

Diversity in Health
Minority Health Status in the United States



Consumer Health
Consumer Protection



Managing Your Health
Routine Health Care for Disease Prevention



Across the Life Span
Health



Chapter Overview

How the dimensions of health influence your well-being

The major health concerns of our nation

How your decisions affect your health

How to analyze health-related information

The differences between conventional and alternative treatment methods

Student Workbook

Self-Assessment: Healthstyle | Personal Health History

Changing Health Habits: Model Activity for Better Health

Do You Know?

How your lifestyle affects your health?

How to make responsible health-related decisions?

How to analyze health-related information?

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CHAPTER 1



Health: The Foundation for Life

Learning Objectives

After studying this chapter, you should be able to:

1. Identify trends in United States population health.
2. Describe the impact of lifestyle choices on one's health.
3. Discuss different perspectives on health and wellness.
4. Describe the six components of health and discuss how each component affects one's health.
5. Identify major causes of death for members of various age groups.
6. Explain why Americans' life expectancy increased dramatically during the 20th century
7. Identify the purpose and four main goals of *Healthy People 2020*.
8. Describe factors that influence health behavior and health behavior change.
9. Describe the steps of the decision-making model and the stages of behavior change model.
10. Explain how to analyze health information and assess information on the Internet.
11. Differentiate between conventional and complementary and alternative medicine.
12. Describe how to choose a conventional medical practitioner.

"A higher percentage of American adults report exercising during their leisure time. . ."

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life expectancy The average number of years that an individual of a particular age can expect to live.

lifestyle A way of living, including behaviors that promote or impair good health and longevity.

risk factor A characteristic that increases an individual's chances of developing a health problem.

In the United States, there are some encouraging signs that more people are concerned about improving and protecting their health than in the past. A higher percentage of American adults met physical activity guidelines for aerobic physical activity (i.e., at least 150 minutes or more a week) in 2011 than in previous years.[1] In 1995, 71% of adults reported that their blood cholesterol level had been checked. By 2013, that percentage had increased to 79.2% of adults.[2] Between 1988 and 2008, the percentage of Americans wearing seat belts while riding in motor vehicles increased dramatically.[3] In some respects, Americans have also improved their eating habits. Between 2005 and 2010, on average adolescents consumed more than 16% of their total calories from added sugar, slightly above the recommended 15%. Most adults aged 20 or older, however, met recommended sugar consumption guidelines. In addition, Americans are consuming more calcium and more dietary fiber.[4,5] In 2009, fewer Americans died of cancer than in 1999.[6] Finally, Americans are living longer than in the 1980s. **Life expectancy** is the average number of years that an individual of a particular age can expect to live. In 1990, the life expectancy of an infant in the United States was 75.4 years.[7] By 2010, Americans' life expectancy at birth had increased to 76 years for males and 81 years for females.[7]

Other findings about Americans' current health status and health-related behaviors, however, are less encouraging. Although the overall rate of cigarette smoking has decreased slightly, consumption of cigars and loose-leaf tobacco (e.g., pipe tobacco) increased from 2000 to 2011. The greatest increase in loose-leaf tobacco consumption occurred after the federal tobacco excise tax increased in 2009, making cigarettes more expensive than loose-leaf tobacco.[8] Additionally, alcohol abuse is a widespread behavior, particularly among young people. Tobacco use remains the leading cause of preventable illness and death in the United States. In 2009, adults smoked fewer cigarettes than in 1985, but about 18% of Americans who were 18 years of age and older smoked cigarettes.[8] U.S. public health officials are also concerned about Americans who use alcohol irresponsibly. In 2011, excessive alcohol consumption was the third leading cause of preventable deaths in the United States, including traffic-related fatalities.[9] Approximately 17% of adult Americans reported binge drinking in 2011[10] and 25% of high school students reported that they engaged in *binge drinking* in 2011.[11] Binge drinking is defined as consuming five or more alcoholic drinks per occasion (males) and four or more drinks per occasion (females). Americans who are 18 to 24 years of age are more likely to binge drink than other members of the population. According to results of one study, about one in four college students indicated that their drinking behaviors contributed to serious academic problems, including missing classes, performing poorly on exams, and lowering their grade point averages.[12] The typical American does not meet the federal government's recommendations concerning healthy food choices. The majority of the U.S. population does not eat enough vegetables, whole grains, fruits, milk, and oils ("healthy" fats).[13] An important sign of Americans' poor nutritional practices is the high prevalence of *obesity* in the United States. Between 1988 and 1994, 10% of children[14] and almost 23% of adults[14] were obese. By 2010, 17% of American children and more than 36% of American adults were obese.[15] Between 1994 and 2008, the prevalence of obesity increased dramatically among all groups of Americans regardless of their age, sex, race, ethnicity, socioeconomic status, region of the country, and educational level. Excess body fat is associated with the development of many serious diseases, including high blood pressure, heart disease, certain cancers, and *type 2 diabetes*, a serious disorder characterized by the body's inability to regulate blood sugar normally.

Although Americans are living longer than in the past, living longer is not always a sign that people are living *better*. Many older adults suffer from conditions that reduce their ability to enjoy life and perform important daily activities such as bathing and dressing. Heart disease, stroke, cancer, Alzheimer's disease, impaired vision, hearing loss, osteoporosis, and depression create much misery not only for millions of older adults but also for the family members who struggle to care for their disabled relatives.

The results of many studies show that exercising regularly, eating a more nutritious diet, and avoiding smoking and excess alcohol consumption promote good health. Incorporating these and other healthy habits into your *lifestyle*, while you are still young,

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can improve your health and well-being and increase your chances of living a longer and healthier life than your parents and grandparents.

Lifestyle is a way of living. As a college student, your lifestyle includes a variety of behaviors that promote or impair good health and longevity. Although you may be unable to prevent severe birth defects or inherited disorders from affecting your health, you can modify many health *risk factors*, reducing the likelihood that you will develop serious medical problems. A **risk factor** is a characteristic that increases an individual's chances of developing a health problem. For example, physical inactivity, tobacco use, emotional stress, and obesity are risk factors for heart disease, *hypertension* (persistent high blood pressure), and certain types of cancers. You can dramatically lower your chances of developing these conditions by incorporating exercise into your daily schedule, choosing not to use tobacco products, practicing relaxation techniques, and eating a more nutritious diet.

Are you concerned about your health? What are you doing to protect it? What steps can you take to enhance your state of health so that you can enjoy life more fully? Where can you find reliable information concerning health? This text presents findings from current scientific research for you to use in making choices that will improve your health.

The Dimensions of Health

What Is Health?

Most people can describe how it feels to be healthy or ill, but trying to define *health* is not an easy task. In 1948, the World Health Organization (WHO) constitution defined health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity."[16] Some, however, consider this definition too limited and suggest health cannot be a state because our health is ever changing. Consider the people in ***Figure 1.1***. Although they are in wheelchairs, they are able to compete as athletes. If you judged their state of health using WHO's 1948 definition, you might conclude that they are unhealthy. Many physically disabled people are able to function adequately in society and do not consider themselves ill or infirm.

The Ottawa Charter for Health Promotion defines *health* as "a resource for everyday life . . . a positive concept emphasizing social and personal resources, as well as physical capabilities."[17] According to this charter, health requires "peace, shelter, education, food, income, a stable ecosystem, sustainable resources, social justice and equity." In addition to these conditions, most healthy adults want to



Figure 1.1

Wheelchair Athletes. Many physically disabled people do not consider themselves ill or infirm because they can function well in society. According to Hochbaum's definition of health, individuals with physical disabilities can be healthy and enjoy life.

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good health The ability to function adequately and independently in a constantly changing environment.

optimal wellness A sense that one is functioning at his or her best level.

holistic (hole-IS-tic) A characteristic involving all aspects of the person.

signs Observable and measurable features of an illness.

symptoms Subjective complaints of illness.

acute A condition or illness that tends to develop quickly and resolve within a few days or weeks.

chronic A condition or disease that often takes months or years to develop, progresses in severity, and can affect a person over a long period.

function independently; enjoy eating, sexual, and physical activities; feel good about themselves; and enjoy being with family and friends.

Behavioral scientist Godfrey Hochbaum proposed a simple definition for health: "Health is what helps me be what I want to be . . . do what I want to do . . . [and] live the way I would like to live."[18] Using Hochbaum's definition, you might conclude that the wheelchair-bound athletes in ***Figure 1.1*** are as healthy as people who are capable of running. In this text, we use concepts from all of these perspectives and define *health* as "a dynamic state or condition of the human organism that is multidimensional (i.e., physical, emotional, social, intellectual, spiritual, and occupational) in nature, a resource for living, and results from a person's interactions with an adaptations to his or her environment".[19]

Health and Wellness

Health and wellness are related concepts. **Good health** enables one to function adequately and independently in a constantly changing environment; **optimal wellness** is a sense that one is functioning at one's best level. ***Figure 1.2*** illustrates the concept of health as a continuum; there are degrees of health. The absence of functioning (premature death) is at one end of this continuum, and the highest level of functioning (optimal well-being) is at the other end. Many people accept responsibility for the quality of their health and well-being. These people are willing to take various steps to improve their health, achieving a higher degree of wellness in the process.

Most health educators agree that health and wellness are **holistic**; that is, they involve all aspects of the individual. Thus, the holistic concept of health encompasses not only the physical, psychological, and social aspects but also the intellectual, spiritual, and environmental dimensions of a person. Each dimension is an integral part of a person's health, and any change in the quality of one component of health affects the others. For example, individuals who exercise with others to increase their level of physical health often report a sense of improved psychological and social health.

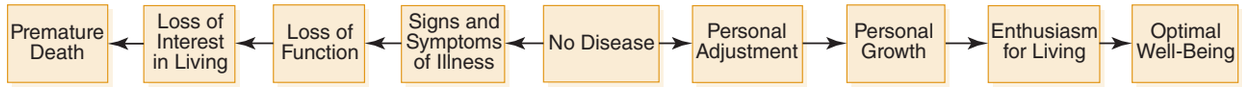
The Components of Health

Physical Health *Physical health* refers to the overall condition of the organ systems, such as the cardiovascular system (heart and blood vessels), respiratory system (lungs), reproductive system, and nervous system. A healthy person's systems function properly; the individual feels well and is free of disease. When organs do not function adequately, a person has various signs and symptoms of illness. **Signs** are the observable and measurable features of an illness, such as fever, rash, and abnormal behavior. **Symptoms** are the subjective complaints of an illness, such as reports of fatigue, headaches, and numbness. An **acute** condition or illness, such as the common cold or a food-borne infection, tends to develop quickly and resolve within a few days or weeks. A **chronic** condition or disease often takes months or years to

Figure 1.2

A Health Continuum. Some people view health as a continuum; that is, there are degrees of health. Premature death is at one end of this continuum, and optimal well-being is at the other end.

Modified from Ebersole, P., & Hess, P. (1994). *Toward Healthy Aging* (4th ed.). St. Louis: Mosby. Copyright © 1994 with permission from Elsevier.



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develop, progresses in severity, and can affect a person over a longer period, in some cases, throughout his or her lifetime.

Psychological Health Psychological (mental) health involves the ability to deal effectively with the psychological challenges of life. Psychologically healthy people accept responsibility for their behavior, feel good about themselves and others, are comfortable with their emotions (feelings), and have positive, realistic outlooks on life. Although experiences such as losing a job or a family member cause stress or grief, psychologically healthy people are able to limit the extent to which crises affect their lives.

Social Health Social health is the sense of well-being that an individual achieves by forming emotionally supportive and intellectually stimulating relationships with family members, friends, and associates. Living in communities rather than in isolation, identifying with social groups, and belonging to organizations strengthen the social dimension of health. When social networks break down, health declines.

Intellectual Health Intellectual health is the ability to use problem solving and other higher-order thinking skills to deal effectively with life's challenges. Healthy people analyze situations, determine alternative courses of action, and make decisions. After making decisions, intellectually healthy individuals are able to judge the effectiveness of their choices and learn from their experiences. Effective intellectual skills enable people to feel in control of their lives.

Spiritual Health Spiritual health is the belief that one is a part of a larger scheme of life and that one's life has purpose. Identifying with a religion and having religious beliefs influence the spiritual health of many people. However, spirituality is not confined to those who belong to organized religious groups or have religious beliefs. People can develop spirituality without practicing a particular religion or believing in the power of a supreme being. Whatever the nature of their spirituality, many individuals achieve a sense of inner peace and harmony as well as emotional fulfillment by believing that their lives have a purpose. As in the other wellness dimensions, a breakdown in spiritual health can have a negative impact on one's well-being.

Environmental Health Nothing affects the quality of wellness components as much as the state of the environment—the conditions in which people live, work, and play. Environmental concerns that influence wellness include the provision of clean water and air, the management of wastes, and the control of distressing social problems such as crime and family violence. Humans cannot achieve a high degree of wellness if their environment is polluted or unsafe (*Figure 1.3*).

Figure 1.4 is a model that illustrates how these six components of health are related and integrated into a holistic approach to understanding wellness. This model has the physical and psychological health components at the core of the larger environmental component. The social, intellectual, and



Figure 1.3

Environmental Health. The state of the environment in which people live, work, and play affects the quality of their health. People cannot achieve a high degree of wellness if their environment is polluted or unsafe.

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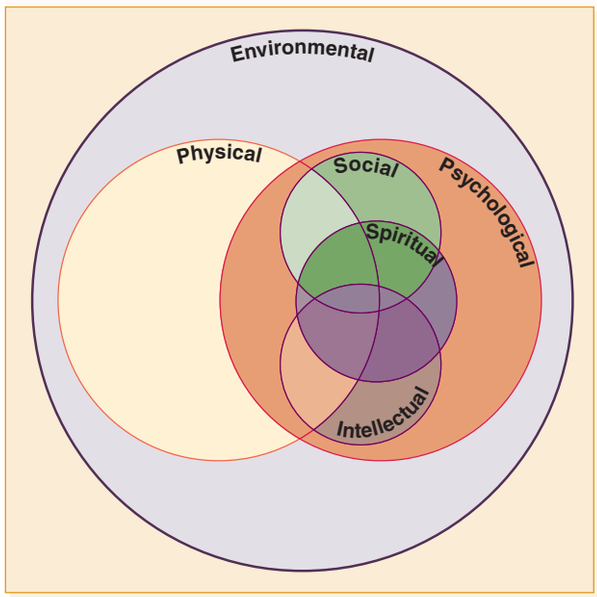
Figure 1.4

The Components of Health. The components of health are interrelated. According to this model, the social, intellectual, and spiritual components of health are in the larger spheres of physical and psychological health, which are in the largest sphere of environmental health.



spiritual components involve thought processes; therefore, they are found in the psychological health dimension. Note how the physical and psychological spheres overlap to illustrate how the body and mind are closely integrated. When the components of health function well together, the individual has a sense of well-being.

The Nation's Health

Health involves more than just personal health—health is a national concern, too. Many of the crucial social, political, and economic issues facing this country are health related, such as domestic violence, terrorism, care of the aged, and access to health care and insurance.

Lack of health insurance and the high cost of health care are major barriers to obtaining routine preventive medical care and proper treatment. The United States spends more on health-related care per person than any other country.[7] According to the U.S. Department of Health and Human Services, total healthcare costs reached $2.7 *trillion* in 2011 and were projected to reach $5 trillion in 2022.[20] Americans generally rely on themselves and their employers, as well as private and public health insurance programs, to pay for some of their health care. Millions of Americans, however, do not have health insurance or they have inadequate insurance coverage. In 2013, an estimated 16.9% of Americans younger than 65 years of age were not covered by health insurance.[20] A major illness, serious accident, or hospitalization can quickly exhaust a person's financial resources and create enormous personal debt; therefore, it is important to have adequate health insurance to cover such expenses. The Affordable Care Act is projected to reduce the number of uninsured Americans by 30 million by 2022.[20]

Tracking the Nation's Health

The U.S. government, particularly the Public Health Service of the Department of Health and Human Services, monitors the nation's health in a variety of ways. One way is by recording cases of certain diseases and causes of death. ***Table 1.1*** shows preliminary data for the 10 leading causes of death for all Americans in 2010. In the United States, heart disease was the leading cause of death, followed by cancer, chronic lower respiratory disease, and stroke.[21]

The major causes of death differ for members of various age groups. ***Table 1.2*** shows preliminary data concerning the leading causes of death in two age categories: 15 to 24 years and 25 to 44 years. In 2009, unintentional injuries (accidents), homicide, and suicide were the top three leading causes of death of people between 15 and 24 years of age. Note that unintentional injuries, cancer, and heart disease were the top three leading causes of death of people between 25 and 44 years of age.

Over the past 100 years, Americans made great progress toward improving their health, well-being, and longevity. In 1900, the life expectancy of a newborn baby was less than 50 years. Compared to people who lived in the first half of the 20th century, many Americans can now expect to live longer lives. This progress occurred largely because various government agencies provided greater access to health care, promoted preventive healthcare efforts, funded health education and research programs, and regulated the safety of the environment. For example, childhood vaccination programs have removed the threat of polio and controlled other infectious diseases such as measles, diphtheria, rubella, and tetanus. Food fortification programs have nearly eliminated nutritional deficiency diseases such as goiter, rickets, and pellagra. Efforts to educate the public concerning the

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Table 1.1

The 10 Major Causes of Death in the United States (2010)

Rank	Cause	Approx. Percentage of Deaths
1	Heart disease	24.2
2	Cancer	23.3
3	Chronic lower respiratory diseases	5.6
4	Stroke	5.2
5	Accidents/unintentional injuries	4.9
6	Alzheimer's disease	3.4
7	Diabetes mellitus	2.8
8	Pneumonia/influenza	2.0
9	Kidney disease	2.0
10	Suicide	1.6
—	Other causes	25

Modified from Heron, M. (2013). Deaths: Leading causes for 2010. *National Vital Statistics Reports*, 62(6), 1–96.

Table 1.2

Causes of Death: All Races, Selected Age Groups of American (Preliminary Data, 2010)

Ages 10-24	
Rank	**Cause**
1	Unintentional injuries
2	Suicide
3	Homicide
4	Cancer
5	Heart disease
Ages 25-44	
Rank	**Cause**
1	Unintentional injuries
2	Cancer
3	Heart disease
4	Suicide
5	Homicide

Data from Heron, M. (2013). Deaths: Leading causes for 2010. *National Vital Statistics Reports*, 62(6), 1–96.

importance of early and routine *prenatal care* (medical care for pregnant women) have helped reduce the infant death rate.

Although the life expectancy of Americans has increased, many people still die prematurely, that is, before they reach 75 years of age. According to health experts at the Centers for Disease Control and Prevention in Atlanta, actual causes of death are the underlying reasons that are not reported on death certificates. In 2000, for example, about 18% of all deaths were the result of tobacco use, including secondhand exposure to tobacco smoke; poor diet and lack of physical activity accounted for about 15% of deaths.[21] Leading causes of death tables such as ***Table 1.1***, however, integrate those deaths within the number of deaths resulting primarily from heart disease, cancer, chronic lower respiratory diseases, and stroke. Health experts predict that the combination of poor diet and physical inactivity will soon replace tobacco use as the leading actual cause of death in the United States. In many instances, actual causes of death are associated with lifestyle choices, such as tobacco use or physical inactivity. By changing these and other health-related behaviors, people may avoid dying prematurely.



Courtesy of James Gathany/Judy Schmidt/CDC.

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Health Promotion: Development of *Healthy People 2020*

Health promotion is the practice of helping people become healthier by encouraging them to take more control over their health and change their lifestyles. Health promotional efforts strive to *prevent* rather than treat disease and injury. Federal, state, and local governments can help the population develop healthy lifestyles by funding and providing educational programs and preventive medical care services. When planning effective health promotional programs, public health experts and government officials need to identify which aspects of the population's health should receive the most attention. How does the federal government identify serious health concerns and monitor the health of its citizens? What is being done to improve the nation's health?

In the late 1980s, a team of concerned health experts, health educators, and U.S. government officials analyzed the results of reports, recommendations, and studies that provided data concerning the health status of Americans. In 1991, these experts published their findings in a report called *Healthy People 2000*.[23]

Healthy People 2000 had three general goals: increase the healthy life span of Americans, improve the health status of American minorities, and extend the accessibility of preventive health services to all Americans. *Healthy People 2000* also established numerous health-related objectives that related to each goal, such as increasing the percentage of children who engaged in 20 minutes or more of vigorous physical activity at least 3 days a week. The overall aim was for Americans to achieve the health objectives by the year 2000; as more *Healthy People 2000* objectives were met, the overall health status of Americans would improve. By 2000, public health experts had collected and analyzed information about the population's progress toward achieving the health objectives, and the data were used for the publication of a revised set of goals and objectives. This process would be repeated approximately every 10 years. In 2000, the federal government released the second edition of the plan, *Healthy People 2010*. The analysis of data obtained from *Healthy People 2010* led to the publication of *Healthy People 2020*, the third and latest edition of the national health goals and objectives.

Table 1.3 indicates the four main goals of *Healthy People 2020* and factors that will be measured to monitor progress toward meeting those goals.

Table 1.3

Healthy People 2020: Foundation Health Measures

Main Goals of *Healthy People 2020*	Measures of Progress
General Health Status Attain high quality, longer lives free of preventable disease, disability, injury, and premature death	Life expectancy; healthy life expectancy Years of potential life lost Physically and mentally unhealthy days Self-assessed health status Limitation of activity Chronic disease prevalence
Disparities and Inequity Achieve health equity, eliminate disparities, and improve the health of all groups	Race/ethnicity Socioeconomic status Sex; sexual orientation Disability status Geography
Social Determinants of Health Create social and physical environments that promote good health for all	Social and economic factors Natural and built environments Policies and programs
Health-Related Quality of Life and Well-Being Promote quality of life, healthy development, and healthy behaviors	Self-reports of well-being and satisfaction Quality of life Participation in common activities

Adapted from U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. (2010). *Healthy People 2020.* Retrieved from http://www.healthypeople.gov/2020/about/Foundation-Health-Measures

Healthy People 2020 identifies 42 "objective topic areas," including "physical activity" and "injury and violence prevention" as well as nearly 600 health objectives. An *objective* identifies target populations and a specific health concern. One of the physical activity objectives, for example, is "Increase the proportion of adults who meet current federal physical activity guidelines for aerobic physical activity and for muscle strengthening activity."

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Staff of various federal, state, and local agencies are responsible for developing and implementing health education efforts, such as community and school-based programs to reduce the prevalence of childhood obesity, that support *Healthy People 2020* objectives. In addition, staff will monitor Americans' progress in meeting these health objectives. You can learn more about *Healthy People 2020* by visiting the government's website www.healthypeople.gov/2020/default.aspx.

Minority Health Status

For hundreds of years, immigrants from around the world have been changing the face of the United States as they settle in this country. Each new group of immigrants brings different cultural traditions and various ethnic identities with them (**Figure 1.5**). *Culture* consists of the unique social characteristics of a population, such as its customs, rituals, and health beliefs and practices, which are passed down from generation to generation. An ethnic group is one in which members share a common national, religious, racial, or ancestral identity. According to the U.S. Department of Health and Human Services, the major American racial/ethnic subpopulations are Caucasians (Whites), African Americans (Blacks), Latinos (Hispanics), American Indian/Alaska Natives, and Asian/Pacific Islanders. The same terms, however, are not used by all agencies. Throughout this text, terms such as *Caucasian* may be used in one context and *Whites* in another; when reporting statistics or results of research studies, the text reflects the language of the agency or researcher.

In the United States, the majority of Americans have European ancestry, particularly northern European. The National Center for Health Statistics refers to this population as "white, non-Hispanic." In 2008–2012, 74.2% of the U.S. population identified itself as "White."[24]

Differences in death and illness rates between the nation's men and women, as well as among its diverse ethnic and racial groups, are major public health concerns. For example, American men generally do not live as long as American women and are more likely to die from each of the 10 leading causes of death. More African Americans die of cancers and diseases of the heart and blood vessels than members of other ethnic and racial groups. The reasons for these differences are unclear, but socioeconomic status, environmental conditions, and lifestyle choices are major contributing factors. The term minority, however, is not strictly limited to race or ethnicity. In the U.S., minorities groups also include religious minorities (e.g., Mormons, Muslims), sexual minorities (e.g., lesbian, gay, bisexual, and transgender), age minorities (e.g., the very young or very old) and people with disabilities (e.g., those with autism).

The Diversity in Health essay addresses topics that concern a variety of populations in the United States as well as around the world. The Diversity in Health essay in this chapter, "Minority Health Status in the United States," discusses differences in the overall health of major minority groups in the United States.

Figure 1.5

An American Family. Culture consists of the unique social characteristics of a population, such as its customs, rituals, and health practices. Immigrants who settle in the United States contribute much to the racial, ethnic, and cultural diversity of the population.

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Genetics and Genomics

Your lifestyle and environment influence your health status, but your *genes* also play a role in determining your health. With the exception of red blood cells, all cells in your body contain genes. **Genes** are segments of *DNA*, a complex chemical compound that codes

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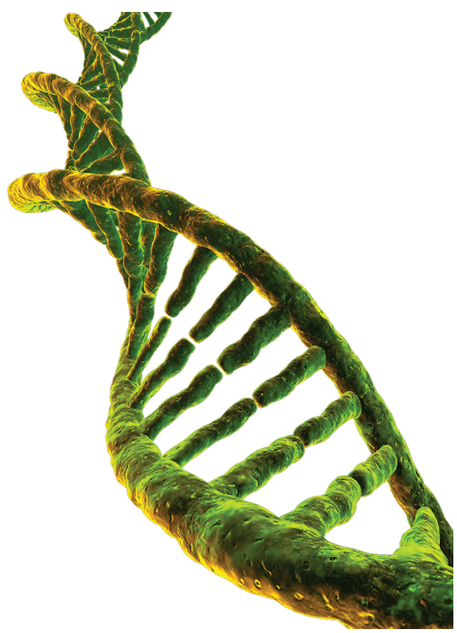
genes Segments of DNA that code for specific proteins.

genomics (Jee-nom-iks) The scientific study of an organism's entire set of genes.

for the production of proteins. Cells use proteins for a variety of functions, including building, maintaining, and repairing structures, such as bones and other tissues. Mistakes in the genetic code can result in the production of faulty proteins that can cause disease and even death. Genes are *inherited*, that is, their coded instructions for protein synthesis are passed on to subsequent generations.

Genetics is the scientific study of genes and the way they pass certain traits, such as the risk of breast cancer, or medical conditions, such as birth defects, from one generation to another. Thus, genetics can help people understand how certain life-threatening medical conditions, including sickle cell anemia and cystic fibrosis, tend to "run in families." Scientists have developed tests to identify the gene or genes for hundreds of diseases, most of which are rare genetic disorders such as Duchenne muscular dystrophy and certain breast and ovarian cancers.

Most of the 10 leading causes of death in the United States, particularly heart disease, cancer, stroke, diabetes, and Alzheimer's disease, have a genetic component. Unlike cases of rare genetic conditions, these common chronic diseases generally develop partly as a result of *multiple* genes interacting with behavioral and environmental risk factors, such as poor food choices, lack of physical activity, and exposure to tobacco smoke.



A gene is a segment of DNA.

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Genomics is the study of all of a person's genes (*genome*), including the complex ways the genes interact with each other and the environment to influence the individual's health. A person's genome can provide medical researchers with important biological clues about the individual's health status, disease risk, and responses to treatments. Scientific analysis of individual genomes may help explain why people who share similar environments or health-related behaviors do not always develop the same health conditions.

Genes play roles in a person's ability to achieve and maintain good health. Medical researchers use genetics to learn more about diseases that are caused by genes. Researchers use genomics to understand how multiple genes contribute to the development of complex diseases and how these particular genes interact with other factors, such as lifestyle and environment. As a result of such analyses, medical researchers can develop better ways to prevent, diagnose, and treat diseases.

Genomics is a relatively new science, and genomic testing, which involves combinations of biochemical and molecular methods to analyze a cell's genes, has the potential to improve the health of individuals. However, the value of genomic testing for diagnosing, predicting, and treating common chronic diseases has not been established. Public health experts are concerned about *personal genomic tests* that are directly marketed to consumers through Internet and other media outlets. At present, very little scientific evidence supports the validity and usefulness of the results of such *direct-to-consumer* genomic tests.

More research is needed to establish the usefulness of adding information obtained by genomic testing to the standard medical history that healthcare practitioners routinely collect from their patients. Maintaining a record of your health history can help you make a positive contribution to your medical care. How? When you share this information with your physicians, the medical practitioners can consider inherited factors to predict your risk of certain chronic diseases and develop ways (*interventions*) to help you prevent or forestall those diseases.

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motivation The force or drive that leads people to take action.

self-efficacy (EF-fih-ka-see) Regarding health education, the belief that one is capable of changing his or her behavior.

Understanding Health Behavior

Regardless of their cultural and ethnic background, not all Americans share the same level of concern for their health. How many times have you heard a smoker say, "I can stop smoking whenever I want to; now is just not a good time" or "You've got to die of something; it might as well be lung cancer." You may know people who eat too many fatty foods, do not exercise regularly, drink too much alcohol, and smoke cigarettes. You may know other people who follow a nutritious diet, walk at a brisk pace for 45 minutes nearly every day, and avoid drugs such as alcohol and tobacco. Why do some people adopt more positive health-related behaviors than others do?

Changing Health Behavior

"I wish I had the willpower to stop smoking." "I just can't seem to find the motivation to exercise more often." Do these statements sound familiar? Is having a lot of willpower the key to becoming healthier? Is willpower alone enough to change health behavior and overcome barriers?

Health educators often use the term **motivation** to describe what is commonly referred to as willpower. Motivation, sometimes called attitude, is one of the forces or drives that lead people to take action. Past experiences, perceived needs and barriers, and personal beliefs and values influence one's motivation. For example, a person who has tried unsuccessfully to stop smoking several times and claims to enjoy smoking may have little motivation to make another attempt to quit.

Self-efficacy, individuals' belief in their ability to perform a behavior that will lead to the desired outcome, is also an important factor in changing health behavior. For example, someone who believes he or she has the ability to attend smoking cessation counseling sessions is more likely to attempt to quit smoking than someone who doesn't believe he or she has time to attend. Various barriers, such as poor education or lack of support from family members, can interfere with self-efficacy development and reduce someone's motivation to change behaviors.

Knowledge about risky behaviors and the seriousness of a health condition is another important for behavior change. Someone who smokes cigarettes, and does not know smoking causes lung cancer, will not usually be motivated to quit. On the other hand, someone who smokes and understands health risks associated with smoking, may have a different attitude toward smoking and may be motivated to quit. As we've seen, however, many other factors also influence our health behavior. For example, many people know that seat belts reduce the possibility of a serious injury in an automobile accident and that most states require them to wear seat belts in a car. Nevertheless, some people cite discomfort, restricted movement, and individual choice as reasons for not wearing seat belts regularly. Many students enrolled in personal health classes can correctly identify behaviors that promote optimal health, yet they do not regularly practice these behaviors. Acquiring knowledge about health is important, but motivation to adopt a healthier lifestyle is essential for making long-term changes that benefit our health.

Taking an active role in achieving and maintaining good health depends on certain personal factors: degree of perceived vulnerability, motivation (attitude), sense of control, and perceived value of the behavior. Health behavior research indicates people are motivated to take action if they feel that a sufficient threat to their health exists and that the consequences of changing the behavior are worthwhile. Furthermore, people are more likely to attempt a behavior if they value the behavior (i.e., the behavior is important to them), they believe the behavior (e.g., regular exercise) will lead to desired outcomes (e.g., weight loss), and they believe they have control over the behavior (i.e., I can exercise regularly if I want to).

Assume, for example, that diabetes affects several members of your family. You have heard that diabetes may be inherited; therefore, you are aware that you have a good chance of developing this condition (*vulnerability*). You know that family members who have diabetes suffer from kidney damage, blindness, and premature heart disease. Because you want to avoid these consequences, you are motivated to change certain behaviors (*motivation*). Moreover, you believe that your actions influence the quality of your health (*sense of control*). Concerned, you decide to learn more about diabetes and determine what actions can reduce your risk of developing the disease. You now

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Diversity in Health

Minority Health Status in the United States

Did you know that African Americans are more likely to die of cancer than are Whites? Did you know that Hispanics are more likely to die in accidents than as the result of strokes? The differences in death and illness rates for various population subgroups reflect numerous factors, such as socioeconomic status and access to health insurance and medical care. By investigating reasons for these differences, medical researchers have learned a great deal about the health of American minorities. A major goal of the U.S. Department of Health and Human Services is improving the health of all Americans through research, education, and better access to health care.

Hispanic or Latino People

Hispanic, or Latino, people have immigrated to the United States or have ancestors from countries in which Spanish is the primary language, especially Mexico, Puerto Rico, Central and South America, and Cuba. Hispanics are the largest minority group in the United States, making up 16.7% of the population in 2011.[25]

In 2011, the leading causes of death for Hispanics were cancer, heart disease, accidental injuries, stroke, and diabetes.[20] Some Hispanic/Latino population groups have a high prevalence of asthma, obesity, chronic lung diseases, HIV infection, tuberculosis (TB), and diabetes.

Poverty, lack of health insurance, and poor education are barriers to good health for many Hispanics. About 26.6% of this minority lives in poverty.[25] Health disorders associated with poverty, such as tuberculosis and obesity, are more common in certain Spanish-speaking subgroups. In 2010, almost 31% of Hispanic Americans did not have health insurance.[22] Hispanic persons, especially those of Mexican ancestry, are more likely to be uninsured than non-Hispanic Whites. Regardless of one's ethnic/racial background, not having health insurance is a major obstacle to obtaining good health care in the United States.

African or Black Americans

In the United States, African Americans comprised 14.2% of the population in 2012; they are the second largest minority group.[24] Despite recent improvements, the health status of Black Americans is generally poorer than that of other minorities. The life expectancies of Whites and Blacks reflect their health status. In 2011, the life expectancy of African American females was 78.7 years; the life expectancy of White American females was 81.3 years. At the same time, the life expectancy of African American males was 72.1 years and that of White males was 76.6 years.[24]

The major causes of death of Black Americans are similar to those of non-Hispanic Whites. Although Black Americans are less likely to die from chronic lung diseases, Alzheimer's disease, and suicide, members of this minority are more likely to die of homicide, cancer, stroke, diabetes, HIV infection, and heart disease than are White Americans.[26] Black women are more likely to die of breast, cervical, colon, and stomach cancers than White women are, and Black men are more likely to die of lung, prostate, colon, and stomach cancers than White men are.[26]

Childbearing is riskier for an African American woman; in 2008, she was almost three times more likely to die during pregnancy or childbirth than a White woman was.29 In addition, Black infants are more likely to die during the first month of life than other babies are. In 2008, the infant death rate among Black infants was more than twice that of White babies.[26]

In 2007–2010, African Americans were more likely to have hypertension than non-Hispanic White Americans or Mexican Americans.[26] The reason for this high prevalence is unclear, but scientists think diet, genetics, stress, and smoking play roles. Overweight also increases the risk of hypertension. Black women are more likely to have excess body fat than are other Americans. In the period from 2007 to 2010, 53% of non-Hispanic Black women were obese.[26]

Asian and Pacific Islanders

As one of the fastest-growing minority groups, Asian Americans and Pacific Islanders (APIs) are a diverse group of people who immigrated to the United States

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from China, Japan, Vietnam, Korea, India, the Philippines, and other Pacific Islands. In 2010, Asian Americans made up about 5% of the U.S. population.[27] Asian Americans generally have lower *age-adjusted* death rates for the 10 major causes of death than do Whites and members of other minority groups.[7] This means that an average 30-year-old Asian American is less likely to die of any major cause of death, including heart disease and cancer, than is an average 30-year-old American who is a White person or a member of another minority population. Compared with other minority groups of Americans, Asian American women have the highest life expectancy.[28] Asian American women, however, are more likely to die from stomach cancer than other American women are.[27] People who immigrated recently from Asia and the Pacific Islands are more likely to suffer from hepatitis, a serious liver disease, and tuberculosis than are people who have lived in the United States for longer periods of time. Factors that contribute to the poor health status of some Asian Americans include language and cultural barriers; social disgrace (*stigma*) associated with certain conditions, especially mental illness; and lack of health insurance.[29]

American Indians and Alaska Natives

American Indian and Alaska Natives (AI/ANs) are a diverse group of people comprising only about 2% of the American population in 2011.[24] About 22% this minority population live in designated areas such as reservations or reservation trust areas, whereas 60% live in metropolitan areas. AI/ANs generally have more health problems than do Whites. Geographic isolation, poverty, inadequate sewage disposal, and cultural barriers are some of the reasons why health among AI/ANs is poorer than it is among other groups of Americans.[30]

American Indian/Alaska Native infants and children are more likely to die than other American infants and children.[28] AI/ANs are more likely to be smokers than members of other racial/ethnic groups, and binge drinking is a serious health concern of AI/ANs. Diabetes poses a health threat for many members of this minority. The rate of diabetes among AI/ANs is twice as high as the rate among Whites.[31] In addition to diabetes, mental health problems and alcohol-related deaths such as accidents, homicides, and suicides are major health concerns for AI/ANs.

The Impact of Social Conditions on Health Status

Although genetic factors may be the primary cause of many health problems, income level, health insurance coverage, educational attainment, and years living in the United States play major roles in determining a particular group's state of health. Many chronic diseases, such as tuberculosis and malnutrition, are associated with poor standards of living. Other health threats often associated with poverty include substance abuse, homicide, and lead poisoning. Poverty, however, is not limited to any single population group in the United States. Regardless of their racial or ethnic background, individuals who achieve a higher level of education usually have higher incomes and better health than those with less education.



In the United States, many chronic diseases are associated with poor standards of living.

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have a reason to take action because you believe it is important (*value*) to prevent this disease, even if it means making lifestyle changes now while you are still healthy.

Making Positive Health-Related Decisions

How I Quit Smoking

About a month ago I was a smoker—about 10 cigarettes a day during the week and up to a pack a day on weekends. After thinking about quitting for about a year, it happened. Without even giving it any consideration, I was able to not buy a pack for 2 days. On day 3, I realized my success and told myself I would never buy a pack again. I miss it, especially after a drink or a meal, but I'm glad I've gone this far. There have been times when I've really wanted one, but that's when you realize how powerful of a drug it is. At least that's how I talk myself out of having one. Before, I never thought of myself as being addicted—too harsh of a word—but I was just like all of the other smokers out there. It's a filthy habit—I'm glad I stopped.

Although this college student smoked less than a pack of cigarettes a day, he took about a year to quit smoking. He made the final decision to stop smoking while listening to other students' habit-breaking experiences in his health class. Some people take less time to make health-related decisions than others do, and some people have less difficulty making lifestyle changes than others do. ***Figure 1.6*** illustrates the complex process of decision making.

Stages of Behavior Change According to many health education experts, the process of changing behaviors involves the five stages shown in ***Figure 1.7***.[35] We use the example of smoking to illustrate this process. The first stage is *precontemplation*. In this stage, smokers show no interest in quitting tobacco use, do not see a need to quit, and may avoid discussing their smoking behavior with others. Smokers move into the *contemplation* stage when they realize or admit tobacco use is unhealthy, and they intend to quit smoking in the next 6 months. In the *preparation* stage of change, smokers may have made unsuccessful attempts to quit smoking, yet they express the desire to stop within the next month. Smokers in the *action* stage of change take steps to quit smoking, such as "going cold turkey" or using a nicotine patch. They succeed in quitting for up to 6 months. Finally, smokers in the *maintenance* stage develop practices to avoid relapsing into using tobacco. Former smokers, for example, might socialize with nonsmokers or use exercise as a substitute for smoking. According to health education researchers, 40% of people who engage in risky behaviors such as smoking or being physically inactive are in the precontemplation stage,

Figure 1.6

Decision-Making Model. Decision making can be a complex process. Information, personal attitudes, and personal experiences influence your decision-making process. To change health-related behaviors, you must recognize the need to change, that the change has personal value, and that it is consistent with your beliefs.

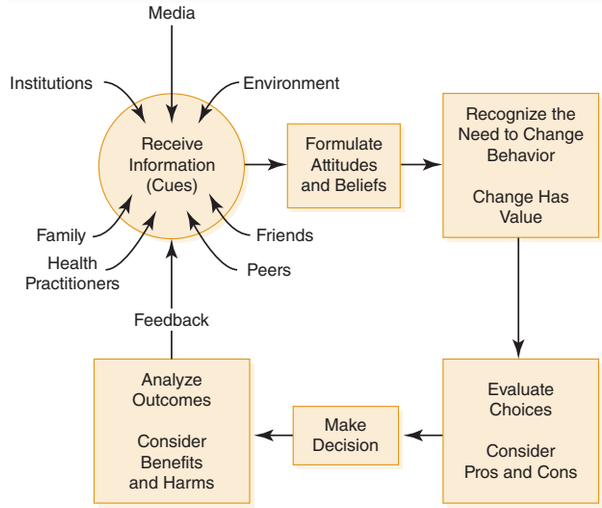
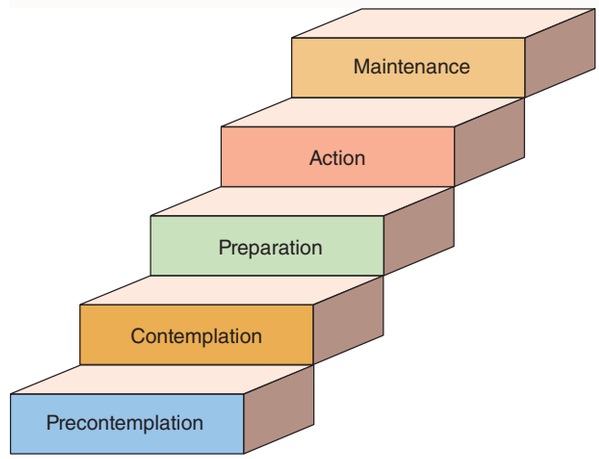


Figure 1.7

Stages of Behavior Change. According to many health education experts, the process of changing behaviors involves these five stages.



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40% are in the contemplation stage, and the remaining 20% are preparing to change the unhealthy behaviors.[32]

When people *relapse*, they return to an earlier stage of change and usually feel like failures as a result of their inability to maintain the new behaviors. In the case of smokers, they may even return to the precontemplation stage in which they stop thinking about quitting. However, the majority of people who relapse eventually decide to stop smoking again, and they tend to try a different method of quitting. People who seriously want to quit smoking, for example, typically make three to four efforts to stop before they actually succeed.[33]

When changing a behavior, people use various strategies to increase their chances of success, including stimulus control, counterconditioning, rewards, and social support. *Stimulus control* involves altering cues to modify responses (behaviors). Cues can be sensory triggers, such as seeing a billboard advertisement for cigarettes or smelling someone else's cigarette smoke. Cues can also be emotional states or thoughts. For example, a person may smoke to relieve stress or because he or she associates smoking with celebrities or sophisticated people. As a result, this person is likely to light up a cigarette when tense or in certain social situations.

If you are a smoker who wants to quit, you may need to identify and eliminate the various cues that signal this unhealthy behavior. You may realize, for example, that seeing ashtrays and lighters are your smoking cues. Throwing out or giving away your ashtrays and lighters are ways of avoiding these cues. If feeling tense triggers your desire to smoke, then learning and practicing relaxation techniques whenever you feel stressed out may help you resist the urge to buy a pack of cigarettes.

Counterconditioning involves replacing unhealthy behaviors with less destructive or healthier ones. When you desire a cigarette, you may be able to eliminate the craving by exercising, taking a warm bath, or calling someone who supports your efforts to quit. Chewing sugarless gum, eating raw vegetables or fruit, or drinking a glass of water whenever you feel the urge to smoke may also reduce the craving.

Rewards are incentives for positive behaviors. Some former smokers keep a jar in which they save the money that would have been used to buy cigarettes. At the end of a week or two, they spend that money on something fun such as a movie, DVD, or another type of reward to help maintain the new behavior. Other former tobacco users are rewarded by the return of their sense of taste or the praise they receive from nonsmokers for adopting a smoke-free lifestyle.



Cues are sensory triggers for behaviors, such as seeing cigarette butts as a cue for smoking.
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Obtaining social support by enlisting the help of others is very important for changing a negative behavior and maintaining a positive one. If you are a smoker in the contemplation stage of change and most of your friends are smokers in the precontemplation stage, they are not likely to support your efforts to quit. Therefore, you may have to associate with nonsmokers or people in later stages of change to provide the help, encouragement, and positive reinforcement you need to quit tobacco use.

A systematic model for the decision-making process can help you improve your health and well-being. A model is a plan or pattern that can be used as a guide.

The first part of the decision-making process involves identifying a problem behavior that you want to change, a goal that you would like to reach, or a question that you would like to answer. For example, you might want to quit smoking, lose 20 pounds, or determine whether you are ready to end an abusive relationship. Because the process of altering a behavior can have its unpleasant aspects, particularly if you have to overcome side effects or cravings, it is important to determine your level of commitment. To determine if you are ready to change a behavior or situation, it is helpful to make a list of the benefits, or pros, as well as the harms, or cons, of changing. After you make the list, think about each pro and con's value or importance to you. Assign a point value from 1 to 5 to each pro and con; a rating of 5 points would be the highest value. Then, find the sums of each list. If the sum of the cons list is greater than that of the pros list, you are probably in the precontemplation stage and not ready to make the change. On the other hand, if the sum of your pros is higher, you are likely in the contemplation stage and ready to make the change.

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The second part of the process used in the decision-making model describes steps you can take to implement the change and evaluate your progress. After you decide to make a change, set a target date to begin the new behavior, reach the goal, or modify the situation. Mark that date on a calendar that is in an obvious place for you to notice, such as by your computer monitor or on your refrigerator or mirror. Then, make a list of factors that will increase the chances that you will be successful in making the change, such as enlisting the help of friends or obtaining advice from a medical expert. Because there are often barriers to making changes, make another list of factors that will hinder your chances for success, such as having little time to practice new behaviors or friends who will not support your decision to change.

The third major step in the process involves preparing an action plan that provides specific steps you will take to change your behavior or situation. You should be able to identify more than one way to reach your goal. To quit smoking, for example, you might quit "cold turkey," gradually reduce the number of cigarettes smoked over a 4-week period, or use a medically approved nicotine-containing product. At this point, you need to learn about the pros and cons of each method and consider the factors that can help or hinder your effort to change. How are you going to handle cravings or social situations that promote the behavior you are trying to change? Now you are ready to make the change by implementing your action plan. Keep a daily record of your progress, including strategies that are helpful and your feelings about the process. When you reach the goal date, analyze your success in attaining the goal. How well did your plan work? What can you learn from the experience?

To enjoy a long, healthy, and productive life, it is important for you to make numerous health-related decisions every day. If you act impulsively and base these decisions simply on cues, attitudes, and emotions, you may make poor choices. However, you are likely to make responsible choices if you follow a systematic method of decision making such as the one we describe. Changing habits often requires learning new information and practicing new skills.

The Goal of Prevention

A primary focus of health promotion is preventing diseases, infections, injuries, birth defects, and other serious health conditions. Preventing a health problem is a far better and less costly option than trying to treat it. In addition to adopting healthy lifestyle practices, serious health problems can also be prevented by having routine physical examinations. The Managing Your Health box that follows provides recommendations for the frequency of routine screening procedures such as blood pressure, cholesterol, mammograms, prostate exams, and Pap smears (cervical cancer detection). Some examinations, such as testicular and breast self-exams, can be done in the privacy of your home. Some college students do not believe routine physical evaluations are important; however, having regular medical checkups enables you and your physician to monitor your physical and psychological health status. Furthermore, your physician may be able to identify a problem before it results in serious damage to your health and well-being.



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Can Good Health Be Prescribed?

No one has a crystal ball that predicts future health, and neither can anyone guarantee good health. Numerous factors contribute to an individual's chances of enjoying a long and productive lifetime of good health. Several of these factors are the result of lifestyle choices that people can make, while they are still young, to prevent or delay disease. You may know someone or have heard about individuals who avoided exercise, smoked a pack of cigarettes, and consumed a six-pack of beer each day, yet lived to a ripe old age. Such behavior defies nearly every reasonable prescription for good health. Perhaps these people inherited genes that foster the hardiness to withstand the effects of their risky lifestyles. You might wonder if these people enjoyed good health throughout their lives, or if they spent their last years in poor health. Would their lives have been even longer and healthier if they had followed more health-conscious behaviors?

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Routine Health Care for Disease Prevention: Adult Recommendations

The following recommendations apply to adults who have low risks of disease. People who have higher risks may need more frequent testing and to begin testing at an earlier age. Consult your personal physician for advice about routine testing and immunization schedules.

Medical Test/Preventive Measure	Recommended Frequency
Blood pressure	At least every 2 years
Cholesterol (fasting lipoprotein profile)	Every 5 years for people aged 20 and older
Glucose	Asymptomatic adults with sustained blood pressure greater than 135/80 mm Hg
PSA and digital rectal exam (detects prostate cancer)	Discuss the need for testing with physician
Testicular exam	Some physicians recommend regular exams; discuss need for exam with physician
Skin exam (detects skin cancer)	Have physician check skin during routine general exams
Breast exam (detects breast cancer)	American Cancer Society recommends annual screen and clinical breast exams for healthy women aged 40 years and older; women between 20 and 39 years of age should undergo clinical breast exam every 3 years. Breast self-exam is an option for women
Pap test (detects cervical cancer)	Begin screening within 3 years of first sexual intercourse or by 21st birthday; yearly Pap test, or every 2 years if liquid form of test is used. Beginning at age 30 years, include human papillomavirus (HPV) test
Colon/rectal examination (detects cancer)	Have flexible sigmoidoscopy or colonoscopy at age 50 years; physician can decide which test is appropriate and how often testing should be repeated
Sexually transmitted infections	Sexually active people who are 25 years of age or younger should be tested annually for chlamydial infection; older women should be tested if they have new or multiple sex partners. Physician can decide which other tests are appropriate, such as for HIV infection
Immunizations	
Rubella	One or two doses from ages 19 to 55
Influenza	Annually for adults aged 19 and older
Tetanus	Every 10 years
Hepatitis B	Three doses

Recommendations vary among medical organizations.

Data from U.S. Centers for Disease Control and Prevention. (2014). Recommended adult immunization schedule—United States—2014. Retrieved from http://www.cdc.gov/vaccines/schedules/hcp/imz/adult.html; Agency for Healthcare Research and Quality. (2012). Guide to Clinical and Preventive Services, 2012. Retrieved from http://www.ahrq.gov/professionals/clinicians-providers/guidelines-recommendations/guide/section1.html#ref12; Centers for Disease Control and Prevention. (n.d.) National HIV and STD testing resources. Retrieved from http://hivtest.cdc.gov/faq.aspx#stdtest; American Cancer Society. (2013). American Cancer Society guidelines for early detection of cancer. Retrieved from http://www.cancer.org/healthy/findcancerearly/cancerscreeningguidelines/american-cancer-society-guidelines-for-the-early-detection-of-cancer

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anecdotes Personal reports of individual experiences.

testimonials Individual claims about the value of a product.

Analyzing Health Information

"Take antioxidants to live longer." "Drink red wine to prevent heart attacks." "Improve your memory with ginkgo." Every day Americans are barraged with a confusing array of health-related information in newspapers, magazines, television and radio shows, commercials, and infomercials. Family members, friends, medical professionals, and the Internet also supply information about health and health-related products. Are these sources reliable? Not necessarily. No laws prevent anyone from making statements or writing books about health, even if their information is false. The First Amendment to the U.S. Constitution protects freedom of speech and freedom of the press. This protection extends to talk show hosts and guests, authors, and salespeople in health food stores who might provide health misinformation.

Companies and individuals can make considerable amounts of money by selling untested remedies, worthless cures, unnecessary herbal supplements, and books filled with misinformation. Health frauds include the promotion or sale of substances or devices that are touted as being effective to diagnose, prevent, cure, or treat health problems, but the scientific evidence to support their safety and effectiveness is lacking.

Despite the regulatory activities of the Food and Drug Administration (FDA) and Federal Trade Commission (FTC), the sale of fraudulent products and services and the circulation of false or misleading health information continue to be concerns of medical experts. For information about the roles of the FDA and FTC in regulating health-related information, see the Consumer Health feature that follows.

Becoming a Wary Consumer of Health Information

Maybe you have read an article or an ad about the health benefits of an herbal supplement or a weight loss device that you might buy. Perhaps you watched a physician promote his "antiaging, high-energy" diet on a TV show. How do you know if health-related information and claims that are in the media and from other sources are true? Will the supplement, device, product, or diet do what its promoters claim? Or will you merely be wasting your money?

As shown in Figure 1-6, information is a crucial element of decision making. Although health information from some sources is based on scientific evidence and can be extremely useful, that from other sources may be unreliable. Relying on flawed information can waste time and money and can even be dangerous. To be a wary consumer of health information, you need to learn how to analyze it.

Analysis Model Analyzing something simply means breaking it down into its component parts for study. Analyzing information is easier to do if you follow a particular model of analysis. The following model is a series of questions that will help you evaluate health information and determine if it is reliable, regardless of its source.



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Healthy Living Practices

- To change your health-related behaviors, you must determine that you need to change and that you value the change.
- Use a decision-making plan as a tool to help you make responsible decisions.
- Take charge of your health by having regular physical examinations and monitoring your health.

1. **Which statements are verifiable facts, and which are unverified statements or value claims?** In the context of this model, *verifiable facts* are conclusions drawn from scientific research. *Unverified statements* are conclusions that have no such support. *Value claims* are statements suggesting that something is useful, or effective, or has other worthwhile characteristics. Look for unverified statements and value claims; such information may or may not be true. Also, be wary of claims that "sound too good to be true."

   Look for *red-flag* terms, expressions that indicate the possibility of irrelevant information or misinformation, such as "patented formula," "all-natural," "no risk," "chemical-free," "clinically tested," "scientifically proven," or "everyone is using." Claims that the product or service provides "quick," "painless," "effortless," or "guaranteed" cure or other desirable results are also red flags.

   Ignore *anecdotes* and *testimonials*. **Anecdotes** are personal reports of individual experiences, such as "I take vitamin C and zinc pills, and I

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Consumer Health


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Consumer Protection

The U.S. government has laws and agencies to protect consumers against health fraud.

The federal agencies that enforce consumer protection laws include the Food and Drug Administration (FDA) and the Federal Trade Commission (FTC). The FDA protects consumers by regulating the information that manufacturers can place on food or drug product labels. In addition, FDA personnel alert consumers about fraudulent health practices and can seize untested or unsafe medical devices and drugs. The manufacturers of such products can be punished (usually fined) for their illegal practices. The FTC regulates claims made in advertisements for products and services. Both agencies regulate only products and services involved in interstate commerce. The FDA's website is www.fda.gov, and the FTC's website is www.ftc.gov.

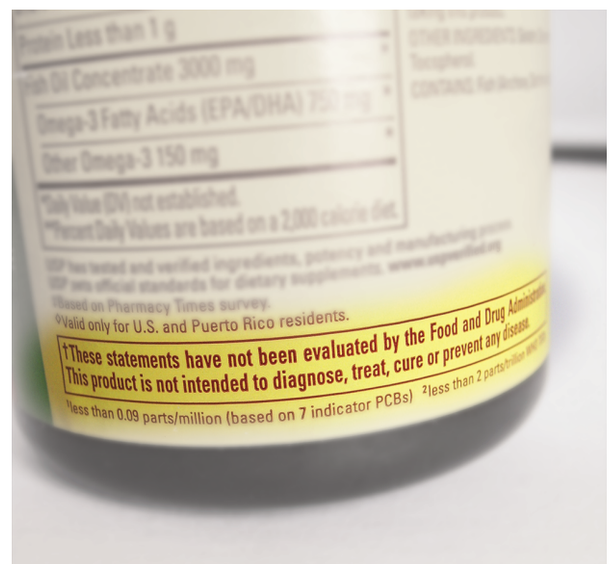
To avoid being victims of health frauds, people must take the initiative and be very critical when judging the reliability of health-related information. If you suspect fraudulent activity, you can file a complaint with the local office of the FDA or your state's attorney general. You can also file a lawsuit if you have been injured as a result of following the advice or using the services or products of unscrupulous practitioners and manufacturers.

never get colds." **Testimonials** are claims individuals make concerning the value of a product. Advertisers often rely on paid celebrities to provide testimonials. Anecdotes may be interesting and testimonials may be persuasive, but these sources of information reflect the experiences of individuals and may not be true for most people. More compelling evidence, on the other hand, involves results of studies of hundreds or thousands of people. Such findings are more likely to be generalized to a wide population.

Look for *disclaimers* on product labels or in advertisements, such as "This statement has not been evaluated by the FDA," "This product is not intended to diagnose, treat, cure, or prevent disease," or "Results are not typical." In televised or written ads, disclaimers usually appear in small print near the end of the ad. Disclaimers may provide important information to consider.

2. **What are the credentials of the person who makes health-related claims? Does this person have the appropriate background and education in the topic area? What can you do to check the person's credentials?** Often it is difficult to tell if a health "expert" is qualified to make claims. Articles and books usually include the name and credentials of the author, but the credentials may be fraudulent. Anyone can call himself or herself a "nutritionist," "doctor," or "health expert." Therefore, a PhD or the title "Certified . . ." after someone's name is no guarantee that this person has had extensive training in a health or science field from an accredited educational institution. Individuals can buy certain doctorate degrees through the mail or Internet from unaccredited colleges called "diploma mills." To determine if a college or university is accredited, visit the U.S. Department of Education's website (www.ed.gov).

One way to investigate an author's medical or scientific expertise is to see if his or her work has been published in reputable journals. To conduct



Disclaimer on a dietary supplement label.
Courtesy of Wendy Schiff.

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quackery The practice of medicine without having the proper training and credentials.

a literature search, use a site such as PubMed, which is sponsored by the National Library of Medicine (www.ncbi.nlm.nih.gov/pubmed/).

Quackery is the practice of medicine without having the proper training and credentials. *Quackwatch* is a website operated by retired psychiatrist Stephen Barrett, vice president of the Institute for Science and Medicine and a fellow of the Committee for Skeptical Inquiry. Quackwatch (www.quackwatch.com/) provides information about health-related frauds as well as people, popular books, and organizations that are sources of questionable health information.

3. **What might be the motives and biases of the person making the claims?** *Motive* is the incentive, purpose, or reason for which someone promotes health misinformation. People profit from the sales of books as well as bogus treatments and products. Thus, ads are always written to motivate the consumer to buy the treatment, product, or service. A *bias* is the tendency to have a particular point of view. The author of a book or article, for example, may present information that supports his or her bias and ignores opposing views or research findings that do not support the bias. When analyzing health-related information, it is important to take into account the motives and biases of the people providing the information as you draw conclusions from it.
4. **What is the main point of the article, ad, or claim? Which information is relevant to the issue, main point, product, or service? Which information is irrelevant?** The main point may be to provide practical information, but in many instances, it is to encourage you to buy a product or service. Ignore terms and information that are not pertinent or to the point; they will only confuse your analysis.
5. **Is the source reliable? What evidence supports your conclusion that the source is reliable or unreliable? Does the source of information present the pros and cons of the topic or the benefits and risks of the product?** Look for supporting or more in-depth information in scientific or medical journals because their articles are written and reviewed by scientists or medical experts. Articles in reputable scientific journals have been *peer reviewed*, meaning their content was critiqued by experts in that field before it was accepted for publication. If peer reviewers think a study was poorly designed or provides questionable conclusions, the article describing the study is likely to be rejected by the journal's editor.

   Be wary of sources, such as magazines, books, and journals that look like bona fide providers of health information, but may not be. In many instances, they are actually designed to sell products or services. Such publications have articles about the benefits of healthcare products and include advertisements and instructions for ordering these products, often in the article or next to it.

   Be skeptical of promoters, articles, or ads that do not present the risks along with the benefits of using a health product or service. For example, a reliable article about taking bee pollen supplements should present scientific evidence from peer-reviewed journals to support as well as refute health claims. Moreover, reliable sources of information often caution people about the hazards of using treatments, and they may include recommendations to seek the advice of more than one medical expert.
6. **Does the source of information attack the credibility of conventional scientists or medical authorities?** In some instances, people making health claims try to confuse readers by implying that evidence-based medicine is unreliable. For example, an ad for a treatment to relieve back pain may include claims that the technique is "unknown to Western medicine" or "used for centuries in China." Such claims suggest that conventional medical practitioners, including physicians, dietitians, and nurse practitioners, lag behind ancient systems of health care in finding cures or treatments. Statements that attack the reliability of conventional (scientific) medical practitioners are usually indications that the information is unreliable.

Finding reliable sources of health-related information can be challenging. You can usually obtain reliable answers to your questions from experts at state and local health departments, universities and colleges, local hospitals, and federal health agencies.

Assessing Information on the Internet

The Internet can be a valuable source of health-related information. The U.S. government maintains

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websites for health-related information, including the sites of the Centers for Disease Control and Prevention (www.cdc.gov), Food and Drug Administration (www.fda.gov), and National Institutes of Health (www.nih.gov). Additionally, the Department of Health and Human Services sponsors www.healthfinder.gov, a general health information site that provides links to reliable sources, including government agencies, universities, and nonprofit health organizations.

Websites that are accredited by the Health on the Net (HON) Foundation (www.healthonnet.org/pat.html) are reliable sources of health-related or medical information. This nonprofit organization is headquartered in Switzerland and provides a widely recognized and accepted code of ethics. Websites can become certified by adhering to the HONcode. The HON site also provides a search engine to research trustworthy sources of health information (www.healthonnet.org/HONsearch/Patients/index.html).

Although HON monitors the websites it certifies, no organization regulates the quality and truthfulness of all the health information on the Internet. Many websites are sources of inaccurate and potentially harmful information. Therefore, you need to analyze the reliability of health information from websites as critically and carefully as you analyze health information from other sources. In addition, when researching a health topic, seek information from more than one Internet source and consult a medical professional before following advice from the Web.



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When using a website as a source of health-related information, determine answers to the following questions to help you establish credibility of the site.

- **What is the source of the information?** Websites sponsored by individuals may give questionable advice that is based on personal experiences, biases, or opinions rather than medical expertise and scientific evidence, unless the individuals are credentialed experts. Commercial sites (.com) may or may not contain misinformation, but keep in mind that their purpose is generally commercial not educational. As with any commercial endeavor, the focus is usually selling products, so what is stated is meant to entice the buyer. Websites sponsored by organizations (.org) may or may not provide credible information as well. However, there are many good .com and .org sources of health-related information. Asking yourself the next questions will help you determine which of those sites likely provides reliable health-related information.
- **Is the site sponsored by a nationally known health or medical organization or affiliated with a well-known medical research institution or major university? If not, is the site staffed by well-respected and credentialed experts in the field?** Such sites usually provide accurate and timely health information. Some have independent review boards to ensure that the site maintains accuracy and timeliness. Websites providing credible health-related information usually include documentation of the expertise of the staff and the background of the institution or organization.
- **Does the site include up-to-date references from well-known, respected medical or scientific journals or links to reputable websites, such as nationally recognized medical organizations?** Such information generally helps support the claims or information on the site and provides ways to research the claims in-depth. Providing such references also shows that the information is based on published research.
- **Is the information at the website current?** Health information is constantly changing; the site should indicate when the information was posted and updated.

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conventional medicine The form of medicine that relies on modern scientific principles, modern technologies, and scientifically proven methods to prevent, diagnose, and treat health conditions.

placebo A sham treatment that has no known physical effects; an inactive substance.

Applying What You Have Learned

The Analyzing Health-Related Information feature in this text provides examples of ads, articles, and websites to help you determine the value of health-related information. To sharpen your critical thinking skills, analyze the information in these features using the six points of the analysis model. When you analyze a website, use the questions posed in the previous section. If you determine that the website is highly credible, your analysis is completed. If, however, you are unsure of the credibility of the site after answering the Web analysis questions, then continue with the six Analyzing Health-Related Information questions. Additionally, the Consumer Health features provide tips to help you become a better consumer of health information.

To obtain reliable answers for your health-related questions, consult experts at clinics or hospitals, state and local health departments, universities and colleges, federal health agencies, and nationally recognized health associations and foundations.



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Healthy Living Practices

- Use the model for analyzing health-related information and the questions for analyzing websites to evaluate information from the media and other sources.

Conventional Medicine, Complementary and Alternative Medicine, and Integrative Medicine

Conventional medicine (scientific medicine) relies on modern scientific principles, modern technologies, and scientifically proven methods to prevent, diagnose, and treat health conditions. The notion that certain agents of infection such as bacteria and viruses cause many health disorders is accepted by conventional medical practitioners. To practice in their professions, conventional healthcare practitioners, such as physicians, nurses, dietitians, and dentists, must meet established national and/or state standards concerning their education and pass licensing examinations. To maintain their professional certification or licensing, many types of conventional healthcare practitioners must update their medical backgrounds regularly by participating in continuing education programs. Most Americans use the services of conventional medical practitioners.

Before adopting a method of treatment, conventional medical practitioners want to know if it is safe and effective. To determine the safety and effectiveness of a treatment, medical researchers usually conduct studies on animals before testing humans in *clinical studies*. A clinical study should contain at least 30 subjects, preferably hundreds or thousands, if possible. The greater the number of participants in the study, the more likely the findings did not occur by chance and are the result of the treatment.

In designing clinical studies, researchers take a group of volunteers with similar characteristics and randomly divide them into two groups: a treatment group and a control group. Subjects in the treatment group receive the experimental treatment; members of the control group are given a placebo. A **placebo**, often referred to as a "sugar pill," is a sham treatment that has no known physical effects. Because a person's positive expectations can result in positive findings, placebos help rule out the effects of such wishful thinking.

Researchers give subjects placebos to compare their responses to responses of subjects who receive the actual treatment. In *double-blind studies*, subjects and researchers are unaware of the identity of those taking placebos. Placebos can temporarily relieve subjective complaints, such as pain, lack of energy, and poor mood. Thus, subjects who are given placebos often report feeling better, even though the placebo did not provide any known physical effects. Scientists refer to these reports as the *placebo effect*. The placebo effect may be responsible for many claims of beneficial results from using unconventional medical therapies.

Complementary and alternative medicine (*CAM*) is an unconventional and diverse system of preventing, diagnosing, and treating diseases that emphasizes

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Analyzing Health-Related Information

Critical Thinking

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This statement has value claims that are not supported with scientific evidence.

No treatment contains everything each person needs to improve his or her health.

This suggests that American scientists do not understand that medicines can be derived from plant sources, when, in fact, American researchers often rely on plants as sources of chemicals that have medicinal uses. No scientific evidence is cited to show that the herbs in Panacea have the touted properties. These two sentences, then, contain only value claims; thus, the information may be unreliable.

For centuries, doctors in the Orient have known about the wonders of herbal medicines—nature's botanical cures for human ailments.



Finally, American scientists are recognizing the healthful benefits of these herbs.

SwayCon Pharmaceuticals has developed a capsule that contains everything you need to reduce suffering, enhance health, and regain youthful vigor.

A team of medical experts from three major medical schools in the United States have clinical proof that the ingredients of Panacea are effective! Panacea contains a chemical-free mixture of natural enzymes and exotic herbs that

- relieve up to 80% more arthritis pain than aspirin;
- lower blood pressure by up to 20%;
- lower cholesterol by up to 45%;
- reduce lung cancer risk by as much as 50%, even in smokers;
- and reduce the risk of heart attack by 75%.*

"Clinical proof" is a red flag. The medical experts and medical schools where their research has been conducted are not identified. Objective testing could show the product is neither safe nor effective. The ad should cite the specific effects of the product, including negative ones.

"Chemical-free" is a red flag; all matter, including herbs and other plants, is comprised of chemicals. Furthermore, scientific studies should be cited to provide evidence for these value claims.

Other remarkable findings

Taking Panacea for a few months can improve intelligence. R.P., a college student at a large East Coast university, reports, "At the beginning of the fall semester, I started taking three capsules of Panacea a day. My G.P.A. went from a 1.8 to a 3.4! Panacea has helped me get all A's!"

A testimonial from an individual is not scientific evidence. This student's G.P.A. my have risen for a variety of reasons. Studies conducted to show that a treatment is useful should contain at least 30 subjects.

Reports are coming into our offices that Panacea acts as a sexual stimulant, increasing potency. S.D., a computer programmer in St. Louis, writes, "Thanks for saving my marriage. Before taking Panacea, my husband complained about my lack of interest in sex. One of my friends told me that Panacea can help. Just a few days after taking the capsules, our marriage turned into a perpetual honeymoon."

"Potency" is a vague and undefined red-flag term. Again, this testimonial is a value claim that is unsupported by scientific evidence.

Panacea is only available in fine health food stores. Order a three-month supply now, while supplies last

This is irrelevant information. Where the product is sold has nothing to do with its quality or characteristics. The authors of the ad are simply trying to make their product look superior to other similar products.

A PANACEA PILL A DAY KEEPS THE EXPENSIVE DOCTORS AWAY!

* These statements have not been evaluated by the FDA.

This statement gives the impression that consumers have no time to investigate the product thoroughly. It is intended to make consumers think that the product will sell out if they wait, and they will miss out on a good thing. Again, this information is irrelevant.

No scientific evidence is cited that a daily Panacea pill prevents serious illness. Additionally, this statement attacks conventional medical practitioners by implying that they are interested only in making money, which suggests that physicians can't be trusted.

Disclaimer

Conclusion: This ad is merely a collection of value claims that are not supported by scientific research. The ad further attempts to encourage the reader to purchase the product by suggesting that it is better (and less expensive) than conventional therapies. It claims to relieve a wide range of health conditions. The red-flag phrases and testimonials, lack of scientific evidence, and failure to caution consumers about potential hazards of the product all suggest the ad is an unreliable source of health-related information.

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integrative medicine System of medical care that emphasizes personalized health care and disease prevention.

dietary supplement A product that is consumed to add nutrients, herbs, or other plant materials to a person's diet.

spirituality, self-healing, and harmonious interaction with the environment.[34] A treatment is *complementary* when it is used along with scientific medical care. A young man with liver cancer, for example, may use yoga and meditation to accompany the conventional medical treatments prescribed by his physician. An *alternative* therapy replaces conventional medical therapy. If the patient with liver cancer stops his prescribed treatments and substitutes fasting and coffee enemas in hopes of a cure, he is relying on alternative forms of medical care.

CAM can be classified as follows:

- *Alternative medical systems*, such as Ayurveda, traditional Chinese medicine, homeopathy, and naturopathy
- *Manipulative therapies*, such as spinal manipulation (chiropractic), osteopathy, reflexology, rolfing, and therapeutic massage
- *Mind–body interventions*, such as meditation, biofeedback, prayer, and creative arts healing (music therapy, for example)
- *Biologically based treatments*, such as aromatherapy, special foods (probiotic yogurt, for example), herbal teas, and large doses of vitamins
- *Energy therapies*, such as acupuncture, acupressure, and use of magnets

Certain CAM therapies have positive effects on the body and mind. For example, acupuncture (***Figure 1.8***) can relieve the nausea and vomiting that often occur after surgery or that are associated with early pregnancy and lower back pain.[35] Although difficult to test scientifically, aromatherapy and therapeutic massage can be soothing and relaxing. ***Table 1.4*** provides information about popular CAM practices, including homeopathy and reflexology.

Promoters of certain CAM practices claim diseases can be prevented or cured by "cleansing" tissues, "eliminating toxins" from the body, and "balancing chi." To support claims of their method's effectiveness, promoters often use anecdotal reports and testimonials. Nevertheless, the effectiveness of most CAM therapies is not supported by results of well-designed clinical studies.

Conventional medicine focuses on the "disease-oriented" approach, which seeks to diagnose and treat illnesses. Many physicians practice **integrative medicine**, which emphasizes personalized health care and disease prevention. Integrative medical practitioners focus on ways to encourage people to take greater responsibility for achieving and maintaining good health and well-being. Such practitioners also recognize the potential value of incorporating forms of alternative medicine that have scientific support into their preventive healthcare practices.

Figure 1.8

Acupuncture. Some physicians combine acupuncture with conventional forms of medical care. Acupuncture may stimulate the body to release natural pain-relieving compounds, but its effectiveness is difficult to test scientifically.

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Table 1.4

Common Alternative Medical Practices

Type	Claims and Principles of Practice	Results of Scientific Research
Acupuncture	Used to treat a variety of common ailments. Based on an ancient Chinese medical practice in which thin needles are inserted into the skin or underlying muscles at specific places and stimulated to regulate the flow of "chi," the life force.	Testing acupuncture scientifically is difficult. It may relieve nausea and vomiting associated with "morning sickness," recovery from surgery, and cancer chemotherapy. Acupuncture may stimulate the body to release natural pain-relieving compounds.
Ayurvedic medicine	According to ancient Hindu religious beliefs, one achieves good health by meditating; eating grains, ghee (a form of butter), milk, fruits, and vegetables; and using herbs. Lack of balance between "energies" causes health problems. Fasting and enemas are used to treat severe ailments.	Meditation relieves stress; fruits, vegetables, and dairy products are nutritious foods; and some herbs have medicinal value. Ghee, however, can be fattening, and fasting can be dangerous for unhealthy people. Enemas are unnecessary for good health and should be used only under a physician's instructions.
Chiropractic medicine	According to some chiropractors, misaligned spinal bones cause disease. Spinal manipulation prevents or cures disease by correcting the spine. Other practitioners use spinal manipulation, but accept the germ theory of disease.	Can be effective in treating certain types of back pain, but some spinal conditions require medications and surgery that only a physician can provide. There is no scientific evidence that any disease can be treated by spinal adjustment.*
Homeopathy	Use of extremely dilute solutions of natural substances to treat specific illness symptoms.	Studies do not indicate that homeopathy is effective.
Naturopathy or natural medicine	Practice based on natural healing. Practitioners believe diseases occur as the body rids itself of wastes and toxins. Treatments include fasting, enemas, acupuncture, and "natural" drugs.	Lack of standardized medical training for practitioners called "naturopaths."
Therapeutic massage, reflexology, or zone therapy	Specific areas of the body correspond to certain organs. To alleviate pain or treat certain diseases, practitioners massage or press on the area that is related to the affected tissues.	The practice may stimulate the body to release pain-relieving compounds, but testing "touch" therapies scientifically is difficult. In general, scientific evidence does not indicate that pressing on body parts is an effective method of diagnosing or treating ailments.

*Data from: Ernst, E. (2008). Chiropractic: A critical evaluation. *Journal of Pain and Symptom Management, 35*(5), 544–562. Ernst, E., & Posaszki, P. (2011). An independent review of NCCAM-funded studies of chiropractic. *Clinical Rheumatology, 30*(5), 593–600.

Herbs as Medicines

Many Americans ingest pills or teas made from herbs and other plants because they think these products are natural and harmless ways to cure various disorders or achieve optimal health and well-being. The U.S. government classifies herbal products as *dietary supplements*. A **dietary supplement** is a product that is consumed to add nutrients, herbs, or other plant materials to a person's diet. Dietary supplements are not regulated by the FDA like medications are. As a result, the FDA does not require dietary supplement manufacturers to register their products and submit clinical evidence indicating that

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the products have been tested for safety and effectiveness prior to being marketed. In 2007, the FDA established a new rule that required manufacturers of dietary supplements to test the purity, strength, and composition of their products before marketing them to consumers. As a result, dietary supplements sold in the United States should be accurately labeled, contain the ingredients listed on the label, and provide standard amounts of the substances.

When the FDA determines that an ingredient contained in dietary supplements is dangerous, the agency can ban its use. Furthermore, the FDA can remove a dietary supplement from the market if its label states claims about the product's health benefits that are not supported by scientific evidence. The FDA permits herbal supplement manufacturers to include certain structure/function claims on the product's label. For example, the claims "maintains a healthy circulatory system" and "improves urine flow" describe how supplements can affect body functions. Unless given prior approval by the FDA, herbal supplement manufacturers cannot indicate on the label that a supplement can prevent, diagnose, treat, improve, or cure diseases. Results of clinical studies indicate that specific herbs can provide measurable health benefits. St. John's wort, for example, can relieve symptoms of mild to moderate depression and appears to be relatively safe when not combined with prescription medications.[36] Ginseng is a top-selling dietary supplement in the United States. People use the herb for a variety of purposes, including as a sedative, antidepressant, and aphrodisiac. There is scientific evidence that taking *American ginseng* before meals may improve blood sugar values of people with type 2 diabetes.[37] Ingesting an extract made from the herb regularly may reduce the risk of respiratory tract infections, such as the common cold. Although evidence that ginseng provides other healthful benefits is lacking, scientists continue to investigate the herb's potential uses.

Not every herbal product has measurable beneficial effects on health. Ginkgo is a popular dietary supplement, but scientific evidence to support claims that extracts made from ginkgo leaves improve memory is weak or inconsistent.[38] Many people take echinacea to prevent or treat the common cold, but the usefulness of this practice does not have widespread scientific support.[38,39,40] More research is needed to determine whether taking ginkgo, echinacea, and many other dietary supplements has measureable health benefits.

A "natural" therapy is not necessarily a safe one. Many plants, including comfrey, chaparral, pennyroyal, kava, birthwort, snakeroot, and germander, contain chemicals that can be harmful and even deadly when consumed. Ingesting *kava*, an herb that is promoted for relieving anxiety, can result in serious liver damage.[41] In 2004, the FDA banned the sale of most dietary supplements that contained *ephedra*, a naturally occurring stimulant drug that is often called ma huang. Traditional Chinese remedies and herbal teas that contain ephedra were exempt from the ban. Consuming ephedra can result in stroke, heart attack, and death.[42] In 2003, a weight-loss supplement that contained the toxic herb contributed to the sudden death of Steve Bechler, a 23-year-old professional pitcher for the Baltimore Orioles baseball team.

Consumers need to be aware that medicinal herbs may interact with prescription medications or other herbs, producing serious side effects. These products may also be contaminated with pesticides or highly toxic metals. Many dietary supplements are expensive and useless in promoting good health. ***Table 1.5*** includes information about the safety and effectiveness of some popular herbal supplements. For reliable information about herbs and other dietary supplements, check the following government websites: http://nccam.nih.gov/health/atoz.htm and www.ods.od.nih.gov.

Some herbal supplement manufacturers claim their products have been clinically tested and shown to provide health benefits. The reliability of these claims may be questionable, however, because they are often based on results obtained from animal research or few, poorly designed human studies. Given the lack of scientific evidence that most medicinal herbs are safe and effective, the amount of money



St. John's wort.
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Table 1.5
Popular Herbal Supplements

		Research Findings	
Supplement	**Common Claims**	**Uses**	**Risks**
St. John's wort	Relieves depression	May reduce mild to moderate depression symptoms; no value for major depression	Can interfere with birth control pills and other prescribed medicines, increase sensitivity to sunlight, and cause stomach upset
Saw palmetto	Improves urine flow	May reduce symptoms of prostate enlargement that are not caused by cancer	May interfere with prostate-specific antigen (PSA) test to detect prostate cancer
Feverfew	Relieves headaches, fever, arthritis pain	Contains a chemical that may prevent migraines or reduce their severity	May cause dangerous interactions with aspirin or Coumadin (warfarin; a prescribed drug)
Echinacea	Prevents colds and influenza	Does not prevent colds or reduce their severity	May cause allergic response and be a liver toxin
Ginkgo biloba	Enhances memory and sense of well-being; prevents dementia	Weak or inconsistent scientific evidence to support claims	May interfere with normal blood clotting, cause intestinal upset, and increase blood pressure
Ginseng	Enhances sexual, mental, and exercise performance; increases energy; relieves stress and depression	Has no mood-enhancing effects. May reduce risk of respiratory infections and improve blood sugar values of people with diabetes	Can cause "jitters," insomnia, hypertension, and diarrhea and can be addictive; can be contaminated with pesticides and the toxic mineral lead
Yohimbe	Enhances muscle development and sexual performance	Dilates blood vessels but has no beneficial effects on muscle growth or sex drive of humans	Can produce abnormal behavior, high blood pressure, and heart attacks
Guarana	Boosts energy and enhances weight loss	Acts as a stimulant drug	May cause nausea, anxiety, and irregular heartbeat
Kava	Relieves anxiety and induces sleep	Acts as a depressant drug	May cause serious liver damage; do not use when driving

consumers pay for these products is astonishing. In 2012, for example, Americans spent more than $5.6 billion on herbal supplements.[43]

CAM Therapies in Perspective

National surveys provide estimates of the extent to which Americans use unconventional medical therapies. According to the National Health Interview Survey, 38% of adults used forms of CAM in 2007.[48] Other commonly used CAM treatments were natural products, deep breathing exercises, meditation, and chiropractic care. In most cases, CAM was used to treat back, neck, and joint problems; colds; anxiety; and depression.

The natural or exotic nature of many alternative therapies such as herbal pills and teas, coffee enemas, shark cartilage, and reflexology may appeal to people who distrust modern technology or have lost faith in conventional medical care. Others use alternative therapies to prevent or treat ailments because they want to take more control over their health. Conventional medical practitioners are concerned when persons with serious conditions forgo or delay conventional treatments and rely instead on questionable alternative therapies. These could be life-threatening decisions. Many forms of cancer, for example, respond well to conventional treatments, particularly if the disease is in an early stage.

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Echinacea.
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Many adults who use alternative medical therapies choose them to complement rather than replace conventional treatments.[44]

Regardless of treatment, people suffering from acute conditions such as low back pain, common colds, and gastrointestinal disturbances generally recover with time. Individuals with chronic health problems such as osteoarthritis and multiple sclerosis often report *remissions*, times when their conditions improve. If people use alternative therapies when they are recovering or their illnesses are in remission, they are likely to think the nonconventional treatment cured or helped them. Additionally, people who combine alternative therapies with conventional medical care may attribute any improvement in their health only to the alternative treatments.

Conventional medical practitioners are likely to be skeptical of CAM techniques if they have not been shown scientifically in large-scale clinical studies to be safe or more helpful than placebos. The National Center for Complementary and Alternative Medicine within the National Institutes of Health funds research to determine the safety and effectiveness of alternative medical practices. Until supportive data are available from well-designed studies, consumers should be wary of CAM practices.

Before using alternative therapies, discuss your options with your physician and consider taking the following steps to protect yourself:

- Contact a variety of reliable sources of information to determine the risks and benefits of the treatment. For example, ask people who have used the treatment to describe its effectiveness and side effects. Conduct a review of medical literature, and recognize that popular sources of information such as health magazines and the Internet may be unreliable. Look for articles in medical journals or news magazines that have information concerning the usefulness of conventional as well as alternative medical approaches to care.
- Ask people who administer the treatment to provide proof of their medical training. Investigate the validity of their educational credentials. People who promote certain alternative medical practices often have little or no medical and scientific training.
- Determine the cost of treatment and whether your health insurance covers the particular alternative therapy. If it does not, find out why. You may find that your health insurer considers the treatment risky or ineffective.
- Ask your primary care physician for his or her opinion of the treatment. If you still have questions about the treatment, seek a second opinion from one or more other physicians.
- If you decide to use an alternative therapy, do not use it along with conventional therapy or abandon conventional treatment for any medical problem without consulting your physician.
- Investigate the possibility that the alternative medicine or herbal supplement can interact with conventional medications that you take and produce serious side effects. Investigate the possibility that taking combinations of herbal supplements can be harmful.
- If you are pregnant or breastfeeding, do not use herbal supplements or alternative therapies without consulting your physician.
- Do not give herbal supplements or alternative therapies to children.

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Healthy Living Practices

- Before using an herbal supplement or alternative therapy, obtain reliable information concerning the pros and cons of the treatment and discuss your options with your physician.

Choosing Conventional Medical Practitioners

Scientific research, technological advancements, and a systematic approach to medical education make the conventional healthcare system in the United States among the best in the world. Conventional medicine, however, has its limitations; not every condition can be prevented, managed, or cured.

Americans generally consider conventional medical care practitioners, such as physicians, dentists, nurses, and dietitians, to be experts in their fields. How do you choose the best medical professionals? A good way is to ask family and friends for their recommendations. If you are enrolled in certain health insurance plans, you generally must select from approved lists of providers. After you obtain some names of physicians or other conventional practitioners, check your health insurance plan's list of healthcare providers to determine whether the recommended individuals are listed.

To help ensure high-quality conventional health care, consumers should choose physicians who have certain personal and professional characteristics, including appropriate training and excellent medical credentials (***Table 1.6***). For example, a physician who is *board certified* or *board eligible* in a specialty, such as internal medicine, is well trained in that particular field of practice. In addition to considering a prospective physician's qualifications, you should evaluate his or her personality and office conditions. Make an appointment to meet with the physician and prepare a list of questions to ask him or her. For example, which health insurance plans are accepted? Where did the practitioner receive his or her medical training? With which hospitals does the physician have affiliations? When you are in the practitioner's waiting room, observe its cleanliness and the staff's attitude and friendliness. When you interview the physician, observe his or her body language and judge the person's verbal responses to your questions. After the interview, evaluate the physician's level of comfort with you, his or her answers to your questions, and office conditions. Was the physician friendly and interested in you and your health history? Did he or she provide satisfactory answers to your questions? Was the office clean and staff courteous? If you answered "yes" to these questions, you are likely to enjoy a good relationship with this physician and receive good medical care.

Ideally, people should be able to form a trusting relationship with their conventional medical practitioners, including physicians. To develop these relationships, patients need to acknowledge that they are largely responsible for their health status. For

Table 1.6

Characteristics of Good Personal Physicians

A good personal physician:

- Is intelligent and well qualified in his or her field of practice
- Spends adequate time with patients and listens to patients' concerns
- Is willing to modify treatment to meet patients' concerns and values
- Is caring and sympathetic
- Enlists patients' active participation in health-related decisions
- Is willing to admit when his or her medical knowledge is lacking
- Recognizes the limitations of his or her expertise and is willing to refer patients to other medical professionals when necessary
- Provides thorough physical examinations and orders appropriate testing, such as blood tests or x-rays
- Is available for telephone consultations when necessary
- Is available to handle emergencies or has a competent backup physician to take care of such situations
- Does not delay in seeing patients with urgent care needs
- Is on staff at one or more nearby accredited hospitals
- Keeps up to date by attending professional educational meetings or reading medical journals
- Has a well-managed, well-equipped office with friendly, courteous staff

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Table 1.7

Life Stages

Stage	Approximate Age
Infants and toddlers	0–3 years
Children	4–11 years
Adolescents and teens	12–19
Adults	20–64
Older adults	65 or older

example, patients should adopt healthy lifestyles, obtain regular checkups, and seek medical attention for ailments that do not improve within a few days or have serious signs or symptoms. Moreover, patients should follow their healthcare practitioners' advice and communicate with them should concerns about their medical care arise.

Healthcare practitioners can foster positive relationships with patients by spending adequate time with them, listening to their concerns carefully, and showing an interest in knowing more about them, not just their physical signs and symptoms. In addition, it is important for practitioners to be caring, sensitive, and understanding; to modify treatment to meet the patient's concerns and values; and to enlist the patient's active participation in health-related decisions.



Across THE LIFE SPAN

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HEALTH

Although the focus of this text is adult health, the Across the Life Span feature briefly describes health concerns that are specific to other stages of life, such as infancy, childhood, adolescence, and the older adult years. ***Table 1.7*** indicates the approximate age groupings for these life stages.

Why should college students learn about health conditions that can affect very young or very old members of the population? This information is relevant because many college students have younger siblings, some students have children, and those who are not parents may have children in the future. Many college students are middle aged or have elderly parents and grandparents. The following information highlights some major life cycle health concerns of Americans.

In the United States in 2010, about 6 babies in 1,000 died during the first year after birth.[7] Most of these deaths were due to birth defects, low birth weights, and breathing difficulties that arose from *prematurity*—being born too early (***Figure 1.9***). Public health efforts aimed at educating and providing medical care for pregnant women can reduce the number of infant deaths.



Figure 1.9

Premature Newborns. Infants born prematurely have a greater risk of serious health problems than do healthy full-term infants.

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Unintentional injuries are the major health threat to children between 1 and 14 years of age. Most deaths from unintentional injuries, such as deaths due to motor vehicle crashes, drownings, and house fires, are preventable.

Adolescence is a time when youngsters establish behaviors that may last a lifetime and when experimentation with risky behaviors usually begins. In 2011, about 8% of high school students reported driving a car or other vehicle after consuming alcohol, and 16.6% had carried a weapon on at least one day during the 30 days preceding the survey.[45] About 9% reported that they had been physically abused intentionally by a boyfriend or girlfriend and 30% of these students reported being overweight or obese. Unintentional injuries (accidents), homicide, and suicide are major causes of death for people aged 15 to 24. In 2010, motor vehicle accidents accounted for almost two-thirds of deaths resulting from unintentional injuries for Americans in this age group.[7]

In 2011, the teenage birth rate declined to its lowest level in nearly 70 years of recordkeeping in the United States.[46] However, sexually transmitted infections (STIs) continue to be major health problems for adolescents. People between 15 and 24 years of age contract about 50% of all new cases of sexually transmitted infections.[17] AIDS is primarily a sexually transmitted infection; sexually active adolescents are at risk of becoming infected with HIV, the virus that causes AIDS.

In 2012, people 65 years of age and older made up nearly 14% of the U.S. population. The percentage of older adults in the population is expected to increase rapidly over the next 40 years.[47]

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CHAPTER REVIEW

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Summary

Lifestyle includes behaviors that promote or deter good health and well-being. Optimal wellness is an optimal degree of health. The holistic approach to health integrates physical, psychological, social, intellectual, spiritual, and environmental dimensions. Contemporary definitions of *health* reflect not only how an individual functions but also what that person can achieve, given his or her circumstances.

Heart disease and cancer are the major killers of Americans. Lifestyle choices contribute to the development of these and many other life-threatening diseases. The distribution of health problems differs among the various ethnic and racial groups in the United States. Poverty and cultural differences are often barriers to good health care.

Experiences, knowledge, needs, and values affect one's motivation to change health-related behaviors. People are motivated to take action if they feel that a sufficient threat to their health exists and that the results of changing their behavior will be worthwhile.

Although no one can guarantee good health, many factors contribute to one's chances of enjoying a long and productive lifetime of good health. Several of these factors are the result of lifestyle choices that people can make, while they are still young, to prevent or delay disease. Responsible health-related lifestyle choices involve a systematic approach to decision making.

People can become more careful consumers of health-related information, products, and services by learning to recognize misinformation. To obtain reliable health-related information, check with experts in federal, state, and local agencies and organizations.

Conventional medicine relies on modern scientific principles, modern technologies, and scientifically proven methods to prevent, diagnose, and treat health conditions. Complementary and alternative medicine (CAM) is an unconventional and diverse system of preventing, diagnosing, and treating diseases that emphasizes spirituality, self-healing, and harmonious interaction with the environment. Conventional medical practitioners are likely to be skeptical of CAM techniques that have not been shown scientifically to be safe and effective. Until supportive data are available, consumers should be wary of CAM practices.

Throughout the life span, health concerns vary. The most common causes of infant deaths are birth defects, low birth weights, and prematurity. Preventable injuries are the major causes of death for children and youth. Additional serious public health concerns for adolescents are suicide, homicide, drug abuse, obesity, pregnancy, and sexually transmitted infections (including HIV).

Applying What You Have Learned

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1. Develop a plan to improve your health by selecting a health behavior you'd like to change. **Application**
2. Select a health-related advertisement from the Internet and evaluate the validity of its information. Use the information provided in the "Analyzing Health Information" section to help you answer the following questions. **Analysis**
3. Identify several sources of health information that you have used in the past year. Using the criteria from the "Analyzing Health Information" section, explain why you think each source is reliable or unreliable. **Synthesis**
4. Think of a health-related decision that you made recently. For example, did you decide to turn down an offer to use a mind-altering drug, wear a helmet while riding a motorcycle, lose a few pounds, or use an herbal product to treat a condition? When you made this decision, did you use the decision-making process described in this chapter or did you act impulsively? Explain why you would or would not make the same decision today. **Evaluation**

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Application
using information in a new situation.

Analysis
breaking down information into component parts.

Synthesis
putting together information from different sources.

Evaluation
making informed decisions.

Key

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Reflecting on Your Health

A reflective journal is a personal record of your thoughts and expressions of your feelings. The purposes of keeping this journal are to stimulate your thinking about what you have learned about health and to help you understand how your thoughts and feelings about your health might have changed over the semester. Thinking about new information can help you determine its usefulness, which can influence your attitudes and behaviors.

The Reflecting on Your Health questions at the end of each chapter are designed to guide your thinking. If you want to write about something else that is related to the contents of the chapter, feel free to do so, but make sure to identify the topic in your opening sentence. Write your journal entries in the first person, using "I" statements to express your thoughts, as though you were talking to a close friend. Do not worry about your spelling, punctuation, or grammar—just let your thoughts flow.

Some instructors make journal writing an optional activity; others require that you respond to all of the questions, and they grade journals. Still other instructors simply check to see if students are doing the assignment. Refer to the course syllabus or ask your instructor about his or her grading practices and other instructions concerning the journal.

1. What does the term *health* mean to you? Which of the definitions of health provided in this chapter best "fits" with your thoughts on health?
2. Do you think everyone should strive to achieve optimal health? Provide a rationale for your response.
3. What impact does spiritual health have on your sense of well-being? If spiritual health is important to you, describe the role it plays in your life.
4. Do you agree with the idea presented in the chapter that social health influences your physical health? Why or why not?
5. Select a current behavior that you believe is your worst health behavior. Identify three factors that influence this specific behavior, and explain how each factor influences your behavior.
6. Under what circumstances would you consider using alternative therapies?

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