negative suggestions become fixed in the unconscious mind and may have a harmful effect even many years later.

The mind can be made more open to suggestion by many things we are exposed to in daily life. For example, movies and television focus attention with both images and sound. As a consequence, they can induce a trance-like state and cause us to cry, laugh, and become angry or upset; they can actually manipulate our emotions through light and sound. No one dies on a movie screen, but we often react as if they did. The violence and horror that we often react as if they did. The violence and horror that we often react as if they did. The violence and horror that we often react as if they did.

Advertisers know how to take advantage of viewers' suggestible, hypnotic states of mind. Television programs

TERMS

mandala: an artistic, religious design used as an object of meditation

Managing Stress boxes give you practical strategies for coping with stress.



Rising Healthcare Costs and Unhealthy Lifestyles

Although many factors contribute to the rapid rise of healthcare costs in the United States, some contribute much more than others. If you were asked to make a list, you would probably include physicians' salaries, hospital costs, drug prices, overuse of diagnostic tests, billing fraud, and many others. But you should also include diseases resulting from unhealthy lifestyles. The U.S. Centers for Disease Control and Prevention (CDC) has found that 75% of U.S. healthcare spend-

ing goes to treating "preventable" chronic diseases, such as type 2 diabetes and obesity.

Annually, through their tax dollars, U.S. citizens are spending \$147 billion treating obesity, \$116 billion treating diabetes, and hundreds of billions more on cardiovascular diseases and cancers that were caused by unhealthy lifestyles and behaviors. This is one reason the federal Affordable Care Act, passed in 2010, focuses considerable attention on illness prevention in addition to requiring health insurance for everyone.



Computed tomographic (CT) scans and magnetic resonance imaging (MRI) help physicians make the correct diagnosis of an injury or disease.



Whole-Body CT Scan—Unnecessary for Healthy People

Whole-body computed tomography (CT) scans have become a popular diagnostic tool for healthy Americans. They are a drain on soaring healthcare costs—and they may be dangerous. Such scans cost at least \$1,000 and may be ordered by physicians even for mild complaints. Studies show that these scans may help in the diagnosis of disease in about 2% of male patients. But a whopping 90% of the men will have a false-positive result requiring further tests costing thousands of dollars more. In addition, multiple CT scans increase the risk of cancer as a result of exposure to ionizing radiation (Smith-Bindman, 2010).

the world in organ and bone marrow transplants, coronary artery bypass surgeries, and **magnetic resonance imaging (MRI)** use. Although MRI is an important diagnostic tool for many medical problems, ownership of an expensive MRI machine by a hospital demands frequent use to pay for it. Also, to stay competitive, almost every hospital must have one.

Other factors contributing to rising healthcare costs are unhealthy lifestyles and an aging population. The epidemic of obesity contributes to a bevy of chronic diseases, the most notable being Type 2 diabetes. Diseases caused by smoking or alcohol are costly and preventable in principle. And, as the population ages, older Americans acquire chronic ailments that require more medical attention and costly drugs.

Medical Tourism

Because of the extraordinarily high cost of medical and dental procedures in the United States, thousands of patients now seek treatment in other countries, combining travel, vacation, and health care in one trip. Some estimates put the number of so-called medical tourists from the United States as high as 150,000. Thailand, India, Argentina, Costa Rica, and other countries now aggressively advertise for medical tourists. A comparison of

prices for some common surgeries in the United States and in four other countries shows why medical tourism has become so popular (Figure 19.1).

Many hospitals overseas are accredited by a U.S. organization called the Joint Commission International (www.jointcommissioninternational.com). This nonprofit agency checks hospitals every three years and uses the same standards used to accredit American hospitals. Also, many surgeons working overseas have been board certified, which means that their qualifications are the same as surgeons working in U.S. hospitals. The American Board of Medical Specialties (www.abms.org) lists thousands of surgeons working in other countries who are board certified.

TERMS

magnetic resonance imaging (MRI): use of a strong magnetic field to produce images of internal parts of the body; especially useful for soft tissues
preferred provider organization (PPO): physicians who belong to the organization provide medical care at reduced costs that are negotiated by the organization

Dollars and Health Sense boxes focus on the influence of economic forces on individual and community health; for example, the marketing of worthless and sometimes dangerous supplements and devices for weight management, fitness, and stress relief; direct-to-consumer advertising in the marketing of minimally effective and sometimes dangerous pharmaceuticals; and cigarette advertising to encourage youths to start smoking.

Chapters conclude with **Critical Thinking About Health**—a set of questions that present controversial or thought-provoking situations and ask you to examine your opinions and explore your biases.

Critical Thinking About Health

- "Oh, not again," said a disgusted Janet Haley, chief of research at Leeward Pharmaceuticals, as she waved the hard copy of an e-mail in the air at her group's weekly staff meeting. "Every five years someone gets the bright idea that we need to develop a contraceptive for men. They just don't get it."
 "It could be done, you know," said Richard Duval, one of the company's newest and brightest researchers. "Sure, hormonal methods are no good, but there's lots more we can do with metabolic inhibitors, sperm viability, semen composition . . ."
 "No offense, Richard, but you aren't getting it either. Even if we had a method for men, who'd buy it? Can't you just see a woman asking, 'Did you take your pill today, honey?'"
 a. Do you agree that developing a contraceptive pill for men would be an unsound business decision? Explain your reasoning.
 b. What are the advantages and disadvantages to any institution or community of making fertility control methods available to anyone who wants them?
- When choosing a method of contraception, a couple decided to base their decision on a method's lowest observed/theoretical failure rate. Explain why it would be better for them to use the typical/actual failure rate.
- The placard read "Not paying for your playing." Students from the Committee for Fairness took turns holding the placard on the steps of the Student Health Center, talking to anyone who would stop, especially reporters from the campus newspaper and the local TV station. The CFF students were objecting to the fact that contraceptives were available at the Student Health Center. "They're not medicines," they argued. "We don't think our health center fees should pay for sexual partying."
 a. Do you agree or disagree with this point of view?
 b. What are the advantages and disadvantages to any institution or community of making fertility control methods available to anyone who wants them?

Health in Review

- A variety of safe, reliable, and effective fertility control methods are available. These include combination and progestin-only hormonal contraception, barrier methods (condom, diaphragm, cervical cap, and spermicides), fertility awareness methods, the IUD, and sterilization.
- A contraceptive's effectiveness is measured in terms of lowest observed and typical failure rates.
- Although most fertility control methods are designed for use in the woman's body, both partners share the responsibility for fertility control.
- Communication and cooperation are keys to shared responsibility.
- People who say they do not want to have a baby, yet do not practice fertility control, tend to have low motivation, lack of knowledge of human reproduction and fertility control methods, negative attitudes toward fertility control, or are in relationships that hinder correct fertility control practice.
- Medical and surgical abortions are available.
- Abortion became legal in the United States in 1973 with the Supreme Court's *Roe v. Wade* decision.

Health and Wellness Online

The Web contains a wealth of information about health and wellness. You can gain a new perspective on many topics presented in *Health & Wellness, Eleventh Edition* by accessing the Jones & Bartlett Learning website at go.jblearning.com/Ed11n11cWS.

End-of-chapter material includes **Health in Review** (a brief review of the chapter), **Health and Wellness Online** (a glimpse of the resources available on the Web), **References**, **Suggested Readings**, and **Recommended Websites** where you can find additional health information.

Critical Thinking About Health

1. Consider this hypothetical case of a female college student. Several women in her family, including her grandmother and an aunt, died of breast cancer before they reached 65 years of age. She is only 21 years old but is very concerned about her own risk of developing breast cancer. She decides to be tested for the breast cancer susceptibility genes BRCA1 and BRCA2, even though her physician explains that no medical treatment short of prophylactic mastectomy is available. The genetic test is positive for gene BRCA1, and her risk of breast cancer is significantly higher than for women who do not have this gene. Discuss, from your own perspective, what this woman should now do to preserve her health. Gather as many facts as you can on breast cancer and the effects of these susceptibility genes.
2. Make a list of all the factors you can think of that increase the risk of developing cancer. Order the items in your list from highest risk to lowest in your judgment. Are any of the risk factors relevant to your life? If so, describe how you could modify your lifestyle or behaviors to reduce the risk of developing cancer.

3. A number of strategies are presented in this chapter that can help prevent cancers of various types. List and discuss ways to help prevent lung cancer, skin cancer, breast cancer, and colon cancer.

4. The "war against cancer" is fought by physicians and scientists in two fundamentally different ways. On the one hand, medical research tries to discover better treatments for all forms of cancer. On the other hand, epidemiologists and other researchers believe that we need to shift the scientific emphasis from seeking cures to prevention because we understand many of the environmental factors that cause cancer. Reducing exposure to risk factors could prevent as many as half of all human cancers. In your judgment, which of these positions is correct? Or do you believe both positions are equally valid? Develop facts and arguments that substantiate your views and write a report of your conclusions.

Health in Review

- Cancer refers to a number of different diseases, all of which share the common property of abnormal, unregulated cell growth in the body.
- Dietary factors and environmental agents, such as smoking and sunlight, act on the genetic material in cells to cause chemical changes that may initiate a tumor, which is a mass of abnormal cells.
- Cigarette smoking is responsible for about one-third of all cancers, especially lung cancer.
- The principal environmental agents that cause cancer are ionizing radiation, tumor viruses, carcinogenic chemicals, and, possibly, xenoestrogens.
- If everything known about cancer prevention were practiced, up to one-half of cancers would not occur; thus, cancer is largely a preventable disease.
- Only 5% to 10% of cancers are caused by genes that have been inherited. The genetic changes in body cells that result in cancer are not passed on to children because these genetic changes have not occurred in sperm or eggs.

- The treatments for cancer include surgery, radiation, and chemotherapy. The goal of all three cancer treatments is the removal or destruction of as many cancer cells as possible.
- Recovery from cancer depends on good nutrition, positive attitudes, healing mental images, and medical treatment appropriate for the particular cancer. A healthy, active immune system also is an essential component in cancer prevention and recovery.
- Both breast and testicular self-examinations are positive means of early cancer detection.
- Dietary deficiencies or excesses are responsible for about one-half of all cancers.
- Overexposure to sunlight causes skin cancer, which is on the increase.
- Significantly reducing cancer requires major changes in people's lifestyles, including more attention to a healthy diet, elimination of tobacco use, limiting alcohol consumption, and reducing exposure to intense sunlight and chemical carcinogens.

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by accessing the Jones & Bartlett Learning website at go.jblearning.com/Edlin11eCWS.

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Suggested Readings

- Collins, F. S., & Barker, A. D. (2007, March). Mapping the cancer genome. *Scientific American*, 50–57. Describes the project to map all of the variant human genes that may contribute to the development of cancer.
- Esteve, F. J., & Hortobagyi, G. N. (2008, June). Gaining ground on the new treatments for breast cancer. *Scientific American*, 58–65. An update on breast cancer.
- Marshall, E. (2010). Brawling over mammography. *Science*, 327, 936–938. A good source to understand the controversy over mammography screening.
- Mukherjee, S. (2010). *The emperor of all maladies—A biography of cancer*. New York: Scribner. An engaging history of cancer from antiquity to modern times. The author discusses where the detection and treatment of cancer stands today.
- Nathan, D. G. (2007). *The cancer treatment revolution*. Hoboken, NJ: John Wiley & Sons. A valuable resource for someone who has been diagnosed with cancer and wants to understand treatment options.
- Rados, C. (2005, March/April). Teen tanning hazards. *FDA Consumer*, 8–9. Explains why using indoor tanning lamps increases skin cancer risks. Young people are the biggest users of indoor tanning lamps.
- Schaffer, A. (2011, May/June). The cost of life. *Technology Review*, 82–84. Discusses the issue of administering life-extending, high-cost drugs and procedures to terminally ill people.
- Welch, H. G. (2004). *Should I be tested for cancer? Maybe not—and here's why*. Berkeley: University of California Press. Many tests for various cancers exist, but they often are not helpful. This book explains why.

Recommended Websites

Please visit go.jblearning.com/Edlin11eCWS for links to these websites.

American Cancer Society
 Information on types of cancer, prevention, treatment options, and medical issues.

CancerNet
 The U.S. National Cancer Institute's database of cancer information.

National Alliance of Breast Cancer Organizations
 Information and educational resources.

National Toxicology Program, Department of Health and Human Services
 This website contains a list of all carcinogenic substances that have been tested by the government. The list is updated every two years.

Oncolink
 Comprehensive cancer information from the University of Pennsylvania School of Medicine.

The text also includes appendixes on relaxation exercises and stress management techniques (including guides for yoga and t'ai chi).

A workbook has been included at the end of the text to provide you with self-assessments and activities to explore your own health.

Below are some examples of topics that are new to this edition or have been expanded upon from prior editions:

- Chapter 4 includes new information on epigenetics and the biological roots of some mental illnesses.
- Chapter 5 includes a revision of the U.S. Department of Agriculture's dietary recommendations, formerly called MyPyramid and now presented as MyPlate. The chapter also contains updated information pertaining to food safety.

- Chapter 6 contains a discussion of obesogens—chemicals, some of which are environmental pollutants—that alter the body's weight-regulating systems and predispose one to being overweight.
- Chapter 10 includes updates on fertility control methods.
- Chapter 12 has the latest information on vaccines and health and worldwide efforts on controlling infectious diseases.
- Chapter 24 provides updates on health risks associated with different plastics used in the manufacture of water bottles.

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