

Introduction



Objectives

After reading this chapter, you should be able to:

- Describe the benefits of routine physical activity on life expectancy.
- Identify the actual causes of death in the United States.
- Identify and define the components of fitness and wellness.
- Describe national health and wellness goals.

“He who has health, has hope; and he who has hope, has everything.”

—Carlyle

How Long Can We Expect to Live?

Life expectancy in the United States in 2009 was the highest in recorded history, reaching 78.2 years (or about 78 years and 10 weeks). Since 2000, life expectancy has increased by 1.8% (or about 17 months) for the general population. Females continue to have the longer life expectancy (80.6 years), compared with males at 75.7 years.

Life expectancies rose dramatically in the past century. The average life span of anyone in an industrialized nation has increased since 1900 by over 30 years due to improvements in public health, vaccinations, and disease prevention. For example, fewer people have been affected by epidemics of infectious diseases that can be vaccinated against, such as smallpox. Penicillin, discovered in 1928, eliminated bacterial infections as a major cause of death (see **Figure 1.1**).

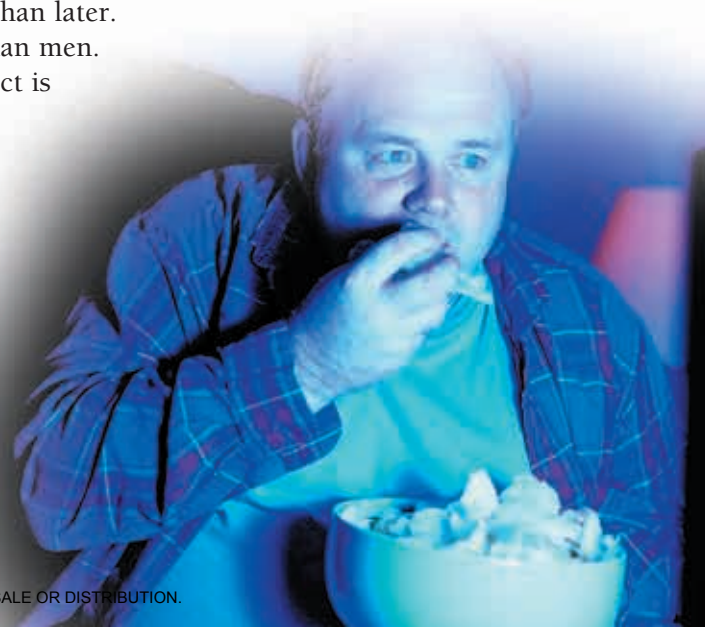
It is not likely that life expectancies will continue to rise as they have during the past century. The approximately 10 million cells in your body have a limited life span, meaning they can only divide a certain number of times before they begin to age and stop reproducing. This phenomenon, known as the Hayflick limit, is named after its discoverer, Dr. Leonard Hayflick. The human life-span limit is believed to be close to 125 years, although very few of us reach that age. Incidentally, Frenchwoman Jeanne Calment, who died in 1997 at the age of 122 years, 164 days, has the longest confirmed life span.

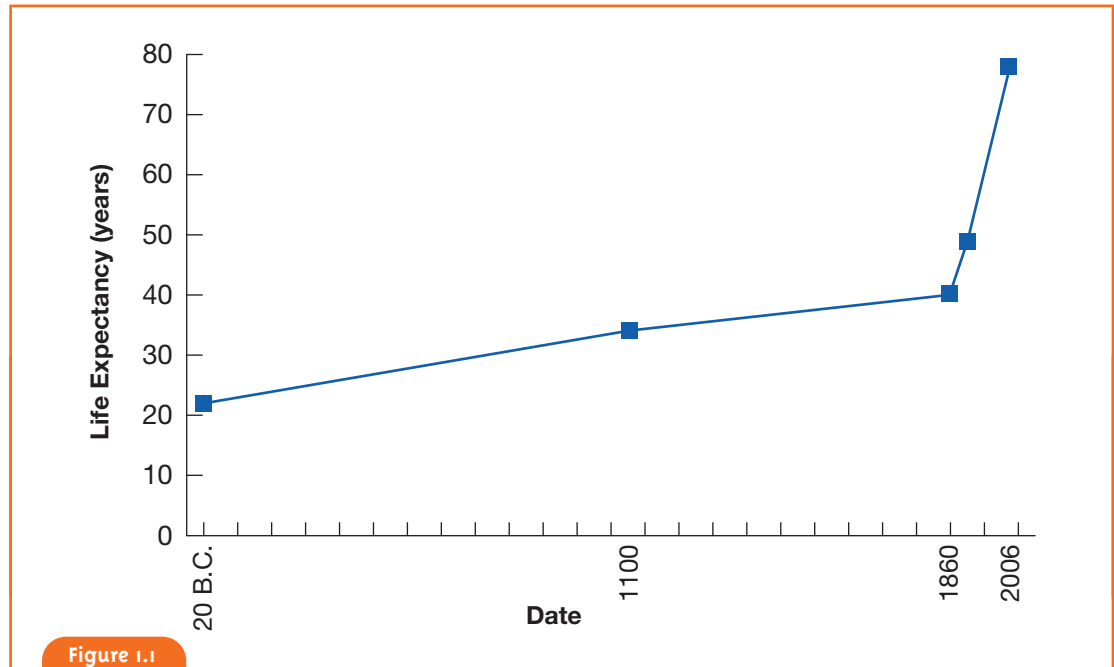
Various reasons explain why more of us do not make it even to 100 years. Nearly all of us experience life-shortening diseases (e.g., heart disease, cancer). While it may not be possible to change our cells' preprogramming, prevention or better treatment of these diseases allow us to come closer to our Hayflick limit. Some experts actually believe that United States' life expectancy will fall dramatically by at least 2 to 5 years in the near future because of obesity. These experts believe that future generations will have shorter and less healthy lives than their parents for the first time in modern history, unless changes are made (Olshansky 2005).

In the United States, the average person lives into his or her seventies. Your chronological age is your actual age in years from your birth date. However, what really matters is your biological age, which is an estimate of your well-being and general health compared to those of others of your age. For example, people with health problems at 50 are considered to be biologically older than a healthy and vigorous 70-year-old. The lesson here is for you to take control of your health sooner rather than later.

In the United States, women live about 5 years longer than men. For women, the most accurate predictor of their genetic effect is chronological age at menopause. The average age of menopause for American women is 52 years, but in general, the later her menopause occurs, the longer a woman will live. For those who have not reached that time in their lives, their mother's age at menopause will give an estimate of an expected menopause and an estimated genetic age.

Certain biomarkers of biological aging can let you know whether you are doing better or worse than your chronological age. These





Life expectancy since Julius Caesar. (Sources: Reproduced with permission from Flanigan R. J., and Flanigan Sawyer K., *Longevity Made Simple*, First edition. Williams Clark Publishing, 2007. Data from U.S. Centers for Disease Control and Prevention; Lydia Bronte, *The Longevity Factor*, HarperCollins Publishers, 1993; Human Mortality Database, University of California, Berkeley [USA]; and Max Planck Institute for Demographic Research [Germany].)

Medical News You Can Use

Healthy Living Really Does Postpone Death

Four health risk behaviors—lack of physical activity, poor nutrition, tobacco use, and excessive alcohol consumption—are responsible for much of the illness and death related to chronic diseases. Seven out of 10 deaths among Americans each year are from chronic diseases. Heart disease, cancer, and stroke account for more than 50% of all deaths each year.

A Centers for Disease Control study finds that people can live longer if they practice one or more healthy lifestyle behaviors—not smoking, eating a healthy diet, getting regular physical activity, and limiting alcohol consumption. Not smoking provides the most protection from dying early from all causes.

People who engaged in all four healthy behaviors were 63% less likely to die early from cancer, 65% less likely to die early from cardiovascular disease, and 57% less likely to die early from other causes compared to people who did not engage in any of the healthy behaviors.

Source: Data from Ford E.S., et al., Low-risk lifestyle behaviors and all-cause mortality. *American Journal of Public Health* 2011. 101(10): 1922–1929.

markers primarily come from blood testing at a physician's office, but you can test several of these on your own:

- Blood pressure
- Blood glucose and cholesterol levels
- Field test for cardiorespiratory fitness (e.g., walking test)
- Muscular strength
- Bone mineral density
- Skin elasticity
- Cognitive abilities, including memory
- Blood markers for systemic inflammation

It is difficult to obtain a definite calculation of your biological age. However, if you can answer questions about different health factors, including cholesterol levels, blood pressure, exercise habits, and more, try one of several free online calculators:

- Life Expectancy Calculator available at <http://www.livingto100.com>
- Real Age Test available at www.realage.com

It is unknown how valid the tests are, but taking either or both of the online tests may point out some ways to change your lifestyle that can improve your health and wellness.

Most of us desire a long life; however, let us be mindful of the admonition given by the French essayist, Michel de Montaigne: "The usefulness of living lies not in duration but in what you make of it. Some have lived long and lived little."



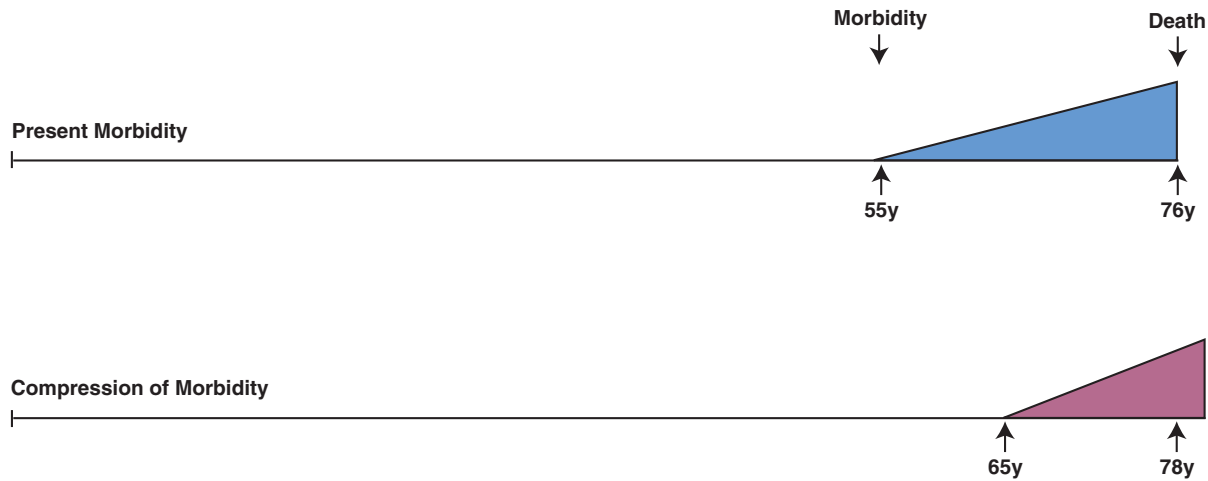


Figure 1.2

Compression of morbidity. Effects of good health habits. Death and serious medical problems occur earlier in life and medical problems have a longer period in those not practicing a healthy lifestyle. Serious medical problems occur much later in life and have a shorter period in those practicing a healthy lifestyle. (Source: Adapted from Fries, J. F. Measuring and monitoring success in compressing morbidity. *Annals of Internal Medicine* 2003; 139:455–459.)

Compression of Morbidity

As people live longer, some fear that they will spend additional years suffering poor health, disability, or dementia. In contrast, studies focusing on the concept known as compression of morbidity suggest that people can have both a longer life and a healthier old age. To do so, it is necessary to engage in healthy, preventive practices (see [Lab 1-1](#)).

Figure 1.2 shows two time lines for life-ending morbidity and longevity. The first line graph shows that today disability begins to be detectable around age 55 in the average individual, and death occurs on average around 76 years of age. Most disability occurs between these points, and the seriousness of the disability increases with time. The second line graph shows that a healthier lifestyle can extend your life, and if you become terminally ill, your life (and illness) will be shorter.

You want to minimize the number of years spent suffering, and maximize the total number of years living. Ideally, we want a long, healthy life, with a rapid decline leading to death.

Through a healthy lifestyle you can live longer. Although undesirable medical events will still occur near the end of your life, events leading to death will be delayed between 7 and 13 years, and time between that event and when death occurs is shortened.

You are the most important person taking care of your health. The key to taking responsibility for yourself is learning what works for you and then implementing what you have learned into your daily life. Some people view fitness-related goals as impossible dreams. The truth, however, is that everyone is capable of obtaining a healthy lifestyle. Keep in mind that every change you make is significant, no matter how big or small.

What Are the Leading Causes of Death?

There are more than 100,000 diseases. However, nearly 60% of the U.S. population dies from just three causes: heart disease, cancer, and stroke. The top 10 causes account for almost 80% of all deaths. Not one of the diseases below the top 10 accounts for even 1% of deaths. Therefore, to live a long and healthy life, the data suggest, that we focus primarily on preventing the top 10 diseases and not the 100,000 others.

Refer to **Figure 1.3**, 10 Leading Causes of Death. Note that the far-right column lists the leading causes of death for all ages.

Rank	Age Groups										Total
	<1	1–4	5–9	10–14	15–24	25–34	35–44	45–54	55–64	65+	
1	Congenital Anomalies 5,785	Unintentional Injury 1,588	Unintentional Injury 965	Unintentional Injury 1,229	Unintentional Injury 15,897	Unintentional Injury 14,977	Unintentional Injury 16,931	Malignant Neoplasms 50,167	Malignant Neoplasms 103,171	Heart Disease 496,095	Heart Disease 616,067
2	Short Gestation 4,857	Congenital Anomalies 546	Malignant Neoplasms 480	Malignant Neoplasms 479	Homicide 5,551	Suicide 5,278	Malignant Neoplasms 13,288	Heart Disease 37,434	Heart Disease 65,527	Malignant Neoplasms 389,730	Malignant Neoplasms 562,875
3	SIDS 2,453	Homicide 398	Congenital Anomalies 196	Homicide 213	Suicide 4,140	Homicide 4,758	Heart Disease 11,839	Unintentional Injury 20,315	Chronic Low. Respiratory Disease 12,777	Cerebrovascular 115,961	Cerebrovascular 135,952
4	Maternal Pregnancy Comp. 1,769	Malignant Neoplasms 364	Homicide 133	Suicide 180	Malignant Neoplasms 1,653	Malignant Neoplasms 3,463	Suicide 6,722	Liver Disease 8,212	Unintentional Injury 12,193	Chronic Low. Respiratory Disease 109,562	Chronic Low. Respiratory Disease 127,924
5	Unintentional Injury 1,285	Heart Disease 173	Heart Disease 110	Congenital Anomalies 178	Heart Disease 1,084	Heart Disease 3,223	HIV 3,572	Suicide 7,778	Diabetes Mellitus 11,304	Alzheimer's Disease 73,797	Unintentional Injury 123,706
6	Placenta Cord Membranes 1,135	Influenza & Pneumonia 109	Chronic Low. Respiratory Disease 54	Heart Disease 131	Congenital Anomalies 402	HIV 1,091	Homicide 3,052	Cerebrovascular 6,385	Cerebrovascular 10,500	Diabetes Mellitus 51,528	Alzheimer's Disease 74,632
7	Bacterial Sepsis 820	Septicemia 78	Influenza & Pneumonia 48	Chronic Low. Respiratory Disease 64	Cerebrovascular 195	Diabetes Mellitus 610	Liver Disease 2,570	Diabetes Mellitus 5,753	Liver Disease 8,004	Influenza & Pneumonia 45,941	Diabetes Mellitus 71,382
8	Respiratory Distress 789	Perinatal Period 70	Benign Neoplasms 41	Influenza & Pneumonia 55	Diabetes Mellitus 168	Cerebrovascular 505	Cerebrovascular 2,133	HIV 4,156	Suicide 5,069	Nephritis 38,484	Influenza & Pneumonia 52,717
9	Circulatory System Disease 624	Benign Neoplasms 59	Cerebrovascular 38	Cerebrovascular 45	Influenza & Pneumonia 163	Congenital Anomalies 417	Diabetes Mellitus 1,984	Chronic Low. Respiratory Disease 4,153	Nephritis 4,440	Unintentional Injury 38,292	Nephritis 46,448
10	Neonatal Hemorrhage 597	Chronic Low. Respiratory Disease 57	Septicemia 36	Benign Neoplasms 43	Three Tied* 160	Liver Disease 384	Septicemia 910	Viral Hepatitis 2,815	Septicemia 4,231	Septicemia 26,362	Septicemia 34,828

*The three causes are: Complicated Pregnancy, HIV, Septicemia.

Source: National Vital Statistics System, National Center for Health Statistics, CDC.

Produced by: Office of Statistics and Programming, National Center for Injury Prevention and Control, CDC.

Figure 1.3

Ten leading causes of death by age group, United States – 2007. (Source: Modified from *Ten Leading Causes of Death and Injury* 2007. Courtesy of the National Center for Injury Prevention and Control/CDC.)

What Are the Actual Causes of Death?

What actually kills us? Many people and even health professionals have come up with the answer of heart disease, followed by cancer and stroke—the top three leading causes of death.

Epidemiologists thought that it did not help, when someone died of a heart attack, to conclude merely that the cause was disease of the heart. They wanted to know what caused the disease of the heart in the first place, and what caused cancer or the stroke. They determined that more than half the instances of these diseases were attributable to a handful of largely preventable behaviors: smoking, poor diet, physical inactivity, and alcohol consumption. Our lifestyle, not our genes, largely determines if and when we suffer from one or more of the top causes of death. See [Table 1.1](#).

Table 1.1

Actual Causes of Death in the United States

Rank	Actual Cause	Percentage of Deaths
1	Tobacco use	18.1
2	Obesity (inactivity/poor diet)	16.6
3	Alcohol consumption	3.5
4	Microbial agents (flu, pneumonia)	3.1
5	Toxic agents	2.3
6	Motor vehicles	1.8
7	Firearms	1.2
8	Sexual behavior	0.8
9	Illicit drug use	0.7
10	Other	<.05

Source: Data from Mokdad A. et al., Actual causes of death in the United States, 2000. *Journal of the American Medical Association* 2004; 291(10):1238–1245.

Medical News You Can Use

Heart Disease Prevention May Save Billions Annually in United States

Prevention is the key to slowing the soaring health care costs of heart disease in the United States. The costs reached \$450 billion in 2010. Prevention of heart disease by managing programs to reduce cholesterol, blood pressure, and tobacco use would be a wise long-term investment in the nation's health and economy. Additionally, researchers calculated that every \$1 spent on the construction of walking or biking paths would cut medical costs by \$3. Slashing daily salt intake by Americans would help reduce the rate of high blood pressure by 25%. That could potentially save \$26 billion in health care costs each year. The American Heart Association concluded by showing that the savings would not only be monetary but would also lengthen and improve the quality of life that people enjoy. These changes would also have an effect on generations to come.

Source: Data from Weintraub W.S., et al., Value of primordial and primary prevention for cardiovascular disease. *Circulation* 2011; 124:967–990.

Although there are no surefire recipes for good health, the mixture of regular exercise and healthy eating comes close. Tobacco and physical inactivity, combined with unhealthy diets, are running neck-and-neck at the top of the list of actual causes of death. Americans are sitting around and eating themselves to death.

With the benefits of regular exercise or physical activity capable of doing everyone a world of good, it is mind-boggling that only a minority of Americans get enough exercise or leisure-time physical activity. Studies that have followed the health of large groups of people for many years, as well as short-term studies, all point in the same direction: *A sedentary (inactive) lifestyle increases the chances of becoming overweight and developing a number of chronic diseases.*

Exercise or physical activity helps many of the body's systems function better and keeps a host of diseases at bay.

A U.S. Surgeon General's report analyzed the 10 leading causes of death and suggested that up to half of U.S. deaths were attributable to unhealthy behavior or lifestyle; 20% to environmental factors; 20% to human biological/genetic factors; and 10% to inadequacies in health care (see **Figure 1.4**).

Behavior remains the dominant cause of premature death and disability. Today, chronic diseases—such as cardiovascular disease (primarily heart disease and stroke), cancer, and type 2 diabetes—are among the most prevalent, costly, and preventable of all health problems and account for seven out of every 10 deaths in the United States. Chronic diseases are mostly preventable but can be difficult to change because the risk factors associated with developing chronic conditions are linked primarily to lifestyle behaviors.

Definitions

To prepare properly for physical activity and exercise, let us start by examining two key words—"fit" and "well"—plus a few others from our everyday conversations.

Fitness, as defined by the U.S. Department of Health and Human Services (DHHS), is "the ability to carry out daily tasks with vigor and alertness, without undue fatigue, and with ample energy to enjoy leisure-time pursuits and respond to emergencies. Physical fitness includes a number of components consisting of cardiorespiratory endurance; skeletal muscle endurance, strength and power; flexibility; and body composition."

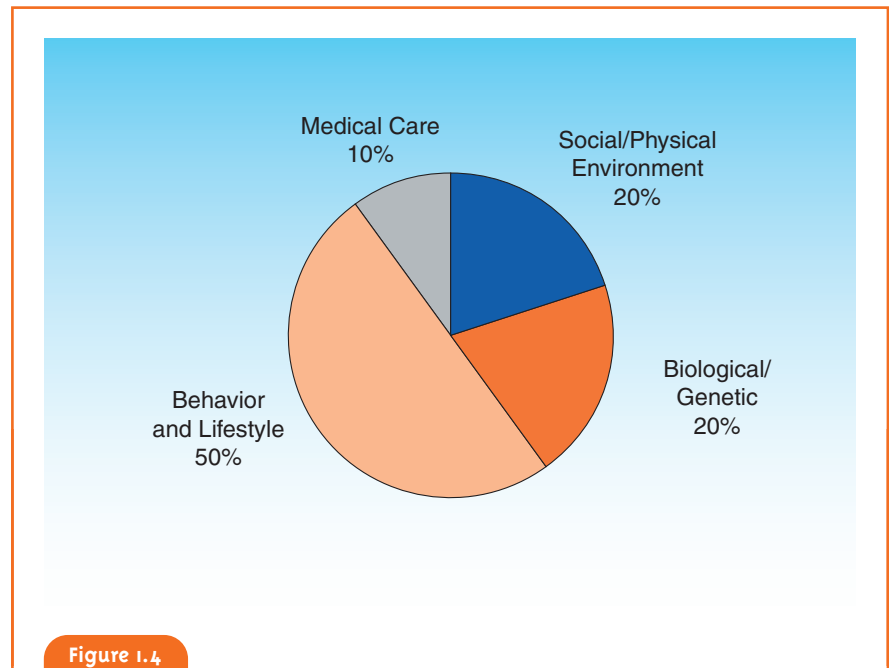
Those four components of fitness provide the basis of a balanced workout program. They are made up of structured activities aimed at increasing specific elements of fitness. Each is a health-related component of physical fitness. The DHHS defines these components of physical fitness as follows:

- **Cardiorespiratory fitness (endurance)** is the ability of the circulatory and respiratory systems to supply oxygen during sustained physical activity.
- **Muscle-strengthening activity (strength training, resistance training, or muscular strength and endurance exercises)** is physical activity, including exercise, that increases skeletal muscle strength, power, endurance, and mass.
- **Flexibility** is the range of motion possible at a joint. Flexibility is specific to each joint and depends on a number of variables, including but not limited to the tightness of specific ligaments and tendons. Flexibility exercises enhance the ability of a joint to move through its full range of motion.
- **Body composition** refers to body weight and the relative amounts of muscle, fat, bone, and other vital tissues of the body. Most often, body composition addresses only fat and lean body mass (or fat-free mass).

The second key word is “well.” Fitness leads to being well. **Wellness**, defined by the National Wellness Institute, is “an active process of becoming aware of and making choices toward a more successful existence.” Some have described wellness as “the constant, conscious pursuit of living life to its fullest potential.” It involves the whole person and is more than physical fitness. Wellness includes physical fitness, but it is multidimensional. A popular model adopted by many university, corporate, and public health programs encompasses these dimensions:

- **Physical:** encourages regular physical activity for cardiorespiratory, muscular, and flexibility fitness as well as knowledge about nutrition, and discourages the use of harmful substances.
- **Social:** encourages contributing to the common welfare of one’s community and the pursuit of harmony in one’s family.
- **Intellectual:** encourages creative, stimulating mental activities.
- **Emotional:** emphasizes an awareness and acceptance of one’s feelings, enthusiasm about oneself and life, ability to deal with stress, and maintaining good relationships with others.
- **Spiritual:** encourages seeking meaning and purpose in human existence and developing a deep appreciation of life.





Factors that contribute to mortality. (Source: Modified with permission of the Duval County Center of Health Statistics, Florida Department of Health. Data from *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention 1979*.)

Some experts add environmental, occupational, and/or financial dimensions to the list.

The terms “wellness” and “health” often confuse people. The DHHS defines **health** as “the human condition with physical, social and psychological dimensions, each characterized on a continuum with positive and negative poles. Positive health is associated with a capacity to enjoy life and to withstand challenges; it is not merely the absence of disease. Negative health is associated with illness, and in the extreme, with premature death.”

Finally, two other terms have been defined by DHHS: physical activity and exercise.

Physical activity is “any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level.”

Physical activity includes any activity that gets you up and moving throughout the day. These activities could include grocery shopping, mowing the lawn, taking the dog for a walk, or shoveling snow from the driveway. While they may not be specifically intended to increase your muscular or cardiorespiratory endurance, daily physical activities are just as important as structured exercise.

Exercise is defined as “a subcategory of physical activity that is planned, structured, repetitive, and purposive in the sense that the improvement or maintenance of one or more compo-



Medical News You Can Use

Buying Weight Loss

Money trumps health benefits (e.g., lower risk of high blood pressure, stroke, heart attack) when it comes to losing weight. People were more likely to stick to weight-loss programs if they were offered cash incentives compared with delayed good health benefits. Scientists discovered that those offered cash incentives (no more than \$100) over a 16-week program dropped an average of 4 lbs more than those who were not paid for losing pounds.

Source: Data from Volpp K.G., et al., Financial incentive–based approaches for weight loss—A randomized trial. *Journal of the American Medical Association* 2008; 300(22):2631–2637.

nents of physical fitness is the objective. ‘Exercise’ and ‘exercise training’ frequently are used interchangeably and generally refer to physical activity performed during leisure time with the primary purpose of improving or maintaining physical fitness, physical performance, or health.”

Who Are the Physically Active?

The National Center for Health Statistics (CDC 2010) reported the following (see

Figure 1.5, which shows data for men and women combined):

- Four in 10 adults (39.7%) engage in no leisure-time physical activity.
- More than one in five adults (21.9%) engage in light-moderate leisure-time physical activity at least five times per week.
- From 30% to 35% of adults reported participation in moderate- or vigorous-intensity activity sufficient to meet physical activity recommendations.

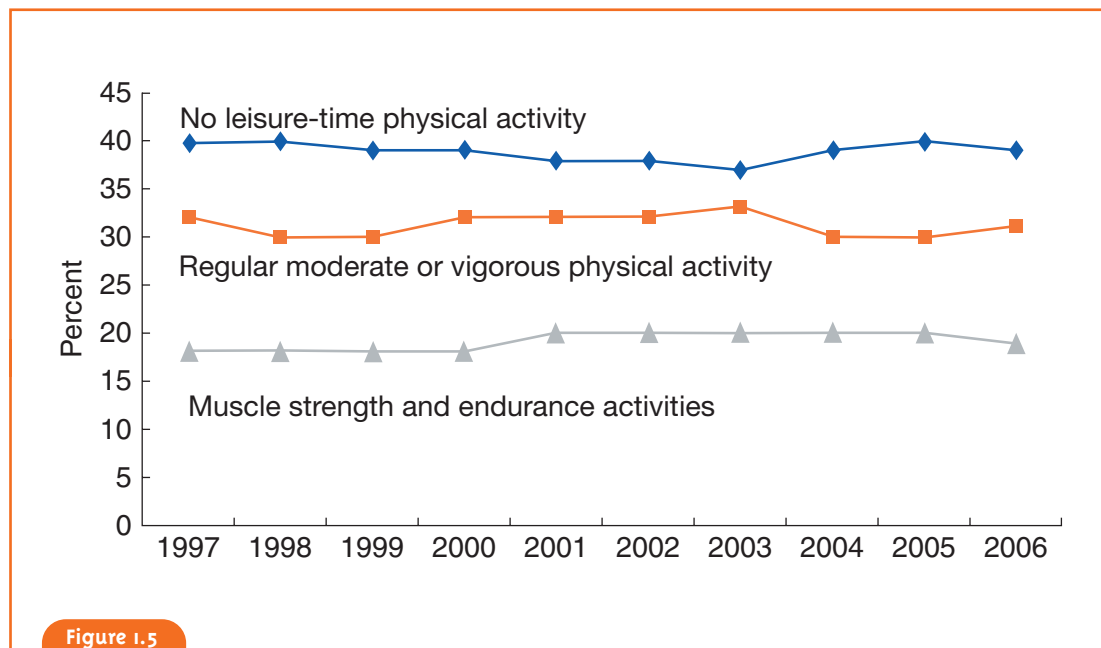


Figure 1.5

Reported physical activity by adults in the USA. (Source: Modified from the Physical Activity Guidelines Advisory Committee Report. Data from 1997–2006 *The Healthy People 2010 Database*. Courtesy of the U.S. Department of Health & Human Services.)

- About one in eight adults (11.1%) engage in vigorous leisure-time physical activity five times per week.
- About one-fourth of adults engage in at least some leisure-time strengthening activity.

The data also show the characteristics of those most likely to engage in leisure-time physical activity, as follows:

- Men
- Young adults (see [Figure 1.6](#))
- Educated (those with graduate degrees were twice as likely as those with less than a high school diploma; see [Figure 1.7](#))
- Higher income
- Married adults
- Live in the West (see [Figure 1.8](#))

National Health and Wellness Goals

Healthy People 2020

For the past three decades, the DHHS has issued a national agenda aimed at improving the health of all Americans across each 10-year span. Under each of these Healthy People initiatives, DHHS established health benchmarks and monitored how well people were reaching them over time.

The DHHS launched *Healthy People 2020*, a comprehensive, nationwide health promotion and disease prevention agenda. *Healthy People 2020* serves as a road map for improving the health of all people in the United States.

Healthy People 2020 identifies the leading health topics and objectives intended to accomplish an increase in life span and quality of life as well as to decrease disparities in

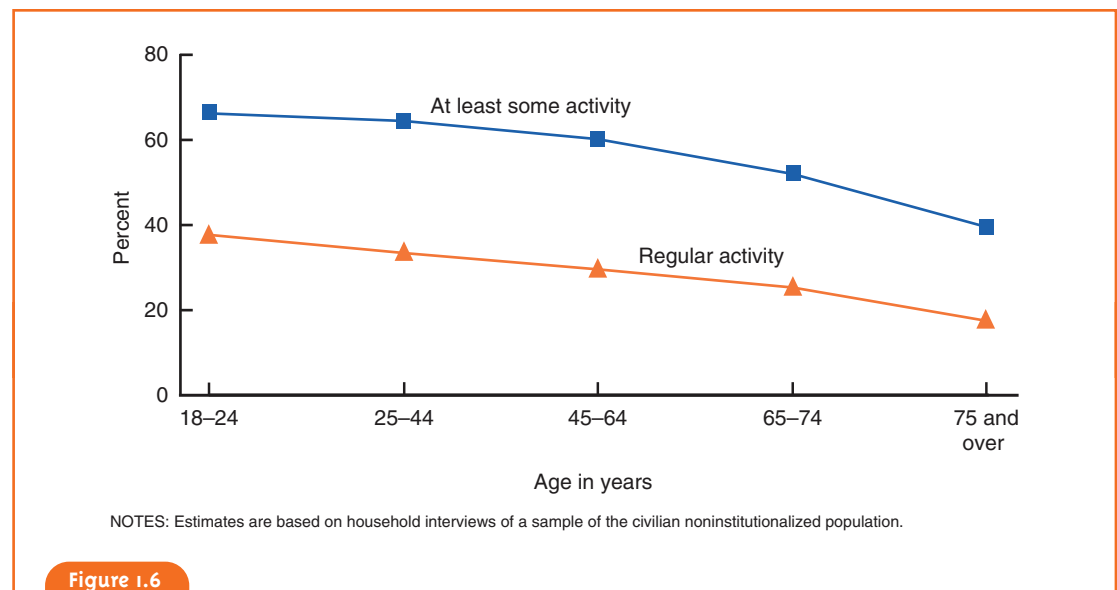
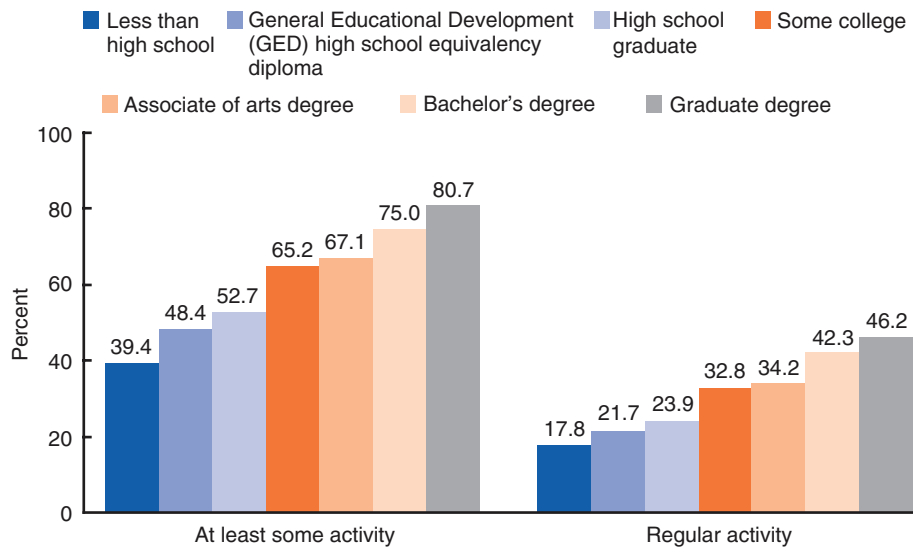


Figure 1.6

Percentage of adults who engaged in leisure activity, by level of activity and age. (Source: Data from *Health Behaviors of Adults: United States, 2005–2007*. National Center for Health Statistics. Vital and Health Stat Series No. 10 (245). 2010.)



NOTES: Estimates are based on household interviews of a sample of the civilian noninstitutionalized population. Estimates are age adjusted using the projected 2000 U.S. population as the standard population.

Figure 1.7

Percentage of adults who engaged in leisure time physical activity, by level of activity and education. (Source: Data from *Health Behaviors of Adults: United States, 2005–2007*. National Center for Health Statistics. Vital and Health Stat Series No. 10 (245). 2010.)

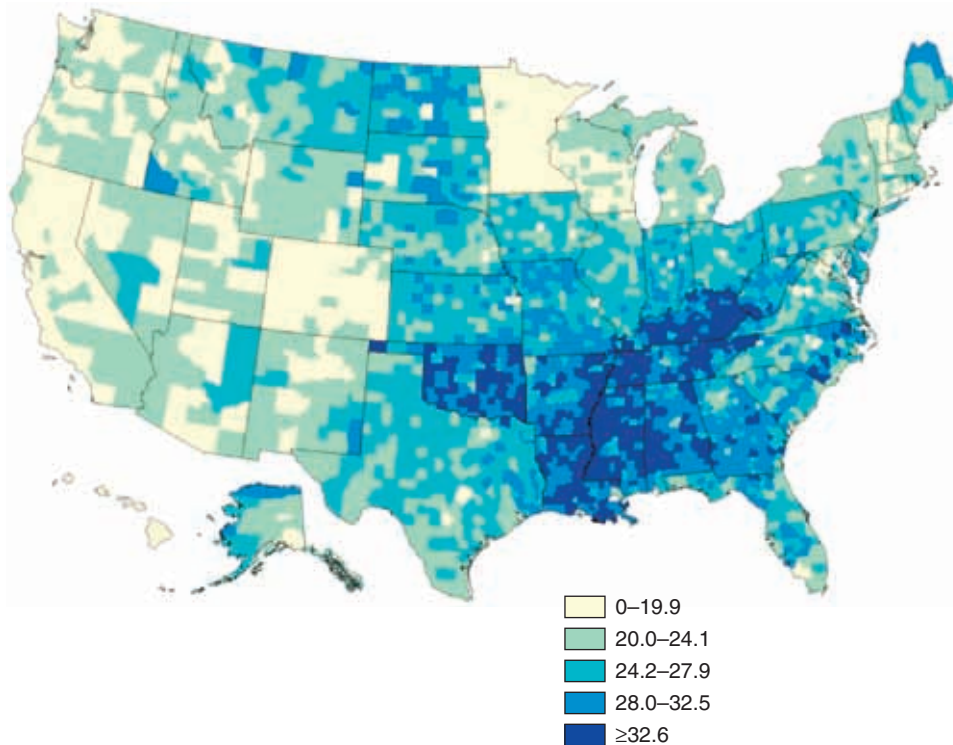


Figure 1.8

Percentage of adults who are physically inactive by county. (Source: Courtesy of the Centers for Disease Control and Prevention.)

health status among Americans. The document will help everyone to understand more easily the importance of health promotion and disease prevention and to encourage wide participation in improving health in the next decade.

The overarching goals of *Healthy People 2020* are to:

- Attain high-quality, longer lives free of preventable disease, disability, injury, and premature death;
- Achieve health equity, eliminate disparities, and improve the health of all groups;
- Create social and physical environments that promote good health for all; and
- Promote quality of life, healthy development, and healthy behaviors across all life stages.

One of the 12 topics in *Healthy People 2020* is Healthy Behaviors. Its objectives are:

- Increase the proportion of adults who meet current federal guidelines for aerobic physical activity and for muscle-strengthening activity.
- Reduce the proportion of children and adolescents who are considered obese.
- Reduce consumption of calories from solid fats and added sugars in the population aged 2 years and older.

Physical Activity and Exercise

More than 80% of adults do not meet the guidelines for both aerobic and muscle-strengthening activities found in *Healthy People 2020*. The Physical Activity objectives for *Healthy People 2020* reflect the strong state of the science supporting the health benefits of regular physical activity in moderate and vigorous physical activities and muscle-strengthening activities.

Nutrition and Weight Status

The Nutrition and Weight Status objectives for *Healthy People 2020* reflect strong science supporting the health benefits of eating a healthful diet and maintaining a healthy body weight. The objectives also emphasize that efforts to change diet and weight should address individual behaviors.

Dietary Guidelines for Americans

By law, *Dietary Guidelines for Americans* is reviewed, updated if necessary, and published every 5 years. The U.S. Department of Agriculture and the U.S. Department of Health and Human Services jointly create each edition.

Dietary Guidelines for Americans, 2010 was released at a time of rising concern about the health of the American population. Poor diet and physical inactivity are the most important factors contributing to an epidemic of overweight and obesity affecting men, women, and children. Even in the absence of overweight, poor diet and physical inactivity are associated with major causes of morbidity and mortality in the United States.

The intent of the *Dietary Guidelines* is to summarize and synthesize knowledge about individual nutrients and food components into an interrelated set of recommendations for healthy eating that can be adopted by the public. The guidelines encompass two overarching concepts:

- Maintain calorie balance over time to achieve and sustain a healthy weight.
- Focus on consuming nutrient-dense foods and beverages.

Physical Activity Guidelines for Americans

Being physically active is one of the most important steps that Americans of all ages can take to improve their health. The 2008 *Physical Activity Guidelines for Americans* provides science-based guidance to help Americans improve their health through appropriate physical activity.

The DHHS issues the *Physical Activity Guidelines*. The content complements the *Dietary Guidelines for Americans*. Together, the two documents provide guidance on the importance of being physically active and eating a healthy diet to promote good health and reduce the risk of chronic diseases.

American College of Sports Medicine

The American College of Sports Medicine (ACSM) is the largest, most respected sports medicine and exercise science organization in the world. It is a nongovernmental organization that looks for and finds better methods to allow individuals to live longer and more productive lives. It develops guidelines on quantity and quality of exercise for adults.

Reflect >>> Reinforce >>> Reinvigorate

Knowledge Check

Answers in Appendix D

1. Life expectancy in the United States in 2009 has reached:
 - A. 80 years
 - B. 75.5 years
 - C. 78.2 years
 - D. 82.1 years
2. Your biological age refers to:
 - A. Your actual age in years from your birth date
 - B. Your life span in years
 - C. The average age you are expected to live
 - D. An estimate of your well-being compared to others of your age
3. What most accurately predicts a women's genetic effect on age?
 - A. Age at menarche
 - B. Age at menopause
 - C. Age of your mother at death
 - D. Weight at birth
4. Bill has started paying attention to his own biomarkers indicating his biological age. Which of the following is not a biomarker of Bill's biological age?
 - A. Skin elasticity
 - B. Blood pressure
 - C. Bone mineral density
 - D. Fitness tests
5. Sarah's father died suddenly at the age of 70. He was a smoker, was overweight, and watched a lot of television. What were the most likely causes of Sarah's father's death?
 - A. Toxic agents, alcohol consumption
 - B. Tobacco use, physical inactivity/poor diet
 - C. Tobacco use, motor vehicle crash
 - D. Inactivity/poor diet, firearms
6. Because of her current lifestyle, Janice does not believe she will live to be 100 years old. What factors in her lifestyle may affect her life span?
 - A. Physical inactivity
 - B. Poor diet
 - C. Smoking
 - D. All of the above
7. Mike lives in the state of Mississippi. According to the CDC, this region has the highest percentage of adults who are:
 - A. More than 80 years old
 - B. Under 20 years of age
 - C. Physically inactive
 - D. Chronically fatigued
8. "The ability to carry out daily tasks with vigor and alertness, without undue fatigue, and with ample energy to enjoy leisure-time pursuits and respond to emergencies..." is the definition of what term?
 - A. Wellness
 - B. Health
 - C. Physical well-being
 - D. Fitness

Modern Modifications

The chapters in this text illustrate a wide variety of the important aspects of a healthy lifestyle. In each chapter there will be a section in which you will be given a chance to:

Take a moment to look at your lifestyle in the terms of the topic discussed. What would you like to change in that area of your life?

Go through and pick one of the suggestions provided. These suggestions are meant to be easily absorbed into your daily routine and offer immediate opportunities for change.

Congratulate yourself. You are one step closer to a happier healthier lifestyle. Even small changes can make a big difference!

Critical Thinking

1. Does your current lifestyle meet the definitions of fitness and wellness? Do you consider yourself physically active? Why?
2. What are some behaviors you can change that will provide you with a longer, healthier life?

Going Above and Beyond

Centers for Disease Control and Prevention: Leading causes of death. Centers for Disease Control and Prevention.

http://www.cdc.gov/injury/wisqars/pdf/Death_by_Age_2007-a.pdf OR

<http://www.cdc.gov/injury/wisqars/LeadingCauses.html>

National Center for Health Statistics

http://www.cdc.gov/nchs/data/series/sr_10/sr10_245.pdf

Healthy People 2020.

<http://www.healthypeople.gov/2020/default.aspx>

Dietary Guidelines for Americans.

<http://www.cnpp.usda.gov/dietaryguidelines.htm>

Physical Activity Guidelines.

<http://www.cdc.gov/physicalactivity/everyone/guidelines/index.html>

Life Expectancy Calculator.

<http://www.livingto100.com>

Real Age Test.

www.realage.com

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