

# PART ONE



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## Achieving Wellness

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## The Definition of Health

### *Learning Objectives*

1. Describe the medical and wellness models of health.
2. List the key points of the World Health Organization definition of health.
3. List and describe the six dimensions of wellness.
4. List the three health behaviors responsible for most of the actual causes of death.
5. Define *lifestyle disease*.
6. Identify the goals of Healthy People 2020.
7. List and describe the major health issues of college students.
8. Describe the Health Belief Model, Transtheoretical Model, and Theory of Reasoned Action/Theory of Planned Behavior.

Most people usually think of health as the absence of disease. But what about someone who has a relatively harmless genetic disorder, such as an extra toe? Is this individual less healthy than a person with the usual number of toes? Different perhaps, but not necessarily less healthy.

It is true that not feeling sick is one important aspect of health. Just as important, however, is having a sense of optimum well-being—a state of physical, mental, emotional, social, and spiritual wellness.

The health of a people is really the foundation upon which all their happiness and all their powers as a state depend.

*Benjamin Disraeli*

In this view, health is defined not only by being unencumbered by disease and disability but also by living in harmony with yourself and with your social and physical environments. You foster your own health and well-being when you take responsibility for avoiding harmful behaviors (e.g., not smoking cigarettes), limiting your exposure to health risks (e.g., not drinking alcohol and driving; limiting the consumption of junk food), and undertaking healthy behaviors and practices such as consuming nutritious food, exercising regularly, attending to your mental well-being, and supporting actions that contribute to the health and well-being of your community (e.g., limiting pollution and reducing violence).

for coordinated self-regulation among bodily processes that leads to optimum functioning and survival. Many Asian philosophies embody an idea of mind–body harmony. This idea is based on a universal energy called **chi** (qi), which must be distributed harmoniously throughout the mind–body to attain and maintain health. Harmony is expressed as a balance of forces called yin and yang. Yin and yang represent the opposing and complementary aspects of the universal chi that is present in everything, including our bodies. Yang forces are characterized as light, positive, creative, full of movement, and having the nature of heaven. Yin forces are characterized as dark, negative, quiet, receptive, and having the nature of earth.

In this chapter, we discuss the definition of health, how modern lifestyles contribute to an enormous degree of chronic illness throughout the world, and how adopting healthy living habits can help people maintain wellness. Throughout this text, we show you ways to maximize your health by understanding how your mind and body function, how to limit exposure to pollution and toxic substances, how to make informed decisions about health and health care, how to be responsible for your actions and behaviors, and how social, economic, and political forces affect your ability to lead a healthy life. Learning to be responsible for the degree of health and vitality you want while you are young helps to ensure lifelong wellness and the capacity to cope with sickness when it does occur.

## Models of Health

Scientists and health educators have developed two main ways to define health: the medical model and the wellness, or holistic, model.

### The Medical Model of Health

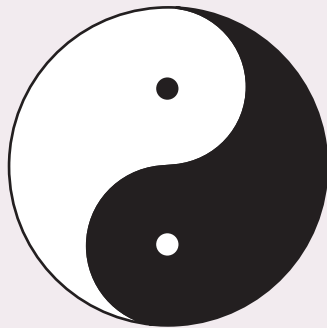
The **medical model** of health's main tenet is that health is the absence of one or more of the “five Ds”—death, disease, discomfort, disability, and dissatisfaction. In other words,



### Mind–Body Harmony

When you are well and healthy, your body systems function harmoniously. If one of your organs is not functioning properly, however, the other organs may not be able to function correctly either, and you may become ill. Thus, disease may be regarded as the disruption of physical and mental harmony of the whole person.

In traditional Western science and medicine, mind–body harmony is considered in terms of homeostasis, the tendency



#### The Yin–Yang Symbol

This symbol represents the harmonious balance of forces in nature and in people. The white and dark dots show that there is always some yin in a person's yang component and vice versa. The goal in life and nature, according to the traditional Asian view, is to maintain a harmonious balance between yin and yang forces.

In Asian philosophies and medicine, body and mind are regarded as inseparable. Yin and yang apply to both mental and physical processes. When yin and yang forces are in balance in an individual, a state of harmony exists and the person experiences health and wellness. However, if either yin or yang forces come to predominate in a person, a state of disharmony is produced and disease may result.

Treatment of disease is designed to reestablish harmony of the mind and body. The balance of yin and yang forces must be restored so that health returns.

T'ai chi ch'uan and *qigong* (pronounced jê-kung) are Chinese mind–body methods that are practiced by many North Americans to help maintain health and harmony. These exercises are especially useful for older persons whose bodies can no longer manage vigorous exercise. People who practice *qigong* experience lower blood pressure, improved circulation, and enhanced immune system functions.

if you are not sick, disabled, or mentally unstable, or otherwise miserable, you are defined as healthy. The medical model relies almost exclusively on biological explanations of disease and illness and is interpreted in terms of malfunction of organs, cells, and other biological systems (e.g., liver disease, heart disease, or osteoporosis). In the medical model, the absence of health is determined by the presence of observable or measurable symptoms. In times of sickness, the restoration of health is accomplished by successfully treating the underlying cause of the disease. If that is not possible, then the goal is to alleviate symptoms.

Within the medical model, the health of a population can be measured in terms of **vital statistics**, which are data on the degree of illness (**morbidity**) and the numbers of deaths (**mortality**) in a given population. Vital statistics include the following:

**Incidence:** the number of new cases of disease or illness during a particular time period, generally expressed per 100,000 population. Example: The incidence of influenza in 2016 among Americans of all ages was 12.7 per 100,000 persons.

**Prevalence:** the total number of people in a community, country, or other group with a particular health status. Example: The prevalence of high blood pressure among U.S. adults is about 70 million.

These statistical measurements allow comparisons between populations and also within the same population over time.

The strength of the medical model is determining with reasonable biological precision the cause of many illnesses or their debilitating symptoms and providing treatments that cure a disease, ameliorate symptoms, or restore function to a damaged body part. Anyone who has been cured of a serious infection by taking antibiotics or undergone a lifesaving surgical procedure can attest to that. A weakness of the medical model is the tendency not to consider or deal with psychological and social factors that affect medical and health issues, nor has it been very successful in encouraging healthy lifestyles, reducing unhealthy behaviors, and fostering a healthy environment.



A healthy lifestyle depends on exercise.

For example, overweight and obesity, which are a worldwide pandemic, are caused in most instances by overconsumption of low-nutrient food and by too little physical activity. Rather than addressing personal living habits and social conditions, the response of the medical model to overweight and obesity is to treat patients with drugs, surgery, or both to alter the biological aspects of the condition. In fact, surgically tying off most of the stomach in obese individuals is one of the fastest-growing surgical procedures in the United States.

### The Wellness Model of Health

The **wellness model** emphasizes self-healing, the promotion of health, and the prevention of illness rather than solely the treatment of symptoms of disease. The World Health Organization (WHO) employs a wellness definition of health, as follows: **health** is “a state of complete physical, mental, and social well-being and not merely the absence of disease and infirmity.” This definition is so broad and covers so much that some people find it meaningless. Its universality, however, is exactly right. People’s lives, and therefore their health, are affected by every aspect of life: environmental influences such as climate; the availability of nutritious food, comfortable shelter, clean air to breathe, and pure water to drink; and other people, including family, lovers, employers, coworkers, friends, and associates of various kinds.

The WHO definition of health recognizes the interrelatedness of the physical, psychological, emotional, social, spiritual, and environmental factors that contribute to the overall quality of a person’s life. All parts of

#### TERMS

**chi:** a Chinese term referring to the balance of energy in the body

**health:** state of sound physical, mental, and social well-being

**incidence:** the number of new cases of a particular disease

**medical model:** interprets health in terms of the absence of disease and disability

**morbidity:** the number of persons in a population who are ill

**mortality:** death rate; number of deaths per unit of population (e.g., per 100, 10,000, or 1,000,000) in a specific region, age range, or other group

**prevalence:** the number of people within a population with a particular disease

**vital statistics:** numerical data relating to birth, death, disease, marriage, and health

**wellness model:** encompasses the physiological, mental, emotional, social, spiritual, and environmental aspects of health

the mind, body, and environment are interdependent. The Old English root of our word health (*hal*, meaning well or whole) implies that there is more to health than freedom from sickness. Health means (1) being free from symptoms of disease and pain as much as possible; (2) being active, able to do what you want and what you must at the appropriate time; and (3) being in good spirits and feeling emotionally healthy most of the time.

Jesse Williams (1939), one of the founders of modern health education, echoes the WHO definition by describing health as

that condition of the individual that makes possible the highest enjoyment of life, the greatest constructive work, and that shows itself in the best service to the world.... Health as freedom from disease is a standard of mediocrity; health as a quality of life is a standard of inspiration and increasing achievement.

Attaining health is a lifelong dynamic process that takes into account all the decisions we make daily, such as which foods we eat, the amount of exercise we get, whether we drink alcohol before driving, wear seat belts, or smoke cigarettes. Every choice we make potentially affects health and wellness. Sometimes the social and physical environments present obstacles to making healthful choices. For example, a person may know not to eat fatty, fast food every day, but this kind of food may be easier to obtain than healthier alternatives. Wellness includes recognizing that some social influences are not healthy and finding healthier alternatives. It also includes taking actions to make the social and physical environments healthier for all.

Health is not something suddenly achieved at a specific time, like getting a college degree. Rather, health is a process—indeed, a way of life—through which you develop and encourage every aspect of your body, mind, and spirit to interrelate harmoniously as much of the time as possible.

Consider how the wellness model views the headache. About 50% of American adults experience at least one headache each year. Although a headache can be the

result of brain injury or the symptom of another illness, more often it is caused by emotional stress that produces a tightening of the muscles in the head and neck

(tension headache). These contracting muscles increase the blood pressure in the head, thereby causing the pain of headache.

The medical model advocates relieving a headache by taking acetaminophen, aspirin, or some other drug that can alter the physiological mechanisms that produce the pain. In contrast, the wellness approach advocates determining the source of the tensions—worry, anger, or frustration—and then attempting to reduce or eliminate it.

Identifying and eliminating the sources of tension and anxiety in your life is the surest way to prevent headaches. Some people have learned to use “having

a headache” as a means of avoiding unpleasant situations, such as school or work obligations. As children they may have observed their parents coping with tension and stress by “getting a headache,” and so they, too, learned that “having a headache” can be used to avoid anxiety-provoking experiences. Have you developed such an avoidance mechanism?

## Dimensions of Health and Wellness

The wellness model of health has six dimensions of health and wellness: emotional, intellectual, spiritual, occupational, social, and physical:

1. **Emotional wellness** requires understanding emotions and coping with problems that arise in everyday life. A person with emotional wellness is able to maintain a sense of humor, recognize feelings and appropriately express them, strive to meet emotional needs, and take responsibility for his or her behavior.
2. **Intellectual wellness** involves having a mind open to new ideas and concepts. If you are intellectually



### The Two-Minute Stress Reducer

Stressed out?

Be still.

And take a

D

E

E

P

Breath.

#### Center Yourself

Focus your attention inward. Allow thoughts, ideas, and sensations to pass through your mind without reacting to any of them. You will notice them pass out of your mind, only to be replaced by new thoughts and sensations. Continue to breathe deeply and slowly and watch the passing of the thoughts that stress you.

#### Empty Your Mind

Acknowledge that you have preconceived ideas and ingrained habits of perceiving. Know that you can empty your mind of distressing thoughts and replace them with ones that create inner harmony.

#### Ground Yourself

Feel the sensation of your body touching the earth. Place your feet (or your bottom if you are sitting, or your entire body if you are lying down) firmly on the earth. Let your awareness come to your point of contact with the earth, and feel gravity connecting you to Mother Earth and stabilizing you.

#### Connect

Allow yourself to feel your physical and spiritual connection with all living things. Remind yourself that with every breath you are reestablishing your connection with all of nature.

You can observe a lot just by watching.

*Yogi Berra*

healthy, you seek new experiences and challenges. A person with intellectual wellness is able to communicate effectively in speaking and in writing, see more than one side of an issue, keep abreast of global issues, and exhibit good life- and time-management skills.

3. **Spiritual wellness** is the state of harmony with yourself and others. It is the ability to balance inner needs with the demands of the rest of the world. A person with spiritual wellness is able to examine personal values and beliefs, search for meanings that help explain the purpose of life, have a clear understanding of right and wrong, and appreciate natural forces in the universe.
4. **Occupational wellness** is being able to enjoy what you are doing to earn a living and contribute to society, whether it be going to college or working as an office assistant, food server, doctor, construction manager, or accountant. In a job, it means having skills such as critical thinking, problem solving, and communicating well. A person with occupational wellness is able to feel a sense of accomplishment in his or her work, balance work and other aspects of life, find satisfaction in being creative and innovative, and seek challenges at work.
5. **Social wellness** refers to the ability to perform social roles effectively, comfortably, and without harming

others. A person with social wellness is able to develop positive relationships with loved ones, develop relationships with friends, enjoy being with others, and effectively communicate with others who may be different.

6. **Physical wellness** is a healthy body maintained by eating right, exercising regularly, avoiding harmful habits, making informed and responsible decisions about health, seeking medical care when needed, and participating in activities that help prevent illness. A person with physical wellness is able to exercise regularly and select a well-balanced diet; participate in safe, responsible sexual behavior; make informed choices about medicinal use and medical care; and maintain a positive, health-promoting lifestyle.

Because wellness is dynamic and continuous, no dimension of wellness functions in isolation. When you have a high level of wellness or optimal health, all dimensions are integrated and functioning together. The person's environment (including work, school, family, community) and his or her physical, emotional, intellectual, occupational, spiritual, and social dimensions of wellness are in tune with one another to produce harmony.



### Spirituality, Religion, and Health

Many people believe that spirituality—finding meaning, hope, comfort, and inner peace through religion, a connection with Nature, or some force larger than oneself—plays a role in health and illness. Spiritual experiences tend to engender feelings of compassion and empathy; peace of mind; relatedness and communion with a force, power, or set of values larger than oneself; and harmony with the environment. These feelings are believed to be a cornerstone of health because they represent a balance between the inner and outer aspects of human experience. For some, the spiritual dimension of life is embodied in the practice of a specific religion. For others, the spiritual dimension is nonreligious yet part of a personal philosophy. Many practices can help people experience the spiritual realms of existence—prayer, meditation, yoga, musical and artistic endeavors, and helping others are but a few common ones.

Becoming more spiritually aware, regardless of the chosen path, can lead to a healthier life. Being in touch with your spiritual feelings helps you handle life's ups and downs with understanding and compassion for yourself and others. You become open to love in the highest sense of its meaning, which is acceptance and tolerance. You begin to love yourself despite your problems and hang-ups. You love your family and friends when relations are strained. You see beauty and harmony in more and more aspects of living. And occasionally—however fleetingly—you may experience the truly wondrous feeling of being completely and joyfully alive.

### Measuring Health

Scientists use a variety of methods to measure health. Some methods count the number of individuals in a population in a particular health-related life situation, such as the number of adults who have had a heart attack or the number of children who die within 6 months of birth (infant mortality). Usually, these numbers are compared to similar measures for that population group from prior years or to other populations to determine if the frequency of the particular situation is increasing or decreasing. For example, the incidence of death from heart disease in the

#### TERMS

**emotional wellness:** understanding emotions and knowing how to cope with problems that arise in everyday life and how to manage stress

**intellectual wellness:** having a mind open to new ideas and concepts

**occupational wellness:** enjoyment of what you are doing to earn a living and contribute to society

**physical wellness:** maintaining a healthy body by eating right, exercising regularly, avoiding harmful habits, and making informed, responsible decisions about your health

**social wellness:** ability to perform social roles effectively, comfortably, and without harming others

**spiritual wellness:** state of balance and harmony with yourself and others



## Social Determinants of Health

The interrelationships among biology, individual behavior, access to quality health services, social factors, and policies determine individual and population health. Because health is affected by nearly all aspects of a person's life, assessing health status requires evaluating not only facets of traditional medical care and public health, but also societal factors such as education, housing, transportation, agriculture, the physical environment, and social and economic forces. For example, increasing taxes on tobacco sales can improve individual and population health by reducing tobacco smoking. Federal automobile safety regulations reduce rates of injuries and deaths from motor vehicle accidents. Social factors and conditions of the environment affect health in a variety of ways; for example, millions of people in the United States live in places that have unhealthy levels of ozone or other air pollutants, thus increasing the risk of asthma and other respiratory diseases.

### Social and Economic Determinants of Health

- Availability of resources to meet daily needs, such as educational and job opportunities, living wages, and healthful foods
- Social norms and attitudes, such as discrimination

- Exposure to crime, violence, and social disorder, such as the presence of trash
- Social support and social interactions
- Exposure to mass media and emerging technologies, such as the Internet or smartphones
- Socioeconomic conditions, such as concentrated poverty
- Quality schools
- Transportation options
- Public safety
- Residential segregation

### Physical Determinants of Health

- Natural environment, such as plants, weather, or climate change
- Built environment, such as buildings or transportation
- Worksites, schools, and recreational settings
- Housing, homes, and neighborhoods
- Exposure to toxic substances and other physical hazards
- Physical barriers, especially for people with disabilities
- Aesthetic elements, such as good lighting, trees, or benches

HealthyPeople.gov. (n.d.). Determinants of health. Retrieved from <https://www.healthypeople.gov/2020/about/foundation-health-measures/Determinants-of-Health>.

United States as measured by the percentage of affected adults has been declining for over a hundred years. Or, the U.S. infant mortality rate, measured in deaths per 100,000 live births, is the highest among the 20 most economically developed countries.

Another measure of health is the Disability Adjusted Life Year, or DALY, which is an estimate of the number of years lost due to ill-health, disability, or early death. DALY is generally used to compare the health status of population groups, for example, between Ireland and South Africa. **Burden of disease** is a measure of population health that aims to quantify the gap between the ideal of living to old age in good health, and the current situation where healthy life is shortened by illness, injury, disability, and premature death.

The **health-related quality of life and well-being (HRQoL)** goes beyond direct measures of the degree of medical diagnoses, life expectancy, and causes of death to include nonmedical factors that affect a person's quality of life, including **well-being**, which consists of the qualities of positive emotions and life satisfaction. As such, health-related quality of life includes physical, mental, emotional, and social aspects of life. Scientists utilize several tools to measure health-related quality of life: self-reported assessments of physical and mental quality of life, fatigue, pain, emotional distress, social activities, and roles; scientific surveys that evaluate how frequently individuals feel very healthy and satisfied or content with life; individuals' personal assessments of the quality of their relationships, their positive emotions, their resilience, and the realization of their potential; and individuals' assessments

of the impact of their health on their social participation, including education, employment, civic, social, and leisure activities, and to what degree, if any, a functional limitation (e.g., vision loss, mobility difficulty, or intellectual disability) affects living a long and satisfying life.

## Lifestyle Diseases

In the early part of the twentieth century, infectious diseases—those caused by bacteria, viruses, and other parasites—were the leading causes of death, in large part because modern public health methods and modern drugs, such as antibiotics, were not available. In 1918, millions of people around the world died from influenza, the cause of which was unknown at that time, but is now known to be a virus.

Today, the leading causes of death in the United States and much of the industrialized world are not due to infections but to “lifestyle diseases” (**Table 1.1**). These diseases, such as heart disease and cancer, mostly result from people's behaviors and the ways in which they live.

Heart disease, for example, results primarily from poor diet, cigarette smoking, lack of exercise, high levels of stress, high blood pressure, and high levels of blood cholesterol. Cancer is associated with poor nutrition, smoking cigarettes, and exposure to hazardous substances in the environment. An unhealthy lifestyle is also at the root of many instances of lung disease (from cigarette smoking) and type 2 diabetes and kidney disease (from being



**Table 1.1****Ten Leading Causes of Death in the United States for All Ages, All Races, and Both Sexes, 1900 and 2016**

1900	2016
1. Tuberculosis	Heart disease
2. Pneumonia	Cancer
3. Diarrhea and enteritis	Chronic lower respiratory diseases (e.g., emphysema/bronchitis)
4. Liver disease	Accidents
5. Heart disease	Stroke/disease of brain blood vessels
6. Injuries	Alzheimer's disease
7. Stroke	Diabetes (mostly type 2)
8. Bronchitis	Flu and pneumonia
9. Cancer	Kidney disease
10. Diphtheria	Suicide

In 1900, five of the top causes of death were infectious illnesses. In 2016, only one of the top leading causes of death was from infection; all others were from lifestyle diseases.

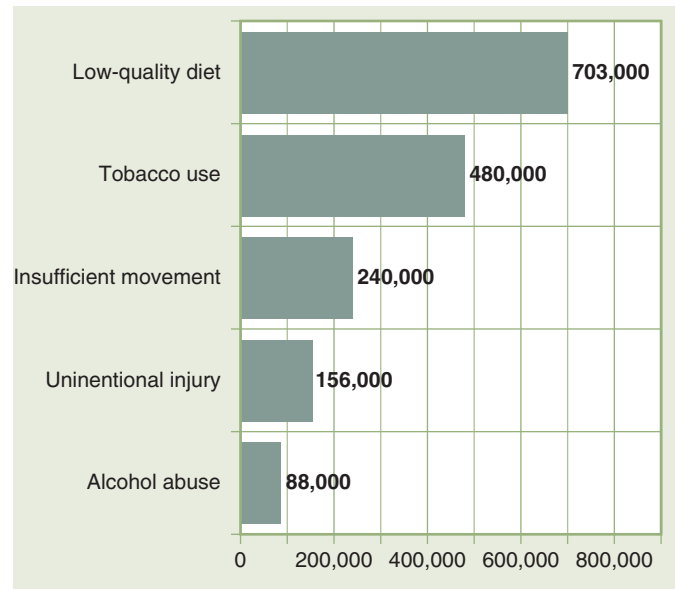
Data from Centers for Disease Control and Prevention, National Center for Health Statistics. Retrieved from [www.cdc.gov/nchs/data/fastats/leading-causes-of-death.htm](http://www.cdc.gov/nchs/data/fastats/leading-causes-of-death.htm) and <https://www.cdc.gov/nchs/data/hus/16.pdf#019>

overweight). In some instances, suicide and accidents are from stress or drug and alcohol use.

A major characteristic of many lifestyle diseases is that they are **chronic diseases**, meaning that they persist for years or life. Chronic diseases lower the quality of life of the affected persons and usually shorten the life span. A chronic disease also tends to affect a patient's family and is costly to the healthcare system. About 86% of total annual U.S. health expenditures of \$2.7 trillion is for chronic and mental health conditions. About half that amount is spent on medical care for diseases that are largely preventable, such as heart disease, many cancers, high blood pressure, and type 2 diabetes (Centers for Disease Control and Prevention, 2017a).

When a person dies, the cause of death is generally identified in terms of the organ system(s) that failed and resulted in the person's death, for example, heart disease, cirrhosis of the liver, cancer of the lung. This may not, however, identify the root causes of that death. For example, saying someone died of lung cancer does not tell us that the actual cause of death was smoking. When deaths are examined for their actual causes and not simply what is reported on death certificates, the results show that approximately half of the 2.7 million deaths in the United States each year are due to lifestyle factors (**Figure 1.1**).

Leading the list of life-shortening behaviors is poor diet. Low consumption of fruits, vegetables, nuts, and seeds and high consumption of salt, meat, processed grains, and sugar contribute to 703,000 American deaths annually. Next to poor diet is tobacco use, which is responsible for more than 480,000 American deaths per year. Smoking cigarettes and cigars, chewing tobacco, and being exposed to secondhand smoke contribute substantially to deaths caused by cancer of all kinds, heart

**Figure 1.1****Deaths Due to Preventable Causes, United States, 2017**

Nearly half of the 2.7 million American deaths are caused by lifestyle factors such as poor diet, tobacco use, insufficient body movement, unintentional injuries (falls, motor vehicle accidents, poisoning and opiate overdose), and alcohol abuse.

Sources: Renata, M. et al. (2017). Association Between Dietary Factors and Mortality from Heart Disease, Stroke, and Type 2 Diabetes in the United States. *Journal of the American Medical Association*, 317, 912–924. U.S. Centers for Disease Control, National Center for Health Statistics, [www.cdc.gov/nchs/index.htm](http://www.cdc.gov/nchs/index.htm).



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Many alternative medical practices, such as chiropractic, massage, and acupuncture, are now considered legitimate medical treatments and are often covered by insurance.

**TERMS**

**burden of disease:** the gap between the ideal of living to old age in good health and a current situation in which life is shortened by illness

**chronic disease:** a disease that persists for years or even a lifetime

**health-related quality of life and well-being (HRQoL):** a measure of health that includes non-medical factors

**well-being:** qualities of life that include positive emotions (e.g., happiness, contentment) and life satisfaction



## Profiting from Making People Sick

Heart disease, stroke, lung cancer, colon cancer, type 2 diabetes, and chronic obstructive pulmonary disease account for nearly half of all deaths in the United States. These diseases are caused in large part by unhealthy lifestyle choices: eating poorly, smoking cigarettes, being overweight, and not exercising. Unfortunately, many businesses profit from individuals' unhealthy lifestyles—indeed, some encourage unhealthy behavior as the basis of their business.

The tobacco industry is the prime example of profiting financially from harming others. No other industry makes a product that, when used as directed, causes disease and death. Knowing that long-term smokers (i.e., their best customers) tend to begin smoking as teens, the tobacco industry uses sophisticated marketing methods to lure young people to smoke and to get them hooked. The tobacco industry is a friend to no one.

Whereas it is not as obvious as with tobacco, some food companies, for example, also profit from harming their customers. A typical serving of fast food (e.g., burger, fries, and a soft drink or shake) contains around 1,000 calories, about half or more of most individuals' energy requirement for one day. Approximately one-third to one-half of those calories are from

saturated fat, a prime contributor to heart and blood vessel disease. Fast food also contains large amounts of salt, which also contributes to heart and blood vessel disease. This is why a steady diet of fast food can lead to weight problems and associated illnesses like type 2 diabetes.

Some of America's largest corporations are in the business of supplying consumers with less-than-healthy amounts of sugar. The sugar is contained in packaged foods (from ketchup to breakfast cereals), snack foods, fast food, and sugar-sweetened beverages, such as sodas, energy drinks, and sports drinks. Sugar-sweetened beverages alone deliver 36% of the added sugar that Americans consume, contributing to the risk of heart disease and type 2 diabetes. And, unlike other products to which sugar is added, sugar-sweetened beverages have no nutritional value; they can readily be replaced by healthy beverages such as water and low-fat milk. Efforts to limit the damage to health from added sugar in food include taxing sugar-sweetened beverages in order to lessen consumption, particularly among youth, and encouraging food companies to voluntarily reduce the amount of sugar added to their products.

You need not wait for the actions of government and industry to better your health. You can start today by resisting efforts of others to profit from distributing ill health and by adopting healthy living habits.

disease, high blood pressure, stroke, bronchitis, chronic obstructive pulmonary disease (COPD), pneumonia, low birth weight, and burns from fires. The enormous toll on life and health exacted by tobacco use is the reason that health agencies, doctors, and governments overwhelmingly recommend avoiding tobacco use.

Low-to-no physical activity is responsible for 240,000 deaths, principally from heart disease, high blood pressure, stroke, and diabetes. Unintentional injuries from falls, motor vehicle accidents, and poisonings including opiate overdose are responsible for 156,000 annual deaths. Alcohol abuse accounts for nearly 88,000 deaths each year from alcohol toxicity, motor vehicle and pedestrian accidents, and homicides. In contrast, only 25,000 deaths annually are attributable to the use of illegal drugs. Unsafe sex is responsible for 20,000 deaths from AIDS and other diseases.

### Type 2 Diabetes as a Lifestyle Disease

Diabetes is a disease in which the amount of sugar in the blood increases to unhealthy levels as a result of malfunctions in the body's sugar-regulating system. Diabetes can cause blindness, blood vessel problems, kidney failure, heart damage, and death. There are two forms of diabetes:

**Type 1 (insulin-dependent).** The pancreas (a digestive organ) is diseased and is unable to manufacture the hormone insulin, which regulates the level of sugar in the blood. Medical treatment involves frequent injections of insulin.

**Type 2 (non-insulin-dependent).** Too much fat in the blood (generally from being overweight) causes body cells to resist the actions of insulin. This is called *insulin resistance*; it causes blood levels of sugar to rise. Over time, insulin-producing cells in the pancreas become damaged and produce less insulin. Treatment includes increasing exercise, decreasing the consumption of calories to produce weight (fat) loss, and possibly injections of insulin or drugs that decrease insulin resistance.

That type 2 diabetes is a lifestyle disease is illustrated by the migration of Jews from Yemen to Israel in the late 1940s. At that time, the prevalence of type 2 diabetes among Yemenite Jews was less than 1 case per 1,000 individuals. Thirty years later, the same population, now adapted to a Western lifestyle in Israel, had a rate of almost 12 cases of type 2 diabetes per 1,000 individuals.

The Pima Indians who live in the southwestern United States offer another example of type 2 diabetes as a lifestyle disease. Traditionally, these Native Americans lived mostly on maize, beans, wild game, and vegetables. They were active, lean, and strong. Because forced relocation removed them from their traditional environment, today many Pimas have adopted living habits characteristic of most Americans, and hence many are overweight and about 40% have type 2 diabetes, the highest incidence in the world.

Currently, about 30 million adult Americans are diagnosed with type 2 diabetes. This is 12% of the

U.S. population and puts the United States first among developed nations in the prevalence of this disease. About 90 million American adults (about 37% of the adult population) have a condition called *prediabetes*. About 70% of people with prediabetes will develop type 2 diabetes within 10 years. Type 2 diabetes is strongly associated with being overweight: For every 20% increase in body weight, the chance of developing type 2 diabetes doubles. As a consequence of the epidemic of overweight and obesity in the United States, type 2 diabetes has become a major health problem.

Type 2 diabetes is a problem not only in the United States but also around the world. In 2000, the global number of people with diabetes was about 171 million (2.5% of the world's population). In 2014, about 442 million people worldwide had diabetes (about 8.5% of the world's population). By the year 2025, the number of people with diabetes is expected to be more than 550 million.

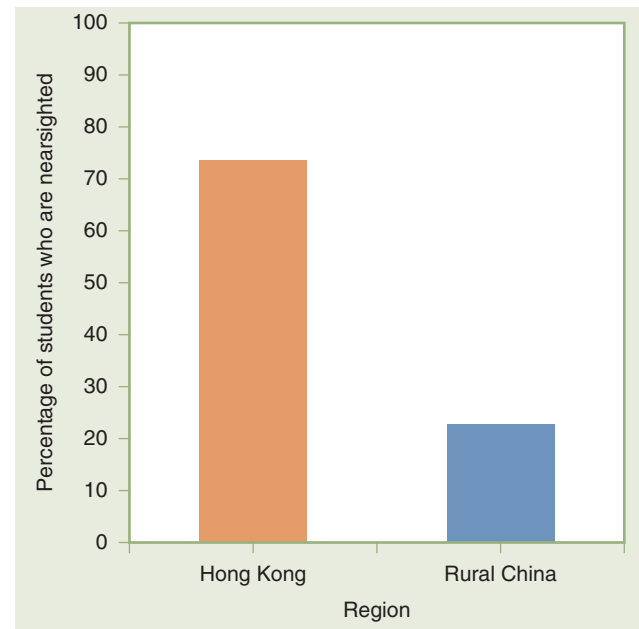
Research has conclusively shown that eating healthfully and regularly engaging in moderate physical activity can reverse and prevent type 2 diabetes (Centers for Disease Control and Prevention, 2017b). This is the reason everyone is encouraged to adopt healthy eating practices and engage in moderate physical activity.

Whereas each individual is responsible for her or his lifestyle decisions, scientists and health professionals know that many lifestyle diseases, including type 2 diabetes, require community-wide efforts to help individuals make healthy choices (Katz, 2009). For example, institutions can insist that vending machines contain healthy foods instead of junk food. Stairwells can be made visually attractive and have music or video to encourage walking instead of riding elevators. Municipalities can ensure that subdivisions have sidewalks and many parks. Rather than being at a centralized location, food service can be 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 eye adapts to the visual information the eyes receive from the



**Figure 1.2**

Comparison of visual acuity of 18- to 28-year-old students in Hong Kong with youths in rural areas of China. Most of the rural youths have normal vision, whereas most of the Hong Kong students are myopic.

Data from J. Wallman. (1994). Nature and nurture of myopia. *Nature*, 371, 201–202.

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 (Seppa, 2013). Most of the young people in the rural environment had normal vision or were slightly farsighted (**Figure 1.2**). In contrast, most of the Chinese students in Hong Kong were nearsighted, many to a considerable degree. Thus, if one considers 20/20 vision 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.

## The U.S. Medical Care System

In the United States, the medical model of health has given rise to an enormous, complex, and expensive industry. Most of the resources of the medical industry are devoted to treating people who are already sick. Very little effort is made to prevent illness and disease or to



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Photographed by Christine McKee



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Simple behaviors in our everyday lives can positively affect health: Eat five servings of fruits and vegetables every day, read food labels to make wise choices, and walk instead of drive whenever possible.

encourage self-responsibility for health. Although, in reality, the system we all pay for and use is one of sickness care, it is called a healthcare system.

There is little doubt that the U.S. medical care system can deliver high-quality sickness care. However, it produces less health for Americans than do the analogous care systems in nearly all other high-income countries, including Canada, Australia, Japan, Sweden, France, and the United Kingdom. Compared to those countries, the United States has higher rates of chronic disease and early death among adults and higher rates of untimely death and injuries among adolescents and small children, and larger percentages of people with obesity, type 2 diabetes, heart disease, chronic lung disease, and arthritis (Woolf & Aron, 2013). Reasons for the United States' poor health rankings are lack of access to, and deficiencies in, the medical care system; high rates of unhealthy

behaviors, such as excess calorie consumption; high rates of poverty and other adverse social conditions; and an unhealthy environment.

One factor that does not explain why Americans are not as healthy as residents of other high-income countries is money spent on medical care. The United States spends twice as much per capita on medical care than do other economically developed countries (Table 1.2). In 2015, the total yearly cost of U.S. medical care was \$3.2 trillion, nearly 20% of the country's wealth. Insurance companies, doctors, for-profit hospitals, and pharmaceutical and medical device companies compete vigorously for this vast treasure (see box "How Much Is a Life Worth?"). These entities have every incentive to maintain the current sickness system and little incentive to support disease prevention and self-responsibility for health. Consider that in the United States the medical management



### How Much Money Is a Life Worth?

When U.S. federal agencies consider adopting new regulations intended to promote health or prevent injury or death, they try to figure out if the new regulations are cost-effective, that is, is gain in health worth the cost to attain it.

For example, let's assume that of the several thousand water systems in the United States, 2,000 would have to spend a combined total of \$3 billion to modernize so that arsenic levels could be reduced to required (safe) levels. Let's also assume that spending this \$3 billion would save the lives of 60 people per year who would otherwise die of arsenic toxicity. If the costs of modernizing the water systems were spread over 20 years, then the \$3 billion would save  $20 \times 60 = 1,200$  lives. That works out to \$2.5 million per life saved.

Is the new regulation worth the cost? Most definitely, according to "value of a statistical life" (VSL) calculations used by most federal agencies. Although each agency has its own specific VSL, the values for early and middle-aged adults tend to be between \$6 million and \$9 million per life; the VSL for someone over age 65 is about half that for someone in middle age. The VSL represents how much a person or employer is willing to pay to greatly reduce or eliminate a fatal risk. It is not based on earning power, an estimate of one's contribution to society, or how much someone is loved by family and friends.

It's been pointed out that \$6 million to \$9 million per life seems reasonable until you're talking about yourself or someone you care about. Then, the dollar value of a life is close to infinite.

**Table 1.2****Per Capita Medical Care Spending in Developed Countries (2016)**

Country	Per capita spending in U.S. Dollars
United States	9,882
Switzerland	7,919
Norway	6,647
Germany	5,551
Canada	4,753
Australia	4,708
France	4,704
Japan	4,519
United Kingdom	4,192
Italy	3,391
Israel	2,822
Russia	1,351
Mexico	1,040

Data from Organisation for Economic Co-operation and Development (OECD). (2017). *Health at a Glance: OECD Indicators*. Retrieved from [http://dx.doi.org/10.1787/health\\_glance-2017-en](http://dx.doi.org/10.1787/health_glance-2017-en).

of type 2 diabetes with drugs and surgery costs \$14,000 a year per patient, whereas managing the disease with healthy nutrition and moderate physical activity costs almost nothing.

Recognizing that Americans are paying more for health and getting less, the U.S. Congress in 2010 passed the Affordable Care Act (ACA), the major provisions of which went into effect in 2013. The central feature of the ACA is to provide everyone access to medical care regardless of income, age, and health status (“preexisting conditions”). Because every dollar spent on disease prevention and support of a wellness lifestyle saves at least three dollars in sickness care costs, the act also calls for increased preventive services such as vaccinations, disease screening, and individual wellness/disease prevention, including smoking cessation and obesity and type 2 diabetes prevention. The law also helps employers and communities institute and strengthen wellness programs.

## Healthy People 2020

Each decade, the U.S. government issues health objectives for the nation, the latest of which is Healthy People 2020 (HealthyPeople.gov, 2017). 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.

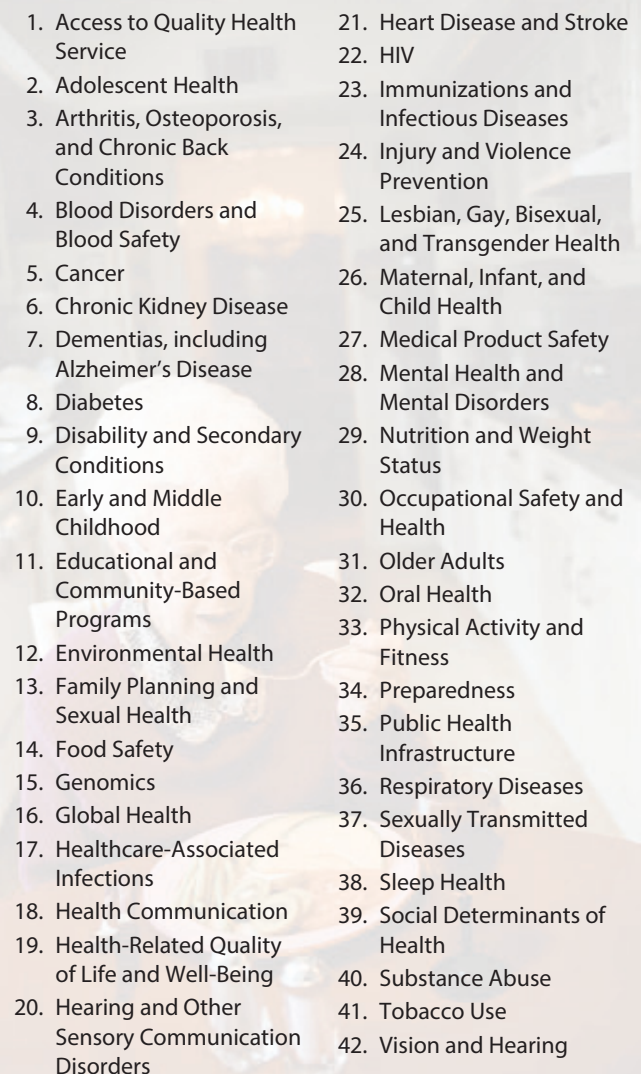
Healthy People 2020 recognizes that families, schools, worksites, communities, states, and national organizations must help individuals live healthfully. This means that not only are individuals asked to make healthy

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 1,200 specific health objectives grouped into 42 topic areas (Figure 1.3),

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

- 
- |   |  |
|---|--|
| 1. Access to Quality Health Service                     | 21. Heart Disease and Stroke                       |
| 2. Adolescent Health                                    | 22. HIV  |
| 3. Arthritis, Osteoporosis, and Chronic Back Conditions | 23. Immunizations and Infectious Diseases          |
| 4. Blood Disorders and Blood Safety                     | 24. Injury and Violence Prevention                 |
| 5. Cancer   | 25. Lesbian, Gay, Bisexual, and Transgender Health |
| 6. Chronic Kidney Disease                               | 26. Maternal, Infant, and Child Health             |
| 7. Dementias, including Alzheimer's Disease             | 27. Medical Product Safety                         |
| 8. Diabetes   | 28. Mental Health and Mental Disorders             |
| 9. Disability and Secondary Conditions                  | 29. Nutrition and Weight Status                    |
| 10. Early and Middle Childhood                          | 30. Occupational Safety and Health                 |
| 11. Educational and Community-Based Programs            | 31. Older Adults                                   |
| 12. Environmental Health                                | 32. Oral Health                                    |
| 13. Family Planning and Sexual Health                   | 33. Physical Activity and Fitness                  |
| 14. Food Safety   | 34. Preparedness                                   |
| 15. Genomics  | 35. Public Health Infrastructure                   |
| 16. Global Health                                       | 36. Respiratory Diseases                           |
| 17. Healthcare-Associated Infections                    | 37. Sexually Transmitted Diseases                  |
| 18. Health Communication                                | 38. Sleep Health                                   |
| 19. Health-Related Quality of Life and Well-Being       | 39. Social Determinants of Health                  |
| 20. Hearing and Other Sensory Communication Disorders   | 40. Substance Abuse                                |
|   | 41. Tobacco Use                                    |
|   | 42. Vision and Hearing                             |

### Figure 1.3

#### Topic Areas for Healthy People 2020

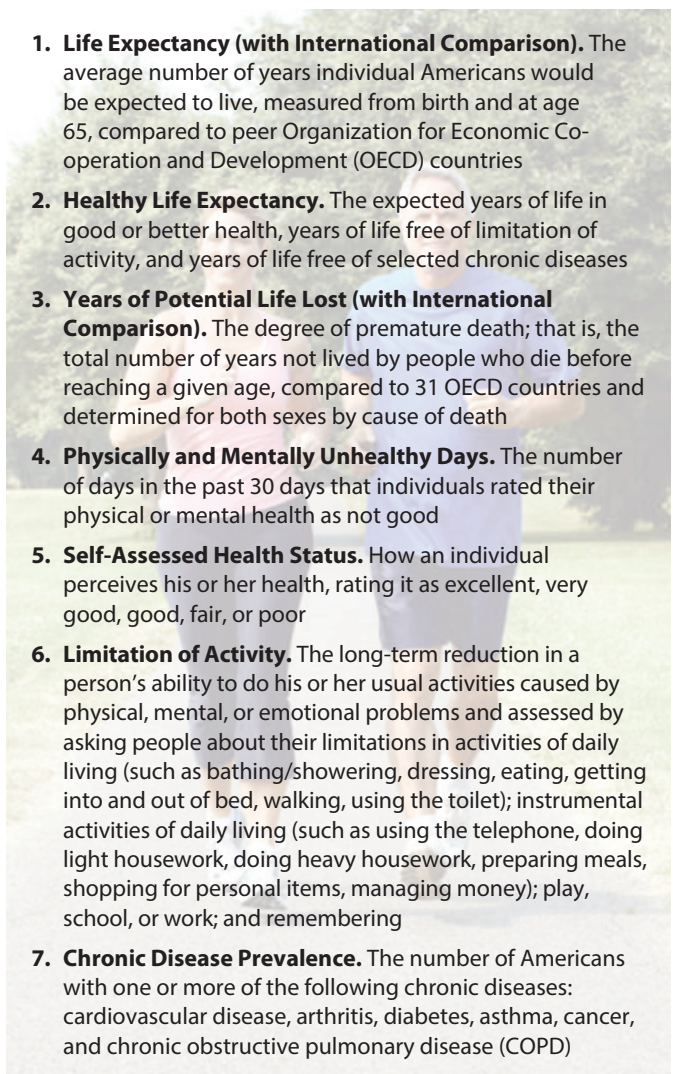
Modified from U.S. Department of Health and Human Services Office of Disease Prevention and Health Promotion. *Healthy People 2020*. Washington, DC. Retrieved from <http://healthypeople.gov/2020/topicsobjectives2020/default.aspx>.

each with a specific goal. Examples of specific goals are the following:

- **Cancer (Topic Area #5):** Reduce the number of new cancer cases as well as the illness, disability, and death caused by cancer.
- **Disability and Secondary Conditions (Topic Area #9):** Promote the health of people with disabilities, prevent secondary conditions, and eliminate disparities between people with and without disabilities in the U.S. population.
- **Food Safety (Topic Area #14):** Reduce foodborne illnesses.

A subset of Healthy People 2020 objectives, called **Leading Health Indicators (LHIs)**, have been selected to communicate high-priority health issues and actions that can be taken to address them.

Several of the goals in Healthy People 2020 are grouped into seven categories, called **Foundation Health Status**, which reflect the major health concerns in the United States (**Figure 1.4**). Foundation Health Status is intended to



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## ■ Figure 1.4

### Healthy People 2020 Foundation Health Status

Modified from U.S. Department of Health and Human Services. Office of Disease Prevention and Health Promotion. *Healthy People 2020*. Washington, DC. Retrieved from <http://healthypeople.gov/2020/about/GenHealthAbout.aspx>.

help everyone more easily understand the overall health of the U.S. population and the most important changes required to improve individual health and the health of families and communities. Each of the categories depends to some extent on the following factors:

- The information people have about their health and how to make improvements
- Choices people make (behavioral factors)
- Where and how people live (environmental, economic, and social conditions)
- The type, amount, and quality of health care people receive (access to health care and characteristics of the healthcare system)

The overarching goal of Healthy People 2020 is to help individuals be as healthy and well as possible. Healthy People 2020 encourages individuals, families, communities, schools, and places of employment to promote the health of everyone. As of 2014, 14 of the 26 Leading Health Indicators had shown improvement since 2010; 4 had met or exceeded their 2020 target goals. These include improvements in air quality, reductions in child exposure to secondhand smoke, more adults meeting guidelines for physical activity, increases in disease screening, and a reduction in tobacco smoking. Leading Health Indicators showing no improvement or worsening health outcomes included increases in rates of suicide, depression among youth, and childhood obesity and no change in fruit and vegetable consumption and diabetes control (Koh, 2014).

## Health Issues of College Students

About 16 million people attend U.S. colleges and universities. About half are “traditional” students, those who enrolled in college directly from high school; others are “nontraditional students,” those who enrolled in college after having devoted months or years to working, military service, traveling, and/or raising a family. A variety of health issues can affect college students’ academic performance (**Table 1.3**). Some typical health issues for college students include the following:

**Mental health.** Students are exposed to a variety of stressors and pressures that can impair their mental health. Academic overload, tests, and competition can create feelings of insecurity, anxiety, inferiority, and depression. Traditional students may be lonely and have difficulty adjusting to early adulthood. Nontraditional students may feel isolated and without social support. Stress can impair sleep and lead to depression.

**Food and weight.** Time pressures and the easy availability of junk food induce many students to consume lots of sugar (candy, sodas) and fat (fast food) and insufficient amounts of fruits and vegetables. Students may use food to cope with stress and uncomfortable emotions. Many students are overly concerned about their body size and shape to meet social expectations of attractiveness, causing some

**Table 1.3****Health Impediments to Academic Performance Reported by American College Students**

Health Issue	Percentage Reporting
Stress	34
Sleep difficulties	21
Anxiety	24
Cold/flu/sore throat	16
Depression	17
Upper respiratory infection	6
Alcohol use	4
Allergies	3

Data from American College Health Association (2017). *American College Health Association-National College Health Assessment II: Reference Group Undergraduates Executive Summary Spring 2017*. Retrieved from: [http://www.acha-ncha.org/docs/ACHA-NCHA-II\\_spring\\_2017\\_Reference\\_Group\\_Executive\\_summary.pdf](http://www.acha-ncha.org/docs/ACHA-NCHA-II_spring_2017_Reference_Group_Executive_summary.pdf).

to develop eating disorders. Many college students are among the two-thirds of North American adults who are overweight. Thus, weight control is an issue for many students.

**Health care.** A large proportion of U.S. college students has limited access to health care because their colleges do not have comprehensive services and they are without health insurance.

**Substance use and abuse.** Many students use tobacco, alcohol, and other drugs to cope with stress and unpleasant feelings or to fit in socially. Alcohol abuse is related to sexual assault and date rape, unintended pregnancies (from not using contraceptives properly or at all), and acquiring an STD (from not practicing safer sex).

**Sexual and relationship health.** Sexually active students of any age are at risk for acquiring an STD, becoming unintentionally pregnant, or becoming involved in sexual assault, especially acquaintance or date rape. Sexual activity to relieve academic stress, increase self-esteem, gain peer acceptance, or relieve loneliness can be mentally and spiritually damaging. Married students may find that the time and energy demands of college work create stress in their marital relationships.

**Accidents and injuries.** Many students commute to school, often rushing to and from work and home, and hence are at risk for automobile accidents. Alcohol-using students are at risk for auto and other kinds of accidents. Athletically active students are at risk for sports injuries.

Also, a variety of environmental and social forces present barriers to healthful living. For example, someone may want to become more physically active to manage stress or weight and to reduce the risks of heart disease and cancer. However, that person may live in a car-dependent community where work, school, and services are located miles apart and where there are no sidewalks, bike lanes, or nearby parks.

## Making Healthy Lifestyle Changes

A major assumption of health education is that nearly everyone has a basic desire to be healthy and well but that many people acquire habits of thought and behavior that may make them less well rather than more. One goal of health education, therefore, is to provide knowledge and information so individuals can develop healthful attitudes and skills. With healthful attitudes and skills, it is reasoned, people will adopt healthy behaviors because they naturally want to do what is best for themselves.

It is said that knowledge is power, but with regard to living healthfully, that isn't always the case. Almost everyone knows that smoking cigarettes, driving after drinking alcohol, and eating junk food are unhealthy, but many people do those things anyway. Simply knowing what to do is no guarantee that a person will do it.

One must act. Living healthfully requires action based on accurate knowledge. Action has the components of goals, strategies for attaining goals including managing obstacles, and expectations of whether you will be successful (called outcome expectancies).

**Goals** A goal can be something you want or something you want to prevent or avoid. There are short-term goals ("I want to get a good night's sleep") and long-term goals ("I want to get my degree"). Goals can be clearly defined ("I'm going to study this Friday night instead of partying") or fuzzy ("I want to do better at school").

Goals reflect a person's or a culture's values, which are beliefs about what is important. Two values that affect health are valuing oneself (**self-esteem**) and valuing the physical and social environments in which one lives. When you value yourself, you are more likely to engage in healthful behaviors and have a high degree of psychological well-being (Adler & Stewart, 2004). When you value your physical and social environments, you are more likely to contribute to making them clean, healthy, and supportive, that is, to be helpful to others in attaining their goals.

**Strategies for Action** Strategies involve your ability to generate plans for attaining your goals and your attitudes about your ability to carry out those plans.

If you find yourself in a hole, stop digging.

*Will Rogers*

### TERMS

**Foundation Health Status:** seven categories of health goals that represent the major public health concerns in the United States

**Leading Health Indicators (LHIs):** a set of high-priority Healthy People 2020 objectives and ways to achieve them

**self-esteem:** the judgment one places on one's self-worth

Generating plans involves research, critical thinking, and creativity. You want to seek the knowledge and experiences of others, and you want to evaluate it critically to be sure it is authoritative and authentic. For example, when using the Internet to obtain health information, you must determine the authoritativeness of the source of the information and ask yourself in whose interest is this information posted on the Web, yours or parties who want you to act on their behalf, such as advertisers and sellers of products. The creative aspect of planning involves generating a variety of possible paths (brainstorming) and evaluating the ones with the greatest likelihood for success.

Besides planning what to do, people assess whether they can carry out the actions required to accomplish a goal. This belief is called **self-efficacy**. Self-efficacy is associated with confident, encouraging inner self-talk, such as “I can do it,” and “I won’t give up.”

Slogans like “Just do it,” although seemingly encouraging self-efficacy, can undermine it because they ignore the fact that not every goal is realistic or attainable and no one can do everything no matter how hard he or she tries. Generating false hopes to accomplish the impossible damages one’s sense of self-efficacy and self-esteem.

**Agency** is the belief that one can influence the nature and quality of one’s life, rather than believing that one’s fate is determined by reacting to circumstances not in one’s control. People exhibit agency when they develop intentions and motivations for manifesting them, act on their own behalf in accordance with their values and goals, and evaluate the consequences of their actions in terms of their original goals and strategies. Agency means acknowledging that obstacles to accomplishing one’s goals are ever present, and thus not a cause to become stressed. In the face of obstacles, one is flexible and is willing to change goals and strategies that are not working rather than letting discouragement engender defeat. Repeated success at accomplishing goals leads to confidence and vitality rather than insecurity and passivity. It also leads to strengthening hope, the general expectation that one will experience good outcomes in life.

**Expectations for Success** People pursue goals with expectations about the outcomes of their efforts.

**Optimism**—imagining a high probability of attaining your goal—motivates, whereas **pessimism**—imagining a low probability of attaining your goal—stifles. Optimism is associated with perceiving negative events as specific, temporary obstacles to be overcome, whereas pessimism is associated with explaining negative events as self-caused (it’s my fault), stable (it will last forever), and global (it’s going to ruin everything). A pessimistic explanatory style is associated with a greater degree of illness and a shorter life expectancy (Rasmussen, 2009) because pessimists are more likely (1) to be anxious and depressed, (2) to believe that living healthfully or getting

help from others when ill won’t make things better, and (3) to experience a state of chronic stress and its negative physiological and immune consequences.

Optimism also is associated with the tendency to perceive oneself as being able to move toward a desired goal and/or away from an undesirable goal. Optimism is associated with inner self-talk that is encouraging and hopeful (“I’ll find a way to solve this problem”). On the other hand, the self-talk associated with pessimism is anxious (“I’m not sure what to do”; “I’m not sure it will work out”) and self-critical (“I’m inept”). Optimism has been shown to be associated with successfully confronting health problems, lessening the risk of developing coronary heart disease and stroke, due to the adoption of healthy lifestyles, and greater ability to handle stress (Carver & Scheier, 2014).

One reason people resist making healthy lifestyle changes is that an unhealthy attitude or behavior is rewarding in some way, even if it is harmful in some other way (e.g., smoking cigarettes to relieve stress). To change a health behavior, a person must believe that the benefits of change outweigh the costs and that she or he is capable of making the desired change. Rituals such as New Year’s resolutions and slogans such as “Just do it” offer unrealistic models of how habits are changed. Desire and willpower alone are insufficient; research, planning, and enlisting social support are required as well. Following are three models that describe the process of health behavior change.

### The Health Belief Model

The Health Belief Model (HBM) was originally developed as a systematic method to explain and predict preventive health behavior, but it has been revised to include general health motivation for the purpose of distinguishing illness and sick-role behavior from healthy behavior. Key aspects of the model are described as follows:

- **Perceived susceptibility.** Each individual has his or her own perception of the likelihood of experiencing a condition that would adversely affect his or her health. Individuals vary widely in their perception of susceptibility to a disease or condition. Some deny the possibility of contracting an adverse condition. Others admit to a statistical possibility of disease susceptibility. And still others believe there is real danger that they will experience an adverse condition or contract a given disease.
- **Perceived seriousness.** Perceived seriousness refers to the beliefs a person holds concerning the effects of a given disease or condition on his or her life. These effects can be considered from the point of view of the differences that a disease would create—for instance, pain and discomfort, loss of work time, financial burdens, difficulties with family, problems with relationships, and susceptibility to future conditions. It is important to include these emotional and financial



burdens when considering the seriousness of a disease or condition.

- **Perceived benefits of taking action.** Taking action toward the prevention of disease or toward dealing with an illness is the next step after an individual has accepted the susceptibility to a disease and recognized its seriousness. The action a person chooses will be influenced by his or her beliefs regarding the benefits of the action, particularly if they outweigh the perceived costs.
- **Barriers to taking action.** Action may not take place even though an individual believes that the benefits to taking action are significant. This may be because of barriers, which can include inconvenience, cost, unpleasantness, pain, or upset. These characteristics may lead a person away from taking the desired action.
- **Cues to action.** An individual's perception of the levels of susceptibility and seriousness provides the force to act. Benefits, minus barriers, provide the path of action. However, "cues to action" may be required for the desired behavior to occur. These cues to action may be internal or external. An internal cue can be a sign, symptom, or feeling interpreted by someone as a health issue that needs attention, for example, noticing that one's clothes are too tight or that it's harder to walk up stairs. An external cue is a message or suggestion from someone such as a healthcare provider or a family member that it's a good idea to participate in some health-related behavior. Examples of external cues to action include a reminder email from a doctor to get screened for a disease or a friend or family member getting sick ("That could happen to me").

### The Transtheoretical Model

One of the most influential models of health behavior change is the Transtheoretical Model, or Process of Change Model (Prochaska, DiClemente, & Norcross, 1992). This model recognizes that change occurs through the following stages:

- **Precontemplation.** The person is not considering changing a particular behavior in the foreseeable future. Many individuals in this stage are unaware or underaware of their problems. Information is important during this stage.
- **Contemplation.** The person becomes aware that change is desirable but has not committed to act. The person often focuses on why it would be difficult to change. Information on options on how to change the behavior can be helpful during this stage.
- **Preparation.** The person desires change and commits to making that change in the near future, usually within the next 30 days. Instead of thinking why he or she can't take action, the focus is on what can be done to begin. The person creates a realistic plan for making a change, including overcoming obstacles. This stage may include announcing the change to friends and family, researching how to make the

change, making a calendar, or setting up a diary or journal to record progress and obstacles to progress.

- **Action.** The person implements the plan. The old behavior and the environmental situations that reinforced that behavior are stopped and new behaviors and environmental supports are adopted. Obstacles are expected and noted, and strategies for overcoming them are implemented. Progress through this stage may take six months or more.
- **Maintenance.** The person strengthens the change, recognizing that lapses and even temptations to give up will occur. "Ebb and flow" are to be expected and are not to be seen as failures. The person can remind himself or herself of the many benefits of and gains from the behavior change to help combat relapse.
- **Termination.** The person is not tempted to return to the previous behavior.

### The Theory of Reasoned Action/Theory of Planned Behavior

The Theory of Reasoned Action/Theory of Planned Behavior posits that changing a health behavior begins with an intention to adopt a new behavior (e.g., stop smoking). The intention is a combination of a positive attitude about performing the behavior (e.g., "not smoking is good") and the person's thoughts about how others will respond to the behavior (e.g., "my girlfriend will be happy if I stop"). Furthermore, change is affected by the person's perceptions of how much control he or she has over successfully bringing about the desired change (e.g., "I can do this if I get some support").

### A Healthy Lifestyle Starts with You

Being healthy and well starts with you. The medical care system—doctors and other medical providers, pharmaceutical companies, hospitals, clinics, insurance companies, and to some degree the government—can help you when you are sick. However, only you can make life goals to be healthy and well; to take responsibility for the ways that your thoughts, feelings, and behaviors affect your life; to care for rather than harm yourself; to choose

#### TERMS

**agency:** the belief that one can influence the nature and quality of one's life, rather than believing that one's fate is determined by reacting to circumstances not in one's control

**optimism:** the thought process of imagining a high probability of attaining a goal

**pessimism:** the thought process of imagining a low probability of attaining a goal

**self-efficacy:** the belief that one can carry out the actions required to accomplish a goal



## Chronic Diseases in Rich and Poor Countries: The Causes Differ

Chronic diseases are the leading causes of death throughout the world. Besides causing death, chronic diseases reduce the quality of life of affected individuals, often for many years. Four chronic diseases—heart disease, cancer, respiratory disease, and type 2 diabetes—account for over 40 million deaths per year worldwide (World Health Organization, 2017). By 2025, the number of deaths worldwide from those four chronic diseases is expected to increase to nearly 50 million annually.

In economically developed countries, such as Japan, the United States, Australia, and most of Europe, nearly 50% of the chronic disease burden is associated with five risk factors: tobacco use, high blood pressure, alcohol use, high cholesterol, and overweight (Table 1.4). On the other hand, in the least economically developed countries, deaths from chronic disease result from different risk factors: underweight, unsafe sex (causing HIV/AIDS), unsafe water and sanitation, and indoor smoke from cooking. As poor countries develop economically, the risk factors for chronic disease resemble those of developed countries.

Recognizing that heart disease, cancer, respiratory disease, and type 2 diabetes are largely preventable, international health organizations are searching for ways to stem the rising tide of chronic disease in developing countries. Not only is

there a desire to offer people an improved quality of life but also there is the recognition that economic development is slowed or stalled when a country carries a large burden of disease. The more a poor country's meager financial resources are used to deal with an increasing number of people with chronic diseases, the less money there is to build schools, roads, electricity-generating plants, and other infrastructure. To the degree that disease retards economic advancement, it contributes to poverty and its discontents, including terrorism born of frustration.

To reduce the burden of chronic disease in developing countries, individuals must be encouraged and taught how to live more healthfully. Moreover, governments will need to regulate transnational economic activities that can negatively affect the public health. For example, to limit the damage caused by tobacco smoking, in 2003, the World Health Organization sponsored the Framework Treaty on Tobacco Control, agreed to by 168 countries, which includes a comprehensive ban on all tobacco advertising, promotion, and sponsorship; elimination of illicit trade in tobacco products; banning of tobacco sales to and by minors; agricultural diversification and the promotion of alternative livelihoods; and an increase in taxes on tobacco products to discourage consumption. Similar efforts will be required to limit consumption of sugar, fat, and cholesterol and thereby reduce the burdens of heart disease, high blood pressure, type 2 diabetes, and overweight (Yach et al., 2004).

**Table 1.4**

### Percentage of Deaths from Chronic Disease Risk Factors in Developed and Developing Countries

Risk factor	Developed countries (1.4 billion people)	Developing countries (2.4 billion people)	Least developed countries (2.3 billion people)
Tobacco use	12.2	4.0	2.0
High blood pressure	10.9	5.0	2.5
Alcohol use	9.2	6.2	***
High cholesterol	7.6	2.1	1.9
Overweight	7.4	2.7	***
Low fruit and vegetable consumption	3.9	1.9	***
Physical inactivity	3.3	***	***
Underweight	***	3.1	14.9
Unsafe water, sanitation, hygiene	***	1.7	5.5
Unsafe sex	10.2	***	0.8
Indoor smoke	***	1.9	3.9

Developed countries include the United States, Japan, and Australia.

Developing countries include China, Brazil, and Thailand.

Least developed countries include India, Mali, and Nigeria.

\*\*\*Indicates a low percentage of deaths.

Adapted from D. Yach et al. (2004). The global burden of chronic disease. *Journal of the American Medical Association*, 291, 2616–2622.

to learn and adopt health-promoting behaviors; and to contribute to the development and maintenance of a health-promoting society.

Scientists at the University of California at Berkeley undertook a multiyear study to determine, among other things, behaviors that contribute to health and longevity. Their findings include the following:

- No smoking
- Getting 7 to 8 hours of sleep per night
- Maintaining body weight not less than 10% and not more than 30% of recommended for height and body frame
- Regular exercise
- Little or no alcohol consumption
- Eating breakfast regularly
- Little between-meal snacking

Analyzing data from nearly 17,000 Americans, scientists at the U.S. Centers for Disease Control and Prevention determined that certain lifestyle practices can reduce the risk of chronic diseases and death (Ford et al., 2009; Ford et al., 2011). These practices include not smoking, maintaining body weight (body mass index of 30 or less), performing about 3.5 hours of physical activity per week (30 to 45 minutes per day), and consuming a diet containing at least five servings of fruits and vegetables per day, whole-grain bread, little meat, and zero to low consumption of alcohol, salt, and junk food. Unfortunately, fewer than 6% Americans engage in all of these lifestyle practices; 10% engage in none. The trend in the United States over the past 20 years has been toward living less healthfully rather than more.

It is clear from many kinds of health research that each one of us needs to do more to maintain and improve our health. When one is young, thinking about



### Reduce Stress When Sitting in Front of a Computer

If you sit at a computer for more than 30 minutes at a time, remember to stand up and stretch the muscles of your neck, shoulders, and back. Do stretches for at least 5 minutes to avoid headaches, fatigue, and muscle cramps. Studies show that virtually everyone raises and hunches their shoulders as soon as they sit down at a computer. About one-third start breathing shallowly. The American Institute of Stress recommends practicing slow, deep breathing while using a computer.

health is the last thing one is interested in doing. We (the authors) certainly did not worry about our health when we were teenagers or even in college. Moreover, 50 years ago, eating as much meat as you could afford, smoking cigarettes, and getting drunk were generally accepted behaviors. When you are 20 years old, thinking about being 60 or 70 years old is unimaginable. Unlike 50 years ago, we now know that protecting health is something that has to begin while you are young. Making lifestyle changes when you already are old (and presumably wiser) is mostly too late.

Health is similar to retirement: It is something you have to plan for and pay attention to while you are young. For example, putting away just a few dollars every month adds up to an enormous sum in 50 years, but most of us never think about doing it. The same holds true for health. Making small, positive changes in your health and lifestyle now will pay enormous dividends in the future.

## Critical Thinking About Health

1. As pointed out in this chapter, the major health issues of college students are sexual health, mental health, substance abuse, weight, accidents and injuries, and health care. Discuss which of these issues is of most concern to you personally. Explain your reasons and worries. How can you deal with your concerns in a way that will improve your health?
2. Describe one lifestyle behavior you routinely engage in that you regard as harmful to your health (smoking, for example). Discuss your reasons for continuing to engage in this unhealthy behavior. Consider what you might do to change this behavior and list the steps you would take to accomplish the healthy change. Do you believe that you can make the healthy change?
3. What is the significance to American society of the data in Figure 1.1?
4. Imagine that you are the Surgeon General of the United States, who formulates national health policy. (A former surgeon general, C. Everett Koop, formulated the crusade against tobacco smoking a generation ago.) Describe what you believe is the primary health problem in the United States today. Justify your choice with as many facts as you can. Describe the steps you believe should be taken by government, private companies, organizations, and individuals to eradicate this health problem.

## Chapter Summary and Highlights

### Chapter Summary

The word *health* can have many meanings. For some, being healthy simply means not being sick. For others, physical health and strength matter most, and emotional and mental health are of lesser concern. For others, emotional and spiritual well-being are paramount. If you are concerned with *all* aspects of your health, you think of health holistically. A holistic approach to health means that you strive for physical, mental, emotional, and spiritual well-being. You also try to live in harmony with your environment and with friends, family, and society.

Many people born in the past 20 years will live to 100 years of age or more. Adopting healthy lifestyles while young will help ensure a healthy old age. Most people are born healthy but become unwell because of unhealthy lifestyles. Chronic diseases such as heart disease, cancer, diabetes, and others are primarily due to unhealthy lifestyle choices such as smoking tobacco, drinking alcohol to excess, overeating and becoming overweight, and a lack of regular physical exercise. Maintaining a healthy body and mind will help you recover from occasional sickness and injuries that are inevitable parts of life.

The path to physical, mental, emotional, and spiritual health is to set health goals for yourself beginning now. Adopt healthy habits that feel right for you. Perhaps the most important word to remember in striving for a healthy lifestyle is *moderation*. Eat when hungry and do not eat more once you are full. Refrain from

mindless snacking when bored or while engaged in sedentary recreational activities (watching TV, playing video games, using social media). Make movement a part of your daily life. Walk more, use stairs instead of elevators, ride a bike, dance, or do yoga. And be sure to take time to quiet your mind, especially when you are angry, stressed, or upset.

Health does not come from outside ourselves. The key to a healthy life has always been self-responsibility. Doctors, hospitals, drugs, and government rules cannot make you healthy. They can help prevent illness and injuries and often restore body and brain to a semblance of normal functioning. But you are always the one responsible for your moment-to-moment, day-to-day health.

### Highlights

- Health is not only the absence of disease but also living in harmony with oneself, friends and relatives, and social and physical environments.
- Health means being responsible for preventing personal illness and injuries as well as knowing when to seek medical help.
- Three models used to describe health are medical, environmental, and holistic, or wellness.
- A holistic approach to health emphasizes prevention of disease and injury and self-responsibility for nutrition, exercise, and other aspects of lifestyle that promote wellness.
- The dimensions of wellness are emotional, intellectual, spiritual, occupational, social, and physical.

- Many illnesses (e.g., diabetes, heart disease, cancer) are “lifestyle diseases,” that is, primarily attributable to unhealthy living habits. Taking responsibility for your health while you are young is the best way to reduce the risk of chronic disease later in life.
- Unhealthy lifestyles and behaviors are responsible for half of all deaths in the United States each year.
- Healthy People 2020 is a set of national health objectives characterized by enhancing the quality of life, reducing the incidence of preventable diseases and premature deaths, and reducing disparity in health status among different demographic groups.
- Changing health behaviors requires knowledge, planning, and social support.

## For Your Health

Determine your level of wellness by completing the Health and Wellness Assessment (Exercise 1.1) in the

workbook. Do the other exercises for Chapter 1 to examine other aspects of your health.

## References

- Adler, N., & Stewart, J. (2004). Self-esteem. John D. and Catherine T. MacArthur Research Network on Socioeconomic Status and Health. Retrieved June 7, 2005, from <http://www.macses.ucsf.edu/Research/Psychosocial/notebook/selfesteem.html>
- American Diabetes Association. (2013). Prevention. Retrieved from <http://www.diabetes.org/diabetes-basics/prevention/>
- Carver, C. S., & Scheier, M. F. (2014). Dispositional optimism. *Trends in Cognitive Science*, 18, 293–399.
- Centers for Disease Control and Prevention. (2017a). Chronic disease overview. Retrieved from <https://www.cdc.gov/chronicdisease/overview/>
- Centers for Disease Control and Prevention. (2017b). National Diabetes Prevention Program. Retrieved from <https://www.cdc.gov/diabetes/prevention/index.html>
- Ford, E. S., et al. (2011). Low-risk behaviors and all-cause mortality: Findings from the National Health and Nutrition Examination Survey III Mortality Study. *American Journal of Public Health*, 101(10), 1922–1929.
- Ford, E. S., et al. (2009). Healthy living is the best revenge. *Archives of Internal Medicine*, 169, 1355–1362.
- Healthy People.gov. (2017). Healthy People 2020. Retrieved from <http://www.healthypeople.gov>
- Katz, M. H. (2009). Structural interventions for addressing chronic health problems. *Journal of the American Medical Association*, 302, 683–685.
- Koh, H. K. (2014). Healthy People 2020: A report card on the health of the nation. *Journal of the American Medical Association*, 311, 2475–2476.
- Mello, M. M., & Rosenthal, M. B. (2008). Wellness programs and lifestyle discrimination: The legal limits. *New England Journal of Medicine*, 359, 192–199.
- Prochaska, J. O., DiClemente, C. C., & Norcross, J. C. (1992). In search of how people change. *American Psychologist*, 47, 1102–1104.
- Rasmussen, H. N. (2009). Optimism and physical health: A meta-analytic review. *Annals of Behavioral Medicine*, 37, 239–256.
- Seppa, N. (2013, February 9). Urban eyes, *Science News*, 22.
- Williams, J. F. (1939). *Personal hygiene applied*. Philadelphia: W. B. Saunders.
- Wolf, S. H., & Aron, L. Y. (Eds.). (2013). *U.S. Health in International Perspective: Shorter Lives, Poorer Health*. Washington, DC: National Academies Press.
- World Health Organization. (2011). Global status report on noncommunicable diseases. Retrieved June 6, 2011, from [http://www.who.int/chp/ncd\\_global\\_status\\_report/en/index.html](http://www.who.int/chp/ncd_global_status_report/en/index.html)
- Yach, D., et al. (2004). The global burden of chronic diseases. *Journal of the American Medical Association*, 291, 2616–2622.

## Suggested Readings

- American Public Health Association. (2012). Public Health and Chronic Disease. Retrieved from [http://www.apha.org/NR/rdonlyres/9A621245-FFB6-465F-8695-BD783EF2E040/0/ChronicDiseaseFact\\_FINAL.pdf](http://www.apha.org/NR/rdonlyres/9A621245-FFB6-465F-8695-BD783EF2E040/0/ChronicDiseaseFact_FINAL.pdf). In 2010, the five most costly and preventable chronic conditions cost the United States nearly \$347 billion—30% of total health spending.
- Barondess, J. A. (2005). On the preservation of health. *Journal of the American Medical Association*, 294, 3024–3026. Presents the idea that health is best maintained by adopting healthy living habits early in life and practicing them consistently as one grows older.
- Breslow, L. (1999). From disease prevention to health promotion. *Journal of the American Medical Association*, 281, 1030–1033. Discusses why health promotion is more important than disease prevention.
- Centers for Disease Control and Prevention. (1999). Achievements in public health, 1900–1999: Control of infectious diseases. *Morbidity and Mortality Weekly Report*, 48, 621–629. Discusses the massive decline in deaths from infectious diseases in the United States during the twentieth century.
- Cohen, J. T., et al. (2008). Does preventive care save money? *New England Journal of Medicine*, 358, 661–663. Quantifies the costs savings of many preventive health measures (e.g., smoking relapse, screening all 65-year-olds for diabetes).
- Fineberg, H. V. (2013). The paradox of disease prevention: Celebrated in principle, resisted in practice. *Journal of the American Medical Association*, 310, 85–90. Identifies 12 obstacles in medical practice to preventing illness and disease and 6 strategies to overcome these obstacles.
- King, D. E., et al. (2007). Turning back the clock: Adopting a healthy lifestyle in middle age. *American Journal of Medicine*, 120, 598–603. Shows that middle-aged Americans who newly adopt four healthy behaviors (consuming five or more servings of fruits and vegetables per day, exercising regularly, maintaining a normal body weight, and not smoking cigarettes) are healthier and live longer than those who do not.

## Recommended Websites

### American Holistic Health Association

Information on healthy lifestyle choices and enhancing your level of wellness.

### Healthy People 2020 Goals

The U.S. government's national health objectives, which are designed to identify the most significant preventable threats to health and to establish national goals to reduce these health risks.

### The Mayo Clinic

This site carries authoritative information on a variety of health topics.

### MedlinePlus

The U.S. National Library of Medicine offers information and education on more than 600 health topics.

### National Center for Health Statistics

Data on all aspects of health and disease in the United States, from the Centers for Disease Control and Prevention.

### The Partnership to Fight Chronic Disease

A national coalition of patients, healthcare providers, community organizations, business and labor groups, and health policy experts committed to raising awareness of the number one cause of death, disability, and rising healthcare costs in the United States: rising rates of preventable and treatable chronic diseases.

### World Health Organization Global Health Atlas

Standardized data and statistics for infectious diseases at country, regional, and global levels supported through information on demography, socioeconomic conditions, and environmental factors. Data can be accessed in the form of reports, charts, and interactive maps.