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“The power of prevention is yours, it enables you to make lifestyle changes that will prevent disease and increase the quality and length of your life.”

Objectives

▶ Understand the health and fitness consequences of physical inactivity.
▶ Identify the major health problems in the United States.
▶ Learn how to monitor daily physical activity.
▶ Learn the Federal Physical Activity Guidelines for Americans.
▶ Define wellness and list its dimensions.
▶ Define physical fitness and list health-related and skill-related components.
▶ State the differences among physical fitness, health promotion, and wellness.
▶ Distinguish between health fitness standards and physical fitness standards.
▶ Understand the benefits and significance of participating in a comprehensive wellness program.
▶ List key national health objectives for the year 2020.
▶ Determine if you can safely initiate an exercise program.
▶ Learn to assess resting heart rate and blood pressure.
Why should I take a fitness and wellness course?
Most people go to college to learn how to make a living, but a fitness and wellness course will teach you how to live—how to truly live life to its fullest potential. Some people seem to think that success is measured by how much money they make. Making a good living will not help you unless you live a wellness lifestyle that will allow you to enjoy what you earn. You may want to ask yourself: Of what value are a nice income, a beautiful home, and a solid retirement portfolio if at age 45 I suffer a massive heart attack that will seriously limit my physical capacity or end life itself?

Will the attainment of good physical fitness be sufficient to ensure good health? Regular participation in a sound physical fitness program will provide substantial health benefits and significantly decrease the risk of many chronic diseases. And although good fitness often motivates toward adoption of additional positive lifestyle behaviors, to maximize the benefits for a healthier, more productive, happier, and longer life we have to pay attention to all seven dimensions of wellness: physical, social, mental, emotional, occupational, environmental, and spiritual. These dimensions are interrelated, and one frequently affects the other. A wellness way of life requires a constant and deliberate effort to stay healthy and achieve the highest potential for well-being within all dimensions of wellness.

If a person is going to do only one thing to improve health, what would it be? This is a common question. It is a mistake to think, though, that you can modify just one factor and enjoy wellness. Wellness requires a constant and deliberate effort to change unhealthy behaviors and reinforce healthy behaviors. Although it is difficult to work on many lifestyle changes all at once, being involved in a regular physical activity program, proper nutrition, and avoidance of addictive behavior are lifestyle factors to work on first. Others should follow, depending on your current lifestyle behaviors.

Scientific findings have shown that physical inactivity and a negative lifestyle seriously threaten health and hasten the deterioration rate of the human body. Movement and physical activity are basic functions for which the human organism was created.

Advances in technology, however, have almost completely eliminated the necessity for physical exertion in daily life. Physical activity is no longer a natural part of our existence. We live in an automated society, where most of the activities that used to require strenuous exertion can be accomplished by machines with the simple pull of a handle or push of a button.

Most industrialized nations in the world are experiencing an epidemic of physical inactivity. In the United States, physical inactivity is the second greatest threat to public health and has been termed “Sedentary Death Syndrome” or SeDS (the number-one threat is tobacco use—the largest cause of preventable deaths).

Widespread interest in health and preventive medicine in recent years, nonetheless, is motivating people to participate in organized fitness and wellness programs. The growing number of participants is attributed primarily to scientific evidence linking regular physical activity and positive lifestyle habits to better health, longevity, quality of life, and overall well-being.

At the beginning of the 20th century, life expectancy for a child born in the United States was only 47 years. The most common health problems in the Western world were infectious diseases, such as tuberculosis, diphtheria, influenza, kidney disease, polio, and other diseases of infancy. Progress in the medical field largely eliminated these diseases. Then, as more people started to enjoy the “good life” (sedentary living, alcohol, fatty...
During our freshman year everyone at my school has to take a lifetime fitness and wellness class. When I first started the class, I thought it would be a piece of cake, with not that much work involved. I was taking hard math and writing classes, and I thought I would spend all my time studying for those courses and that the wellness class would just be something I barely had to think about, like high school PE. As the class got started, I found out that I had to do a lot more than I thought to get a good grade. I also became really interested in the subject! I started spending more time studying fitness and wellness and reading the textbook just because I wanted to know more. In my family, a lot of family members are really overweight and a couple of them have diabetes. As I began to learn more about those problems, I decided to be the one who breaks the trend and does not have the same health problems my relatives do. It has been six months since I finished the class and I am still continuing on with my healthy habits—eating well and exercising. I have lost 10 pounds and my last physical showed that my blood sugar, blood pressure, and cholesterol were all in the healthy range!

### PERSONAL PROFILE

#### General Understanding of Fitness and Wellness

To the best of your ability, please answer the following questions. If you do not know the answer(s), this chapter will guide you through them.

I. Physical fitness implies making a constant and deliberate effort to stay healthy and achieve the highest potential for well-being. _____ True _____ False

II. The minimum requirement in the U.S. Federal Physical Activity Guidelines is that you accumulate _____ minutes of moderate-intensity aerobic activity or _____ minutes of vigorous-intensity aerobic activity on a weekly basis.

III. Agility, balance, coordination, reaction time, power, and speed are the basic components of health-related fitness. _____ True _____ False

IV. My current blood pressure is _____ / _____ mm Hg.

V. Are you aware of potential risk factors in your life that may increase your chances of developing disease?

_____ Yes _____ No

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foods, excessive sweets, tobacco, drugs), we saw a parallel increase in the incidence of chronic diseases such as cardiovascular disease, cancer, diabetes, and chronic respiratory diseases (Figure 1.1). According to the World Health Organization (WHO), chronic diseases account for 60 percent of all deaths worldwide.¹

As the incidence of chronic diseases climbed, we recognized that prevention is the best medicine. Consequently, a fitness and wellness movement developed gradually in the 1980s. People began to realize that good health is mostly self-controlled and that the leading causes of premature death and illness could be prevented by adhering to positive lifestyle habits. We all desire to live a long life, and wellness programs seek to enhance the overall quality of life—for as long as we live.

There are three basic factors that determine our health and longevity: Genetics, the environment, and our behavior (Figure 1.2). Although we cannot change our genetic pool, we can exert control over the environment and our health behaviors so that we may reach our full physical potential based on our own genetic code. How we accomplish this goal will be thoroughly discussed through the chapters of this book.

### Key Terms

**Sedentary Death Syndrome (SeDS)** Cause of deaths attributed to a lack of regular physical activity.

**Health** A state of complete well-being—not just the absence of disease or infirmity.

**Life expectancy** Number of years a person is expected to live based on the person’s birth year.

**Sedentary** Description of a person who is relatively inactive and whose lifestyle is characterized by a lot of sitting.

**Chronic diseases** Illnesses that develop as a result of an unhealthy lifestyle and last a long time.

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Life Expectancy

Based on the most recent data available, the average life expectancy in the United States is 78.3 years (75.7 years for men and 80.8 years for women). While in the past decade alone, life expectancy has increased by one year—the news is not all good. The data show that people now spend an extra 1.2 years with a serious illness and an extra two years of disability. Mortality has been postponed because medical treatments allow people to live longer with various chronic ailments (cardiovascular disease, cancer, diabetes).

Several factors may account for the current U.S. life expectancy ranking: the extremely poor health of some groups (such as Native Americans, rural African Americans, and the inner-city poor), the obesity epidemic, the low level of daily physical activity, the high incidence of tobacco use and coronary heart disease, and fairly high levels of violence (notably homicides).

Although life expectancy in the United States gradually increased by 30 years over the past century, scientists from the National Institute of Aging believe that in the coming decades the average lifespan may decrease by as much as five years. This decrease in life expectancy will be related primarily to the growing epidemic of obesity. According to estimates from the Centers for Disease Control and Prevention, 34 percent of the adult population in the United States is obese. If the current trend continues, the current generation of children may not outlive their parents. Additional information on the obesity epidemic and its detrimental health consequences is given in Chapter 5.

Leading Health Problems in the United States

The leading causes of death in the United States today are largely lifestyle related (Figure 1.4). The U.S. Surgeon General has stated that seven of ten Americans die of pre-
ventable chronic diseases. Specifically, about 53 percent of all deaths in the United States are caused by cardiovascular disease and cancer. Almost 80 percent of the latter deaths could be prevented through a healthy lifestyle program. The third and fourth leading causes of death, respectively, are chronic lower respiratory disease (CLRD) and accidents.

The most prevalent degenerative diseases in the United States are those of the cardiovascular system. About 30 percent of all deaths in this country are attributed to diseases of the heart and blood vessels. According to the American Heart Association (AHA), 81.1 million people in the United States are afflicted with diseases of the cardiovascular system, including 74.5 million with hypertension (high blood pressure) and 17.6 million with coronary heart disease (CHD). (Many of these people have more than one type of cardiovascular disease.) About 1.26 million people suffer from coronary heart disease each year, including 935,000 heart attacks and nearly 425,000 deaths from CHD and heart attacks. The estimated direct and indirect cost of cardiovascular disease in 2010 exceeded $503 billion. A complete cardiovascular disease prevention program is outlined in Chapter 10.

The second leading cause of death in the United States is cancer. Even though cancer is not the number-one killer, it is the number-one health fear of the American people. Twenty-three percent of all deaths in the United States are attributable to cancer. More than 560,000 people died from this disease in 2010, and an estimated 1.5 million new cases were reported the same year. The major contributor to the increase in the incidence of cancer during the past five decades is lung cancer, of which 87 percent is caused by tobacco use. Furthermore, smoking accounts for more than 30 percent of all deaths from cancer. Another 33 percent of deaths are related to nutrition, physical inactivity, excessive body weight, and other faulty lifestyle habits.

The American Cancer Society maintains that the most influential factor in fighting cancer today is prevention through health education programs. Evidence indicates that as much as 80 percent of all human cancer can be prevented through positive lifestyle behaviors. A comprehensive cancer-prevention program is presented in Chapter 11.

CLRD, the third cause of death, is a general term that includes chronic obstructive pulmonary disease, emphysema, and chronic bronchitis (all diseases of the respiratory system). Although CLRD is related mostly to tobacco use (see Chapter 13 for discussion on how to stop smoking), lifetime nonsmokers also can develop CLRD.

Figure 1.4 Leading causes of death in the United States in 2008.

Healthy Habits that Cut the Risk for Serious Disease

According to the Centers for Disease Control and Prevention, living four health habits can reduce your risk of chronic diseases such as heart disease, cancer, and diabetes by almost 80 percent:

- Get at least 30 minutes of daily moderate-intensity physical activity.
- Don’t ever smoke.
- Eat a healthy diet (ample fruits and vegetables, whole grain products, and low meat consumption).
- Maintain a body mass index (BMI) less than 30.

Accidents are the fourth leading cause of death. Even though not all accidents are preventable, many are. Fatal accidents are often related to abusing drugs and not wearing seat belts. Furthermore, with the advent of cell phones, 1.6 million car accidents each year are caused by drivers using cell phones or reading/sending text messages.

Most people do not perceive accidents as a health problem. Even so, accidents affect the total well-being of millions of Americans each year. Accident prevention and personal safety are part of a health-enhancement program aimed at achieving a better quality of life. Proper nutrition, exercise, stress management, and abstinence from cigarette smoking are of little help if the person is involved in a disabling or fatal accident as a result of distraction, a single reckless decision, or not wearing seat belts properly.

Accidents do not just happen. We cause accidents, and we are victims of accidents. Although some factors in life, such as earthquakes, tornadoes, and airplane accidents, are completely beyond our control, more often
than not, personal safety and accident prevention are a matter of common sense. Most accidents stem from poor judgment and confused mental states, which occur when people are upset, are not paying attention to the task at hand, or are abusing alcohol or other drugs.

Alcohol abuse is the number-one cause of all accidents. About half of accidental deaths and suicides in the United States are alcohol related. Further, alcohol intoxication is the leading cause of fatal automobile accidents. Other commonly abused drugs alter feelings and perceptions, generate mental confusion, and impair judgment and coordination, greatly enhancing the risk for accidental morbidity and mortality (Chapter 13).

The underlying causes of death attributable to leading risk factors in the United States (Figure 1.5) indicate that most factors are related to lifestyle choices we make. Of the approximately 2.4 million yearly deaths in the United States, the “big five” factors—tobacco smoking, high blood pressure, overweight and obesity, physical inactivity, and high blood glucose—are responsible for almost 1.5 million deaths each year.

**Lifestyle as a Health Problem**

As the incidence of chronic diseases rose, it became obvious that prevention was—and remains—the best medicine. According to the U.S. Surgeon General’s office, more than half of the people who die in this country each year die because of what they do. Based on estimates, more than half of disease is lifestyle related, a fifth is attributed to the environment, and a tenth is influenced by the health care the individual receives. Only 16 percent is related to genetic factors (Figure 1.6). Thus, the individual controls as much as 84 percent of his or her vulnerability to disease—and thus quality of life. The same data indicate that 83 percent of deaths before age 65 are preventable. In essence,
most people in the United States are threatened by the very lives they lead today.

Because of the unhealthy lifestyles that many young adults lead, their bodies may be middle-aged or older! Many physical education programs do not emphasize the skills necessary for young people to maintain a high level of fitness and health throughout life. The intent of this book is to provide those skills and help to prepare you for a lifetime of physical fitness and wellness. A healthy lifestyle is self-controlled, and you can learn how to be responsible for your own health and fitness. Healthy choices made today influence health for decades.

**Physical Activity and Exercise Defined**

Abundant scientific research over the past three decades has established a distinction between physical activity and exercise. **Physical activity** is bodily movement produced by skeletal muscles. It requires energy expenditure and produces progressive health benefits. Physical activity typically requires only a low to moderate intensity of effort. Examples of physical activity include walking to and from work, taking the stairs instead of elevators and escalators, gardening, doing household chores, dancing, and washing the car by hand. Physical inactivity, by contrast, implies a level of activity that is lower than that required to maintain good health.

**Exercise** is a type of physical activity that requires planned, structured, and repetitive bodily movement to improve or maintain one or more components of physical fitness. Examples of exercise are walking, running, cycling, aerobics, swimming, and strength training. Exercise is usually viewed as an activity that requires a vigorous-intensity effort.

**Importance of Increased Physical Activity**

The U.S. Surgeon General has stated that poor health as a result of lack of physical activity is a serious public health problem that must be met head-on at once. Regular **moderate physical activity** provides substantial benefits in health and well-being for the vast majority of people who are not physically active. For those who are already moderately active, even greater health benefits can be achieved by increasing the level of physical activity.

Among the benefits of regular physical activity and exercise are significantly reduced risks for developing or dying from heart disease, stroke, type 2 diabetes, colon and breast cancers, high blood pressure, and osteoporotic fractures. Regular physical activity also is important for the health of muscles, bones, and joints, and it seems to reduce symptoms of depression and anxiety, improve mood, and enhance one’s ability to

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**Key Terms**

- **Morbidity** A condition related to or caused by illness or disease.
- **Physical activity** Bodily movement produced by skeletal muscles; requires expenditure of energy and produces progressive health benefits. Examples include walking, taking the stairs, dancing, gardening, yard work, house cleaning, snow shoveling, washing the car, and all forms of structured exercise.
- **Exercise** A type of physical activity that requires planned, structured, and repetitive bodily movement with the intent of improving or maintaining one or more components of physical fitness.
- **Moderate physical activity** Activity that uses 150 calories of energy per day, or 1,000 calories per week.
perform daily tasks throughout life. It also can help control health care costs and maintain a high quality of life into old age.

Moderate physical activity has been defined as any activity that requires an energy expenditure of 150 calories per day, or 1,000 calories per week. The general health recommendation is that people strive to accumulate at least 30 minutes of physical activity a minimum of 5 days per week (Table 1.1). Whereas 30 minutes of continuous activity is preferred, on days when time is limited, three activity sessions of at least 10 minutes each still provide substantial health benefits. Examples of moderate physical activity are brisk walking or cycling, playing basketball or volleyball, swimming, water aerobics, dancing fast, pushing a stroller, raking leaves, shoveling snow, washing or waxing a car, washing windows or floors, and even gardening. Light-intensity activities of daily living such as casual walking, self-care, shopping, or those lasting less than 10 minutes in duration cannot be included as part of the moderate physical activity recommendation.

Because of the ever-growing epidemic of obesity in the United States, the Institute of Medicine of the National Academy of Sciences increased the recommendation to 60 minutes of moderate-intensity physical activity every day.7 This recommendation was based on evidence indicating that people who maintain healthy weight typically accumulate one hour of daily physical activity.

Subsequently, the Dietary Guidelines for Americans by the U.S. Department of Health and Human Services and the Department of Agriculture recommend that up to 60 minutes of moderate- to vigorous-intensity physical activity per day may be necessary to prevent weight gain, and between 60 and 90 minutes of moderate-intensity physical activity daily is recommended to sustain weight loss for previously overweight people.8

In sum, although health benefits are derived from 30 minutes of physical activity per day, people with a tendency to gain weight need to be physically active for an hour to an hour and a half to prevent weight gain. And 60 to 90 minutes of activity per day provides additional health benefits, including a lower risk for cardiovascular disease and diabetes.

### National Initiatives to Promote Healthy and Active Lifestyles

#### Federal Guidelines for Physical Activity

Because of the importance of physical activity to our health, the U.S. Department of Health and Human Services has issued the Federal Physical Activity Guidelines for Americans. These guidelines complement the Dietary Guidelines for Americans (Chapter 3, pages 114–115) and further substantiate previous recommendations issued by the American College of Sports Medicine (ACSM) and the AHA in 2007,9 and the U.S. Surgeon General in 1996.10

The federal guidelines provide science-based guidance on the importance of being physically active to promote health and reduce the risk for chronic diseases. The federal guidelines include the following recommendations11:

- **Adults between 18 and 64 years of age**
  - **Adults should do 2 hours and 30 minutes a week of moderate-intensity aerobic (cardiorespiratory) physical activity, 1 hour and 15 minutes (75 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic physical activity (also see Chapter 6).** When combining moderate- and vigorous-intensity activities, a person could participate in moderate-intensity activity twice a week for 30 minutes and high-intensity activity for 20 minutes on another two days. Aerobic activity should be performed in episodes of at least 10 minutes long each, preferably spread throughout the week.
  - **Additional health benefits are provided by increasing to 5 hours (300 minutes) a week of moderate-intensity aerobic physical activity, 2 hours and 30 minutes a week of vigorous-intensity physical activity, or an equivalent combination of both.**
  - **Adults should also do muscle-strengthening activities that involve all major muscle groups, performed on two or more days per week.**

### Table 1.1 Physical Activity Guidelines

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Duration</th>
<th>Intensity</th>
<th>Frequency per Week</th>
<th>Weekly Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>30 min</td>
<td>MI*</td>
<td>≥5 times</td>
<td>≥150 min</td>
</tr>
<tr>
<td>Health and fitness</td>
<td>≥20 min</td>
<td>VI*</td>
<td>≥3 times</td>
<td>≥75 min</td>
</tr>
<tr>
<td>Health, fitness, and weight gain prevention</td>
<td>60 min</td>
<td>MI/VI†</td>
<td>5–7 times</td>
<td>≥300 min</td>
</tr>
<tr>
<td>Health, fitness, and weight regain prevention</td>
<td>60–90 min</td>
<td>MI/VI†</td>
<td>5–7 times</td>
<td>≥450 min</td>
</tr>
</tbody>
</table>

*MI = moderate intensity, VI = vigorous intensity
†MI/VI = You may use MI or VI or a combination of the two
Older adults (ages 65 and older)
- Older adults should follow the adult guidelines. If this is not possible due to limiting chronic conditions, older adults should be as physically active as their abilities allow. They should avoid inactivity. Older adults should do exercises that maintain or improve balance if they are at risk of falling.

Children 6 years of age and older and adolescents
- Children and adolescents should do 1 hour (60 minutes) or more of physical activity every day. Most of the 1 hour or more a day should be either moderate- or vigorous-intensity aerobic physical activity.
- As part of their daily physical activity, children and adolescents should do vigorous-intensity activity at least three days per week. They also should do muscle-strengthening and bone-strengthening activities at least three days per week.

Pregnant and postpartum women
- Healthy women who are not already doing vigorous-intensity physical activity should get at least 2 hours and 30 minutes (150 minutes) of moderate-intensity aerobic activity a week. Preferably, this activity should be spread throughout the week. Women who regularly engage in vigorous-intensity aerobic activity or high amounts of activity can continue their activity provided that their condition remains unchanged and they talk to their health care provider about their activity level throughout their pregnancy.

In a previous 2007 report, the ACSM and the AHA also released a joint statement on physical activity recommendations for healthy adults. The ACSM/AHA report states that a greater amount of physical activity that exceeds the minimum recommendations provided above for adults between 18 and 64 years of age provides even greater benefits and is recommended for individuals who wish to further improve personal fitness, reduce the risk for chronic disease and disabilities, prevent premature mortality, or prevent unhealthy weight gain.

The ACSM/AHA report also states that only 49.1 percent of the adult population meets the recommendations. College graduates are more likely to adhere to the recommendations (about 53 percent of them), followed by individuals with some college education, then high school graduates; and the least likely to meet the recommendations are those with less than a high school diploma (37.8 percent).

In conjunction with the above report, the ACSM and the American Medical Association (AMA) have launched a nationwide “Exercise Is Medicine” program. The goal of this initiative is to help improve the health and wellness of the nation through exercise prescriptions from physicians and health care providers. It calls on all physicians to assess and review every patient’s physical activity program at every visit.

“Exercise is medicine and it’s free.” All physicians should be prescribing exercise to all patients and participate in exercise themselves. Exercise is considered to be the much-needed vaccine of our time to prevent chronic diseases. Physical activity and exercise are powerful tools for both the treatment and the prevention of chronic diseases and premature death. Additional information on this program can be obtained by consulting the following website: http://www.exerciseismedicine.org/.

### Critical Thinking

Do you consciously incorporate physical activity into your daily lifestyle? Can you provide examples? Do you think you get sufficient daily physical activity to maintain good health?

### National Health Objectives for the Year 2020

Every 10 years, the U.S. Department of Health and Human Services releases a list of objectives for preventing disease and promoting health. Since 1979, the Healthy People initiative has set and monitored national health objectives to meet a broad range of health needs, encourage collaborations across sectors, guide individuals toward making informed health decisions, and measure the impact of our prevention activity. Currently, Healthy People is leading the way to achieve increased quality and years of healthy life and to seek to eliminate health disparities among all groups of people. The objectives address three important points:

1. **Personal responsibility for health behavior.** Individuals need to become ever more health conscious. Responsible and informed behaviors are the keys to good health.
2. **Health benefits for all people and all communities.** Lower socioeconomic conditions and poor health often are interrelated. Extending the benefits of good health to all people is crucial to the health of the nation.
3. **Health promotion and disease prevention.** A shift from treatment to preventive techniques will drastically cut health care costs and help all Americans achieve a better quality of life.

Developing these health objectives involves more than 10,000 people representing 300 national organizations, including the Institute of Medicine of the National Academy of Sciences, all state health departments, and the federal Office of Disease Prevention and Health Promotion.
Promotion. Figure 1.7 summarizes the key 2020 objectives. Living the fitness and wellness principles provided in this book will enhance the quality of your life and also will allow you to be an active participant in achieving the Healthy People 2020 Objectives.

**Figure 1.7** Selected Health Objectives for the Year 2020.

- Increase the proportion of persons with health insurance, a usual primary care provider, and coverage for clinical preventive services.
- Reduce the proportion of adults who engage in no leisure-time physical activity.
- Increase the proportion of children, adolescents, and adults who are overweight or obese.
- Reduce coronary heart disease and stroke deaths.
- Reduce the mean total blood cholesterol levels among adults and the proportion of persons in the population with hypertension.
- Increase the proportion of adults aged 20 years and older who are aware of, and respond to, early warning symptoms and signs of a heart attack and stroke.
- Reduce the overall cancer death rate and provide counseling about cancer prevention.
- Reduce the diabetes death rate and the annual number of new cases of diagnosed diabetes in the population.
- Reduce infections caused by key pathogens commonly transmitted through food.
- Increase the proportion of sexually active persons who use condoms.
- Reduce the rate of HIV transmission among adults and adolescents, and reduce the number of deaths resulting from HIV infection.
- Increase the proportion of substance-abuse treatment facilities that offer HIV/AIDS education, counseling, and support.
- Increase school-based health promotion programs available to youth between the ages of 14 and 22 to decrease the rate of sexually transmitted diseases and teen pregnancy and to increase the proportion of adolescents who abstain from sexual intercourse or use condoms if sexually active.
- Reduce tobacco use by adults and adolescents, and reduce the initiation among children, adolescents, and young adults.
- Reduce average annual alcohol consumption, and increase the proportion of adolescents who disapprove of substance abuse.
- Increase the proportion, among persons who need alcohol and/or illicit drug treatment, of those who receive specialized treatment for abuse or dependence.
- Reduce drug-induced deaths.

**National Physical Activity Plan**

Newly established in 2010, the National Physical Activity Plan calls for policy, environmental, and cultural changes to help all Americans enjoy the health benefits of physical activity. It aims to increase physical activity among all segments of the population. The plan is a comprehensive private/public sector joint effort to create a culture that supports active lifestyles and enables everyone to meet physical activity guidelines throughout life.

The vision of the plan is that one day all Americans will be physically active, and they will live, work, and play in environments that facilitate regular physical activity. The plan complements the Federal Physical Activity Guidelines and the Healthy People 2020 objectives and comprises recommendations organized in eight sectors of societal influence: education; business and industry; health care; mass media; parks recreation, fitness, and sports; public health; volunteer and non-profit; and transportation, land use, and community design. Strategies to implement the plan include:

- Developing and implementing policies requiring school accountability for quality and quantity of physical education and physical activity.
- Encouraging early childhood education programs to have children as physically active as possible.
- Providing access to and opportunities for physical activity before and after school.
- Making physical activity a patient “vital sign” (tracking activity levels) that all health care providers assess and discuss with patients.
- Using routine performance measures by local, state, and federal agencies to set benchmarks for active travel (walking, biking, public transportation).
- Enhancing the existing parks and recreation infrastructure with effective policy and environmental changes to promote physical activity.
- Identifying and disseminating best practice models for physical activity in the workplace.
- Providing tax breaks for building owners or employers who provide amenities in workplaces and support active commuting, including showers in buildings, secure bicycle parking, free bicycles, or transit subsidies.
- Encouraging businesses to implement work policies that allow employees to get some physical activity before, during, or after work hours.

The implementation of the National Physical Activity Plan requires cooperation among school officials, city and county council members, state legislators, corporations, and Congress.
Physical Fitness and Wellness

Monitoring

According to the Centers for Disease Control and Prevention, the majority of U.S. adults are not sufficiently physically active to promote good health. The most recent data indicate that only 49 percent of adults meet the minimal recommendation of 30 minutes of moderate physical activity at least 5 days per week, 24 percent report no leisure physical activity at all, and 14 percent are completely inactive (less than 10 minutes per week of moderate- or vigorous-intensity physical activity). The prevalence of physical activity by state in the United States is displayed in Figure 1.8.

Other than carefully monitoring actual time engaged in activity, an excellent tool to monitor daily physical activity is a **pedometer**. A pedometer is a small mechanical device that senses vertical body motion and is used to count footsteps. Wearing a pedometer throughout the day allows you to determine the total steps you take in a day. Some pedometers also record distance, calories burned, speeds, and actual time of activity each day. A pedometer is a great motivational tool to help increase, maintain, and monitor daily physical activity that involves lower-body motion (walking, jogging, running).

Before purchasing a pedometer, be sure to verify its accuracy. Many of the free and low-cost pedometers provided by corporations for promotion and advertisement purposes are inaccurate, so their use is discouraged. Pedometers also tend to lose accuracy at a very slow walking speed (slower than 30 minutes per mile) because the

**Figure 1.8** Prevalence of recommended physical activity in the United States.

Note: Recommended physical activity is accumulation of 30 minutes per day of moderate-intensity activity a minimum of 5 days per week or 20 minutes per day of vigorous-intensity activity a minimum of 3 days per week.

SOURCE: Centers for Disease Control and Prevention.

**Monitoring Daily Physical Activity**

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**Key Terms**

**Pedometer** An electronic device that senses body motion and counts footsteps. Some pedometers also record distance, calories burned, speeds, “aerobic steps,” and time spent being physically active.
vertical movement of the hip is too small to trigger the spring-mounted lever arm inside the pedometer to properly record the steps taken.

You can obtain a good pedometer for about $25, and ratings are available online. The most accurate pedometer brands are Walk4Life, Yamax, Kenz, and New Life-styles. To test the accuracy of a pedometer, follow these steps: Clip the pedometer on the waist directly above the kneecap, reset the pedometer to zero, carefully close the pedometer, walk exactly 50 steps at your normal pace, carefully open the pedometer, and look at the number of steps recorded. A reading within 10 percent of the actual steps taken (45 to 55 steps) is acceptable.

The typical male American takes about 6,000 steps per day, in comparison to women, who take about 5,300 steps. The general recommendation for adults is 10,000 steps per day, and Table 1.2 provides specific activity categories based on the number of daily steps taken.

All daily steps count, but some of your steps should come in bouts of at least 10 minutes, so as to meet the national physical activity recommendation of accumulating 30 minutes of moderate-intensity physical activity in at least three 10-minute sessions five days per week. A 10-minute brisk walk (a distance of about 1,200 yards at a 15-minute per mile pace) is approximately 1,300 steps. A 15-minute-mile (1,770 yards) walk is about 1,900 steps. Thus, new pedometer brands have an “aerobic steps” function that records steps taken in excess of 60 steps per minute over a 10-minute period of time.

If you do not accumulate the recommended 10,000 daily steps, you can refer to Table 1.3 to determine the additional walking or jogging distance re-
Wellness implies a constant and deliberate effort to stay healthy and achieve the highest potential for well-being. Wellness requires implementing positive lifestyle habits to change behavior and thereby improve health and quality of life, prolong life, and achieve total well-being. Living a wellness way of life is a personal choice, but you may need additional support to achieve wellness goals. Thus, health promotion programs have been developed to educate people regarding healthy lifestyles and provide the necessary support to achieve wellness.

For example, you may be prepared to initiate an aerobic exercise program, but if you are not familiar with exercise prescription guidelines or places to exercise safely, or if you lack peer support or flexible scheduling to do so, you may have difficulty accomplishing your goal. Similarly, if you want to quit smoking but do not know how to do it and everyone else around you smokes, the chances for success are limited. To some extent, the environment limits your choices. Hence, the availability of a health promotion program would provide the much-needed support to get started and implement a wellness way of life.

The Seven Dimensions of Wellness

Wellness has seven dimensions: physical, emotional, mental, social, environmental, occupational, and spiritual (Figure 1.9). These dimensions are interrelated: One frequently affects the others. For example, a person who is emotionally “down” often has no desire to exercise, study, socialize with friends, or attend church, and he or she may be more susceptible to illness and disease.

The seven dimensions show how the concept of wellness clearly goes beyond the absence of disease. Wellness incorporates factors such as adequate fitness, proper nutrition, stress management, disease prevention, spirituality, not smoking or abusing drugs, personal safety, regular physical examinations, health education, and environmental support.

For a wellness way of life, individuals must be physically fit and manifest no signs of disease and they also must be free of risk factors for disease (such as hypertension, hyperlipidemia, cigarette smoking, negative stress, faulty nutrition, careless sex). The relationship between

**Key Terms**

- **Primordial prevention** Prevention of the development of risk factors for disease.
- **Health promotion** The science and art of enabling people to increase control over their lifestyle to move toward a state of wellness.
- **Wellness** The constant and deliberate effort to stay healthy and achieve the highest potential for well-being. It encompasses seven dimensions—physical, emotional, mental, social, environmental, occupational, and spiritual—and integrates them all into a quality life.
# Daily Physical Activity Log

Name: ___________________________ Date: ______________

Course: ___________________ Section: ___________ Gender: ________ Age: _________

Date: ___________ Day of the Week: ___________

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<th>Time of Day</th>
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Totals: \[ \text{Activity category based on steps per day (use Table 1.2, page 12):} \]

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### Daily Physical Activity Log (continued)

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**Totals:**

Date:

Day of the Week:

**Activity category based on steps per day (use Table 1.2, page 12):**

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Day of the Week:

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**Totals:**

Activity category based on steps per day (use Table 1.2, page 12):

Briefly evaluate your current activity patterns, discuss your feelings about the results, and provide a goal for the weeks ahead.

________________________________________

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________________________________________
adequate fitness and wellness is illustrated in the continuum in Figure 1.10. Even though an individual tested in a fitness center may demonstrate adequate or even excellent fitness, indulging in unhealthy lifestyle behaviors will still increase the risk for chronic diseases and diminish the person’s well-being.

Physical Wellness

Physical wellness is the dimension most commonly associated with being healthy. It entails confidence and optimism about one’s ability to protect physical health and take care of health problems.

Physically well individuals are physically active, exercise regularly, eat a well-balanced diet, maintain recommended body weight, get sufficient sleep, practice safe sex, minimize exposure to environmental contaminants, avoid harmful drugs (including tobacco and excessive alcohol), and seek medical care and exams as needed. Physically well people also exhibit good cardiorespiratory endurance, adequate muscular strength and flexibility, proper body composition, and the ability to carry out ordinary and unusual demands of daily life safely and effectively.

Emotional Wellness

Emotional wellness involves the ability to understand your own feelings, accept your limitations, and achieve emotional stability. Furthermore, it implies the ability to express emotions appropriately, adjust to change, cope with stress in a healthy way, and enjoy life despite its occasional disappointments and frustrations.

Emotional wellness brings with it a certain stability, an ability to look both success and failure squarely in the face and keep moving along a predetermined course. When success is evident, the emotionally well person radiates the expected joy and confidence. When failure seems evident, the emotionally well person responds by making the best of circumstances and moving beyond the failure. Wellness enables you to move ahead with optimism and energy instead of spending time and talent worrying about failure. You learn from it, identify ways to avoid it in the future, and then go on with the business at hand.

Emotional wellness also involves happiness—an emotional anchor that gives meaning and joy to life. Happiness is a long-term state of mind that permeates the various facets of life and influences our outlook. Although there is no simple recipe for creating happiness, researchers agree that happy people are usually participants in some category of a supportive family unit where they feel loved. Healthy, happy people enjoy friends, work hard at something fulfilling, get plenty of exercise, and enjoy play and leisure time. They know how to laugh, and they laugh often. They give of themselves freely to others and seem to have found deep meaning in life.

An attitude of true happiness signals freedom from the tension and depression that many people endure. Emotionally well people are obviously subject to the same kinds of depression and unhappiness that occasionally plague us all, but the difference lies in the ability to bounce back. Well people take minor setbacks in stride and have the ability to enjoy life despite it all. They don’t waste energy or time recounting the situation, wondering how they could have changed it, or dwelling on the past.

Mental Wellness

Mental wellness, also referred to as intellectual wellness, implies that you can apply the things you have learned, create opportunities to learn more, and engage your mind
in lively interaction with the world around you. When you are mentally well, you are not intimidated by facts and figures with which you are unfamiliar, but you embrace the chance to learn something new. Your confidence and enthusiasm enable you to approach any learning situation with eagerness that leads to success.

Mental wellness brings with it vision and promise. More than anything else, mentally well people are open-minded and accepting of others. Instead of being threatened by people who are different from themselves, they show respect and curiosity without feeling they have to conform. They are faithful to their own ideas and philosophies and allow others the same privilege. Their self-confidence guarantees that they can take their place among others in the world without having to give up part of themselves and without requiring others to do the same.

Social Wellness

Social wellness, with its accompanying positive self-image, endows you with the ease and confidence to be outgoing, friendly, and affectionate toward others. Social wellness involves a concern for oneself and also an interest in humanity and the environment as a whole.

One of the hallmarks of social wellness is the ability to relate to others and to reach out to other people, both within one’s family and outside it. Similar to emotional wellness, it involves being comfortable with your emotions and thus helps you understand and accept the emotions of others. Your own balance and sense of self allow you to extend respect and tolerance to others. Healthy people are honest and loyal. This dimension of wellness leads to the ability to maintain close relationships with other people.

Environmental Wellness

Environmental wellness refers to the effect that our surroundings have on our well-being. Our planet is a delicate ecosystem, and its health depends on the continuous recycling of its elements. Environmental wellness implies a lifestyle that maximizes harmony with the earth and takes action to protect the world around us.

Environmental threats include air pollution, chemicals, ultraviolet radiation in the sunlight, water and food contamination, secondhand smoke, noise, inadequate shelter, unsatisfactory work conditions, lack of personal safety, and unhealthy relationships. Health is affected negatively when we live in a polluted, toxic, unkind, and unsafe environment.

Unfortunately, a national survey of first-year college students showed that less than 20 percent were concerned about the health of the environment. To enjoy environmental wellness, we are responsible for educating and protecting ourselves against environmental hazards and also protecting the environment so that we, our children, and future generations can enjoy a safe and clean environment.

Steps that you can take to live an environmentally conscious life include conserving energy (walk to your destination or ride on public transportation, do not drive unless absolutely necessary, turn off lights and computers when not in use); not littering and politely asking others not to do it either; recycling as much as possible (paper, glass, cans, plastics, cardboard); conserving paper and water (take shorter showers, don’t let the water run while brushing your teeth); not polluting the air, water, or earth if you can avoid doing so; not smoking; planting trees and keeping plants and shrubs alive; evaluating purchases and conveniences based on their environmental impact; donating old clothes to Goodwill, veterans’ groups, or other charities; and enjoying, appreciating, and spending time outdoors in natural settings.

Occupational Wellness

Occupational wellness is not tied to high salary, prestigious position, or extravagant working conditions. Any job can bring occupational wellness if it provides rewards that are important to the individual. To one person, salary might be the most important factor, whereas another might place much greater value on creativity. Those who are occupationally well have their own “ideal” job, which allows them to thrive.

People with occupational wellness face demands on the job, but they also have some say over demands placed on them. Any job has routine demands, but in occupational wellness, routine demands are mixed with new, unpredictable challenges that keep a job exciting. Occupationally well people are able to maximize their skills, and they have the opportunity to broaden their existing skills or gain new ones. Their occupation offers the opportunity for advancement and recognition for achievement. Occupational wellness encourages collaboration and interaction among coworkers, which fosters a sense of teamwork and support.

Key Terms

**Physical wellness** Good physical fitness and confidence in your personal ability to take care of health problems.

**Emotional wellness** The ability to understand your own feelings, accept your limitations, and achieve emotional stability.

**Mental wellness** A state in which your mind is engaged in lively interaction with the world around you.

**Social wellness** The ability to relate well to others, both within and outside the family unit.

**Environmental wellness** The capability to live in a clean and safe environment that is not detrimental to health.

**Ecosystem** A community of organisms interacting with each other in an environment.

**Occupational wellness** The ability to perform your job skillfully and effectively under conditions that provide personal and team satisfaction and adequately reward each individual.
Spiritual Wellness

Spiritual wellness provides a unifying power that integrates all dimensions of wellness. Basic characteristics of spiritual people include a sense of meaning and direction in life and a relationship to a higher being. Pursuing these avenues may lead to personal freedom, including prayer, faith, love, closeness to others, peace, joy, fulfillment, and altruism.

Several studies have reported positive relationships among spiritual well-being, emotional well-being, and satisfaction with life. Spiritual health is somehow intertwined with physical health. People who attend church and regularly participate in religious organizations enjoy better health, have a lower incidence of chronic diseases, are more socially integrated, handle stress more effectively, and appear to live longer. Other studies have shown that spirituality strengthens the immune system, is good for mental health, prevents age-related memory loss, decreases the incidence of depression, leads to fewer episodes of chronic inflammation, and decreases the risk of death and suicide.

Prayer is a signpost of spirituality at the core of most spiritual experiences. It is communication with a higher power. At least 200 studies have been conducted on the effects of prayer on health. About two-thirds of these studies have linked prayer to positive health outcomes—as long as these prayers are offered with sincerity, humility, love, empathy, and compassion. Some studies have shown faster healing time and fewer complications in patients who didn’t even know they were being prayed for, compared with patients who were not prayed for.

Altruism, a key attribute of spiritual people, seems to enhance health and longevity. Studies indicate that people who regularly volunteer live longer. Research has found that health benefits of altruism are so powerful that doing good for others is good for oneself, especially for the immune system.

Researchers believe that there seems to be a strong connection among the mind, spirit, and body. As one improves, the others follow. The relationship between spirituality and wellness is meaningful in our quest for a better quality of life. As with the other dimensions, development of the spiritual dimension to its fullest potential contributes to wellness. Wellness requires a balance among all seven dimensions.

Critical Thinking

Now that you understand the seven dimensions of wellness, rank them in order of importance to you and explain your rationale in doing so.

Wellness, Fitness, and Longevity

During the second half of the 20th century, scientists began to realize the importance of good fitness and improved lifestyle in the fight against chronic diseases, particularly those of the cardiovascular system. Because of more participation in wellness programs, cardiovascular mortality rates dropped. The decline began in about 1963, and between 1960 and 2000, the incidence of cardiovascular disease dropped by 26 percent. Additionally, heart attack and death rates from them have further declined by 24 percent between 1999 and 2008. This decrease is credited to higher levels of wellness and better treatment modalities in the United States.

Furthermore, several studies showed an inverse relationship between physical activity and premature mortality rates. The first major study in this area was conducted in the 1980s among 16,936 Harvard alumni, and the results linked physical activity habits and mortality rates. As the amount of weekly physical activity increased, the risk for cardiovascular deaths decreased. The largest decrease in cardiovascular deaths was observed among alumni who used more than 2,000 calories per week through physical activity.

A landmark study subsequently conducted at the Aerobics Research Institute in Dallas upheld the findings of the Harvard alumni study. Based on data from 13,344 people followed over an average of eight years, the study revealed a graded and consistent inverse relationship between physical activity levels and mortality, regardless of age and other risk factors. As illustrated in Figure 1.11, the higher the level of physical activity, the longer the lifespan.

The death rate during the eight-year study from all causes for the low-fit men was 3.4 times higher than that of the high-fit men. For the low-fit women, the death rate...
was 4.6 times higher than that of high-fit women. A most significant finding of this landmark study was the large drop in all-cause, cardiovascular, and cancer mortality when individuals went from low fitness to moderate fitness—a clear indication that moderate-intensity physical activity, achievable by most adults, does provide considerable health benefits and extends life. The data also revealed that the participants attained more protection by combining higher fitness levels with reduction in other risk factors such as hypertension, serum cholesterol, cigarette smoking, and excessive body fat.

Two additional studies reported in 2009 confirm that fitness improves wellness, quality of life, and longevity. The first study included 4,384 subjects and the results showed that the least-fit group had an almost twofold greater risk of all-cause and cardiovascular mortalities as compared with the moderately fit groups and a fourfold increased risk in comparison to the most-fit group. The researchers concluded that the mortality rates between the least-fit and the other groups was most likely related to their sedentary lifestyle rather than differences in other health parameters.

The second study looked at four health-related factors among a group of more than 23,000 people. These factors included lifetime nonsmoker, not considered obese (body mass index below 30), engaging in a minimum of 3.5 hours of weekly physical activity, and adherence to healthy nutrition principles (high consumption of whole-grain breads, fruits, and vegetables; and low consumption of red meat). Those who adhered to all four health habits were 78 percent less likely to develop chronic diseases (diabetes, heart disease, stroke, and cancer) during the almost eight-year study. Furthermore, the risk for developing a chronic disease progressively increased as the number of health factors decreased.

Currently, research on the benefits of physical activity and exercise on health and longevity is far too impressive to be ignored. A 2010 analysis of 33 studies involving more than 180,000 people quite clearly concluded that better aerobic fitness is associated with a substantial lower risk of all-cause mortality and cardiovascular disease. In today’s society, a person cannot afford not to participate in a lifetime physical fitness program.

While it is clear that moderate-intensity exercise does provide substantial health benefits, research data also show a dose-response relationship between physical activity and health. That is, greater health and fitness benefits occur at higher duration and/or intensity of physical activity. Vigorous activity and longer duration are preferable to the extent of one’s capabilities because they are most clearly associated with better health and longer life.
Vigorous-intensity exercise seems to provide the best benefits. As compared with prolonged moderate-intensity activity, vigorous-intensity exercise has been shown to provide the best improvements in aerobic capacity, coronary heart disease risk reduction, and overall cardiovascular health.

Further, a comprehensive review of research studies found a lower rate of heart disease in vigorous-intensity exercisers as compared with those who exercised at moderate intensity. While no differences were found in weight loss between the two groups, greater improvements are seen in cardiovascular risk factors in the vigorous-intensity groups, including aerobic fitness, blood pressure, and blood glucose control.

A word of caution, however, is in order. Vigorous exercise should be reserved for healthy individuals who have been cleared to do so (Activity 1.3) and who have been participating regularly in at least moderate-intensity activities.

**Types of Physical Fitness**

As the fitness concept grew at the end of the past century, it became clear that several specific components contribute to an individual's overall level of fitness. Physical fitness is classified into health-related and skill-related.

**Health-related fitness** relates to the ability to perform activities of daily living without undue fatigue and is conducive to a low risk of premature hypokinetic diseases. The health-related fitness components are cardiorespiratory (aerobic) endurance, muscular strength and endurance, muscular flexibility, and body composition.

**Skill-related fitness** components consist of agility, balance, coordination, reaction time, speed, and power. These components are related primarily to successful sports and motor skill performance. Participating in skill-related activities contributes to physical fitness, but in terms of general health promotion and wellness, the main emphasis of physical fitness programs should be on the health-related components.

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**Critical Thinking**

What role do the four health-related components of physical fitness play in your life? Rank them in order of importance to you and explain the rationale you used.
A measurement of plasma insulin, glucose, lipids, lower blood pressure, weight loss, stress release, less risk for diabetes, and lower risk for disease and premature mortality.

More specifically, improvements in the metabolic profile (measured by insulin sensitivity, glucose tolerance, and improved cholesterol levels) can be notable despite little or no weight loss or improvement in aerobic capacity. Metabolic fitness can be attained through an active lifestyle and moderate-intensity physical activity.

An assessment of health-related fitness uses cardiorespiratory endurance measured in terms of the maximal amount of oxygen the body is able to utilize per minute of physical activity (VO_{2max})—essentially, a measure of how efficiently the heart, lungs, and muscles can operate during aerobic exercise (Chapter 6). VO_{2max} is commonly expressed in milliliters (mL) of oxygen (volume of oxygen) per kilogram (kg) of body weight per minute (mL/kg/min). Individual values can range from about 10 mL/kg/min in cardiac patients to more than 80 mL/kg/min in world-class runners, cyclists, and cross-country skiers.

Research data from the study presented in Figure 1.11 reported that achieving VO_{2max} values of 35 and 32.5 mL/kg/min for men and women, respectively, may be sufficient to lower the risk for all-cause mortality significantly. Although greater improvements in fitness yield an even lower risk for premature death, the largest drop is seen between the least fit and the moderately fit. Therefore, the 35 and 32.5 mL/kg/min values could be selected as the health fitness standards.

**Physical Fitness Standards**

Physical fitness standards are set higher than health fitness standards and require a more intense exercise program. Physically fit people of all ages have the

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**Key Terms**

- **Physical fitness** The ability to meet the ordinary as well as unusual demands of daily life safely and effectively without being overly fatigued and still have energy left for leisure and recreational activities.
- **Health-related fitness** Fitness programs that are prescribed to improve the individual’s overall health.
- **Hypokinetic diseases** “Hypo” denotes “lack of”; therefore, illnesses related to lack of physical activity.
- **Skill-related fitness** Fitness components important for success in skillful activities and athletic events; encompasses agility, balance, coordination, power, reaction time, and speed.
- **Health fitness standards** The lowest fitness requirements for maintaining good health, decreasing the risk for chronic diseases, and lowering the incidence of muscular-skeletal injuries.
- **Metabolic profile** A measurement of plasma insulin, glucose, lipid, and lipoprotein levels to assess risk for diabetes and cardiovascular disease.
- **Cardiorespiratory endurance** The ability of the lungs, heart, and blood vessels to deliver adequate amounts of oxygen to the cells to meet the demands of prolonged physical activity.
- **Physical fitness standards** A fitness level that allows a person to sustain moderate-to-vigorous physical activity without undue fatigue and the ability to closely maintain this level throughout life.
Financial Fitness Prescription

Although not one of the components of physical fitness, taking control of your personal finances is critical for your success and well-being. The sooner you start working on a lifetime personal financial plan, the more successful you will be in becoming financially secure and being able to retire early, in comfort, if you choose to do so. Most likely, you have not been taught basic principles to improve personal finance and enjoy “financial fitness.” Thus, start today using the following strategies:

1. **Develop a personal financial plan.** Set short-term and long-term financial goals for yourself. If you do not have financial goals, you cannot develop a plan or work toward that end.

2. **Subscribe to a personal finance magazine or newsletter.** In the same way that you should regularly read reputable fitness/wellness journals or newsletters, you should regularly peruse a “financial fitness” magazine. If you don’t enjoy reading financial materials, then find a periodical that is quick and to the point; there are many available. You don’t have to force yourself to read the *Wall Street Journal* to become financially knowledgeable. Many periodicals have resources to help you develop a financial plan. Educate yourself and stay current on personal finances and investment matters.

3. **Set up a realistic budget and live on less than you make.** Pay your bills on time and keep track of all expenses. Then develop your budget so that you spend less than you earn. Your budget may require that you either cut back on expenses and services or figure out a way to increase your income. Balance your checkbook regularly and do not overdraft your checking account.

4. **Learn to differentiate between wants and needs.** It is fine to reward yourself for goals that you have achieved (see Chapter 2), but limit your spending to items that you truly need. Avoid simple impulse spending because “it’s a bargain” or something you just want to have.

5. **Pay yourself first; save 10 percent of your income each month.** Before you take any money out of your paycheck, put 10 percent of your income into a retirement or investment account. If possible, ask for an automatic withdrawal at your bank from your paycheck to avoid the temptation to spend this money. This strategy may allow you to have a solid retirement fund or even provide for an early retirement. If you start putting away $100 a month at age 20, and earn a modest 6 percent interest rate, at age 65 you will have more than $275,000.

6. **Set up an emergency savings fund.** Whether you ultimately work for yourself or for someone else, there may be uncontrollable financial setbacks or even financial disasters in the future. So, as you are able, start an emergency fund equal to 3 to 6 months of normal monthly earnings. Additionally, start a second savings account for expensive purchases such as a car, a down payment on a home, or a vacation.

7. **Use credit, gas, and retail cards responsibly and sparingly.** As soon as you receive new cards, sign them promptly and store them securely. Due to the prevalence of identity theft (someone stealing your creditworthiness), cardholders should even consider a secure post office box, rather than a regular mailbox, for all high-risk mail. Shred your old credit cards, monthly statements, and any and all documents that contain personal information to avoid identity theft. Pay off all credit card debt monthly, and do not purchase on credit unless...
freedom to enjoy most of life’s daily and recreational activities to their fullest potentials. Current health fitness standards may not be enough to achieve these objectives.

Sound physical fitness gives the individual a degree of independence throughout life that many people in the United States no longer enjoy. Most adults should be able to carry out activities similar to those they conducted in their youth, though not with the same intensity. These standards do not require being a championship athlete, but activities such as changing a tire, chopping wood, climbing several flights of stairs, playing basketball, mountain biking, playing soccer with children or grandchildren, walking several miles around a lake, and hiking through a national park do require more than the current “average fitness” level of most Americans.

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13. 

14. 

You have the cash to pay it off when the monthly statement arrives. Develop a plan at this very moment to pay off your debt if you have such. Credit card balances, high interest rates, and frequent credit purchases lead to financial disaster. Credit card debt is the worst enemy to your personal finances!

8. Understand the terms of your student loans. Do not borrow more money than you absolutely need for actual educational expenses. Student loans are not for wants but needs (see item 4). Remember, loans must be repaid, with interest, once you leave college. Be informed regarding the repayment process and do not ever default on your loan. If you do, the entire balance (principal, interest, and collection fees) is due immediately and serious financial and credit consequences will follow.

9. Eat out infrequently. Besides saving money that you can then pay to yourself, you will eat healthier and consume fewer calories.

10. Make the best of tax “motivated” savings and investing opportunities available to you. For example, once employed, your company may match your voluntary 401(k) contributions (or other retirement plan), so contribute at least up to the match (you may use the 10 percent you “pay yourself first”—see item 5—or part of it). Also, under current tax law, maximize your Roth IRA contribution personally. Always pay attention to current tax rules that provide tax incentives for investing in retirement plans. If at all possible, never cash out a retirement account early. You may pay penalties in addition to tax, in most situations. As you are able, employ a tax professional or financial planner to avoid serious missteps in your tax planning.

11. Stay involved in your financial accumulations. You may seek professional advice, but you stay in control. Ultimately, no one will look after your interests as well as you. Avoid placing all your trust (and assets) in one individual or institution. Spreading out your assets is one way to diversify your risk.

12. Protect your assets. As you start to accumulate assets, get proper insurance coverage (yes, even renter’s insurance) in case of an accident or disaster. You have disciplined yourself and worked hard to obtain those assets, now make sure they are protected.

13. Review your credit report. The best way to ensure that your credit “identity” is not stolen and ruined is to regularly review your credit report, at least once a year, for accuracy.

14. Contribute to charity and the needy. Altruism (doing good for others) is good for heart health and emotional well-being. Remember the less fortunate and donate regularly to some of your favorite charitable organizations and volunteer time to worthy causes.

The Power of Investing Early

Jon and Jim are both 20 years old. Jon begins investing $100 a month starting on his 20th birthday. He stops investing on his 30th birthday (he has set aside a total of $12,000). Jim does not start investing until he’s 30. He chooses to invest $100 a month as Jon had done, but he does so for the next 30 years (Jim invests a total of $36,000). Although Jon stopped investing at age 30, assuming an 8 percent annual rate of return in a tax-deferred account, by the time both Jon and Jim are 60, Jon will have accumulated $199,035, whereas Jim will have $150,029. At a 6 percent rate of return, they would both accumulate about $100,000, but Jim invested three times as much as Jon did.

Post these principles of financial fitness in a visible place at home where you can review them often. Start implementing these strategies as soon as you can and watch your financial fitness level increase over the years.
400 pounds, his blood pressure was 220/180, he was blind because of undiagnosed diabetes, and his blood glucose level was 487.

Snell had determined to do something about his physical and medical condition, so he started a walking/jogging program. After about eight months of conditioning, he had lost almost 200 pounds, his eyesight had returned, his glucose level was down to 67, and he was taken off medication. Just two months later—less than 10 months after beginning his personal exercise program—he completed his first marathon, a running course of 26.2 miles!

Health Benefits
Most people exercise because it improves their personal appearance and makes them feel good about themselves. Although many benefits accrue from participating in a regular fitness and wellness program, and active people generally live longer, the greatest benefit of all is that physically fit individuals enjoy a better quality of life. These people live life to its fullest, with far fewer health problems than inactive individuals.

The benefits derived by regularly participating in exercise are so extensive that it is difficult to compile an all-inclusive list. Many of these benefits are summarized in Table 1.5. As far back as 1982, the American Medical Association indicated that “there is no drug in current or prospective use that holds as much promise for sustained health as a lifetime program of physical exercise.” Furthermore, researchers and sports medicine leaders have stated that if the benefits of exercise could be packaged in a pill, it would be the most widely prescribed medication throughout the world today.

While most of the chronic (long-term) benefits of exercise are well-established, what many people fail to realize is that there are immediate benefits derived by participating in just one single bout of exercise. Most of these benefits dissipate within 48 to 72 hours following exercise. The immediate benefits, summarized in Table 1.4, are so striking that it prompted Dr. William L. Haskell of Stanford University to state: “Most of the health benefits of exercise are relatively short term, so people should think of exercise as a medication and take it on a daily basis.” Of course, as you regularly exercise a minimum of 30 minutes five times per week, you will realize the impressive long-term benefits listed in Table 1.5.

Exercise and Brain Function
If the previous benefits of exercise still have not convinced you to start a regular exercise program, you may want to consider the effects of exercise on brain function and academic performance. Physical activity is related to better cognitive health and effective functioning across the lifespan.

While much of the research is still in its infancy, even in 400 years BC, the Greek philosopher Plato stated: “In
order for man to succeed in life, God provided him with two means, education and physical activity. Not separately, one for the soul and the other for the body, but for the two together. With these two means, man can attain perfection.”

Data on more than 2.4 million students in the state of Texas have shown consistent and significant associations between physical fitness and various indicators of academic achievement; in particular, higher levels of fitness were associated with better academic grades. Cardiorespiratory fitness was shown to have a dose-response association with academic performance (better fitness, better grades), independent of other sociodemographic and fitness variables.27

Emerging research shows that exercise allows the brain to function at its best because it increases blood and oxygen flow to the brain and leads to biological processes that instigate brain cells to bind one to another. These connections are critical for learning to take place. Exercise provides the necessary stimulus for brain neurons to interconnect, creating the perfect environment in which the brain is ready, willing, and able to learn.28

Second, muscular activity generates growth factors (e.g., vascular endothelial growth factor and insulin-like growth factor) that are used to create new nerve cells, to increase the strength of the synaptic transmission (transmission between neurons), and in the mechanisms involved in the highest thought processes.

No current drug or medication provides as many health benefits as a regular physical activity program.

<table>
<thead>
<tr>
<th>Table 1.5</th>
<th>Long-term Benefits of Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular participation in exercise:</td>
<td></td>
</tr>
<tr>
<td>• improves and strengthens the cardiorespiratory system.</td>
<td></td>
</tr>
<tr>
<td>• maintains better muscle tone, muscular strength, and endurance.</td>
<td></td>
</tr>
<tr>
<td>• improves muscular flexibility.</td>
<td></td>
</tr>
<tr>
<td>• enhances athletic performance.</td>
<td></td>
</tr>
<tr>
<td>• helps maintain recommended body weight.</td>
<td></td>
</tr>
<tr>
<td>• helps preserve lean body tissue.</td>
<td></td>
</tr>
<tr>
<td>• increases resting metabolic rate.</td>
<td></td>
</tr>
<tr>
<td>• improves the body’s ability to use fat during physical activity.</td>
<td></td>
</tr>
<tr>
<td>• improves posture and physical appearance.</td>
<td></td>
</tr>
<tr>
<td>• improves functioning of the immune system.</td>
<td></td>
</tr>
<tr>
<td>• lowers the risk for chronic diseases and illnesses (including heart disease, stroke, and certain cancers).</td>
<td></td>
</tr>
<tr>
<td>• decreases the mortality rate from chronic diseases.</td>
<td></td>
</tr>
<tr>
<td>• thins the blood so it doesn’t clot as readily, thereby decreasing the risk for coronary heart disease and stroke.</td>
<td></td>
</tr>
<tr>
<td>• helps the body manage cholesterol levels more effectively.</td>
<td></td>
</tr>
<tr>
<td>• prevents or delays the development of high blood pressure and lowers blood pressure in people with hypertension.</td>
<td></td>
</tr>
<tr>
<td>• helps prevent and control type 2 diabetes.</td>
<td></td>
</tr>
<tr>
<td>• helps achieve peak bone mass in young adults and maintain bone mass later in life, thereby decreasing the risk for osteoporosis.</td>
<td></td>
</tr>
<tr>
<td>• helps people sleep better.</td>
<td></td>
</tr>
<tr>
<td>• helps prevent chronic back pain.</td>
<td></td>
</tr>
<tr>
<td>• relieves tension and helps in coping with life stresses.</td>
<td></td>
</tr>
<tr>
<td>• raises levels of energy and job productivity.</td>
<td></td>
</tr>
<tr>
<td>• extends longevity and slows the aging process.</td>
<td></td>
</tr>
<tr>
<td>• improves and helps maintain cognitive function.</td>
<td></td>
</tr>
<tr>
<td>• promotes psychological well-being, including higher morale, self-image, and self-esteem.</td>
<td></td>
</tr>
<tr>
<td>• reduces feelings of depression and anxiety.</td>
<td></td>
</tr>
<tr>
<td>• encourages positive lifestyle changes (improving nutrition, quitting smoking, controlling alcohol and drug use).</td>
<td></td>
</tr>
<tr>
<td>• speeds recovery time following physical exertion.</td>
<td></td>
</tr>
<tr>
<td>• speeds recovery following injury or disease.</td>
<td></td>
</tr>
<tr>
<td>• regulates and improves overall body functions.</td>
<td></td>
</tr>
<tr>
<td>• improves physical stamina and counteracts chronic fatigue.</td>
<td></td>
</tr>
<tr>
<td>• reduces physical symptoms and helps to maintain independent living, especially in older adults.</td>
<td></td>
</tr>
<tr>
<td>• enhances quality of life: People feel better and live a healthier and happier life.</td>
<td></td>
</tr>
</tbody>
</table>

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Exercise also increases the neurotransmitters dopamine, glutamate, norepinephrine, and serotonin, all of which are vital in the generation of thought and emotion. Low levels of serotonin have been linked to depression, and exercise has repeatedly been shown to be effective in treating depression. Furthermore, physical activity, and aerobic exercise in particular, protect against age-related loss of cognitive function (memory, thought process, and information processing).

**Economic Benefits**

Sedentary living can have a strong impact on a nation’s economy. As the need for physical exertion in Western countries decreased steadily during the past century, health care expenditures increased dramatically. Health care costs in the United States rose from $12 billion in 1950 to $2.3 trillion in 2008 (Figure 1.15), or about 16 percent of the gross domestic product (GDP). This figure represents the highest of any country in the Organisation for Economic Co-operation and Development (OECD). The next closest country is France at 11.0 percent and Canada ranks sixth at 10.1 percent of the GDP (Figure 1.16). In 1980, health care costs in the United States represented 8.8 percent of the GDP, and if the current trend continues, they are projected to reach 19.3 percent by the year 2019.

In terms of yearly health care costs per person, the United States spends more per person than any other industrialized nation. Per capita U.S. health care costs exceed $7,000 per year. These costs are about 2.5 times the OECD average (Figure 1.17).

One of the reasons for the low overall ranking is the overemphasis on state-of-the-art cures instead of prevention programs. The United States is the best place in the world to treat people once they are sick, but the system does a poor job of keeping people healthy in the first place. Ninety-five percent of our health care dollars are spent on treatment strategies, and less than 5 percent is spent on prevention.

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**Figure 1.15** U.S. health care cost increments since 1950.

**Figure 1.16** Health care expenditures for selected countries as a percentage of the gross domestic product (GDP), 2007.

**Figure 1.17** Health care expenditure per capita for selected countries, 2007.
Unhealthy behaviors also contribute to the staggering U.S. health care costs. Risk factors for disease such as obesity and smoking carry a heavy price tag. An estimated 1 percent of the people account for 30 percent of health care costs. Half of the people use up about 97 percent of health care dollars. Without reducing the current burden of disease, real health care reform will most likely be impossible. True health care reform will require a nationwide call for action by everyone against chronic disease.

Scientific evidence links participation in fitness and wellness programs to better health, in addition to lower medical costs and higher job productivity. As a result of the staggering rise in medical costs, many organizations offer health-promotion programs, because keeping employees healthy costs less than treating them once they are sick.

Because a better and healthier life is something that every person should strive for, our biggest health challenge today is to teach people how to take control of their personal health habits and adhere to a positive lifestyle. A wealth of information on the benefits of fitness and wellness programs indicates that improving the quality and possible length of our lives is a matter of personal choice.

Even though people in the United States believe a positive lifestyle has a great impact on health and longevity, most people do not reap the benefits because they simply do not know how to implement a safe and effective fitness and wellness program. Others are exercising incorrectly and, therefore, are not reaping the full benefits.

**Behavior Modification Planning**

**Healthy Lifestyle Habits**

Research indicates that adherence to the following 12 lifestyle habits will significantly improve health and extend life:

1. **Participate in a lifetime physical activity program.** Attempt to accumulate 60 minutes of moderate-intensity physical activity most days of the week. The 60 minutes should include 20 to 30 minutes of aerobic exercise (vigorous-intensity) at least three times per week, along with strengthening and stretching exercises two to three times per week.

2. **Do not smoke cigarettes.** Cigarette smoking is the largest preventable cause of illness and premature death in the United States. If we include all related deaths, smoking is responsible for more than 440,000 unnecessary deaths each year.

3. **Eat right.** Eat a good breakfast and two additional well-balanced meals every day. Avoid eating too many calories, processed foods, and foods with a lot of sugar, fat, and salt. Increase your daily consumption of fruits, vegetables, and whole-grain products.

4. **Avoid snacking.** Refrain from frequent high-sugar snacks between meals. Insulin is released to remove sugar from the blood, and frequent spikes in insulin may contribute to the development of heart disease.

5. **Maintain recommended body weight through adequate nutrition and exercise.** This is important in preventing chronic diseases and in developing a higher level of fitness.

6. **Sleep 7 to 8 hours every night.**

7. **Lower your stress levels.** Reduce your vulnerability to stress and practice stress management techniques as needed.

8. **Be wary of alcohol.** Drink alcohol moderately or not at all. Alcohol abuse leads to mental, emotional, physical, and social problems.

9. **Surround yourself with healthy friendships.** Unhealthy friendships contribute to destructive behaviors and low self-esteem. Associating with people who strive to maintain good fitness and health reinforces a positive outlook in life and encourages positive behaviors. Mortality rates are much higher among people who are socially isolated.

10. **Be informed about the environment.** Seek clean air, clean water, and a clean environment. Be aware of pollutants and occupational hazards: asbestos fibers, nickel dust, chromate, uranium dust, and so on. Take precautions when using pesticides and insecticides.

11. **Increase education.** Data indicate that people who are more educated live longer. As education increases, so do the number of connections between nerve cells. An increased number of connections helps the individual make better survival (i.e., healthy lifestyle) choices.

12. **Take personal safety measures.** Although not all accidents are preventable, many are. Taking simple precautionary measures—such as using seat belts and keeping electrical appliances away from water—lessens the risk for avoidable accidents.

**Try It** Look at the list above and indicate which habits are already a part of your lifestyle. What changes could you make to incorporate some additional healthy habits into your daily life?
benefits of their program. How, then, can we meet the health challenges of the 21st century? That is the focus of this book—to provide the necessary tools that will enable you to write, implement, and regularly update your personal lifetime fitness and wellness program.

Critical Thinking

What are your thoughts about lifestyle habits that enhance health and longevity? How important are they to you? What obstacles keep you from adhering to these habits or incorporating new habits into your life?

Wellness Education: Using This Book

Although everyone would like to enjoy good health and wellness, most people don’t know how to reach this objective. Lifestyle is the most important factor affecting personal well-being. Granted, some people live long because of genetic factors, but quality of life during middle age and the “golden years” is more often related to wise choices initiated during youth and continued throughout life. In a few short years, lack of wellness can lead to a loss of vitality and gusto for life, as well as premature morbidity and mortality.

A Personalized Approach

Because fitness and wellness needs vary significantly from one individual to another, all exercise and wellness prescriptions must be personalized to obtain the best results. The Wellness Lifestyle Questionnaire in Activity 1.2 will provide an initial rating of your current efforts to stay healthy and well. Subsequent chapters of this book and their respective activities discuss the components of a wellness lifestyle and set forth the necessary guidelines that will allow you to develop a personal lifetime program to improve fitness and promote your own preventive health care and personal wellness.

The activities in this book have been prepared on tear-out sheets so that they can be turned in to class instructors. As you study this book and complete the worksheets, you will learn to:

- Implement motivational and behavior modification techniques to help you adhere to a lifetime fitness and wellness program
- Determine whether medical clearance is needed for your safe participation in exercise
- Conduct nutritional analyses and follow the recommendations for adequate nutrition
- Write sound diet and weight-control programs
- Assess the health-related components of fitness
- Write exercise prescriptions for cardiorespiratory endurance, muscular strength and endurance, and muscular flexibility
- Understand the relationship between fitness and aging
- Determine your levels of tension and stress, reduce your vulnerability to stress, and implement a stress management program if necessary
- Determine your potential risk for cardiovascular disease and implement a risk-reduction program
- Follow a cancer risk-reduction program
- Implement a smoking cessation program, if applicable
- Avoid chemical dependency and know where to find assistance if needed
- Learn the health consequences of sexually transmitted infections (STIs), including HIV/acquired immune deficiency syndrome (AIDS), and guidelines for preventing STIs
- Write goals and objectives to improve your fitness and wellness and learn how to chart a wellness program for the future
- Differentiate myths from facts about exercise and health-related concepts

Exercise Safety

Even though testing and participation in exercise are relatively safe for most apparently healthy individuals, the reaction of the cardiovascular system to higher levels of physical activity cannot be totally predicted. Consequently, a small but real risk exists for exercise-induced abnormalities in people with a history of cardiovascular problems, certain chronic conditions, and those who are at higher risk for disease. Among the exercise-induced abnormalities are abnormal blood pressure, irregular heart rhythm, fainting, and, in rare instances, a heart attack or cardiac arrest.

Before you engage in an exercise program or participate in any exercise testing, at a minimum you should fill out the Physical Activity Readiness Questionnaire (PAR-Q & YOU) found in Activity 1.3. Additional information can be obtained by filling out the Health History Questionnaire also given in Activity 1.3. Exercise testing and participation are not wise under some of the conditions listed in this activity and may require a medical evaluation, including a stress electrocardiogram (ECG) test for a few individuals. If you have any questions regarding your current health status, consult your doctor before initiating, continuing, or increasing your level of physical activity.

Now that you are about to embark in a wellness lifestyle program, sit down and subjectively determine where you are at on each of the seven dimensions of wellness. Use Activity 1.5 to help you with this exercise. Record the date at the top of the respective column. Next, write a goal for each wellness dimension to
Physical Fitness and Wellness

An exercise tolerance test with 12-lead electrocardiographic monitoring (stress ECG test) may be required of some individuals prior to initiating an exercise program.

Accomplish prior to the end of this course. Also, list three specific objectives that will help you accomplish each goal.

As you continue to study the content of this book, use this same form to monitor your progress. About once a month reassess your status and make adjustments in your specific objectives so you may reach the desired goals. Modifying unhealthy behaviors and developing new positive habits take time. The plan of action that you are about to develop will help you achieve the desired outcomes.

Assessment of Resting Heart Rate and Blood Pressure

Heart rate can be obtained by counting your pulse either on the wrist over the radial artery or over the carotid artery in the neck (Chapter 6, page 195). In Activity 1.4 you will have an opportunity to determine your heart rate and blood pressure and calculate the extra heart rate life years an increase in exercise may produce.

You may count your pulse for 30 seconds and multiply by 2 or take it for a full minute. The heart rate usually is at its lowest point (resting heart rate) late in the evening after you have been sitting quietly for about half an hour watching a relaxing TV show or reading in bed, or early in the morning just before you get out of bed. Your pulse should have a consistent (regular) rhythm. A pulse that misses beats or speeds up or slows down may be an indication of heart problems and should be followed up by a physician.

Unless you have a pathological condition, a lower resting heart rate indicates a stronger heart. To adapt to cardiorespiratory or aerobic exercise, blood volume increases, the heart enlarges, and the muscle gets stronger. A stronger heart can pump more blood with fewer strokes.

Resting heart rate categories are given in Table 1.6. Although resting heart rate decreases with training, the extent of bradycardia depends not only on the amount of training but also on genetic factors. Although most highly trained athletes have a resting heart rate around 40 beats per minute, occasionally one of these athletes has a resting heart rate in the 60s or 70s even during peak training months of the season. For most individuals, however, the resting heart rate decreases as the level of cardiorespiratory endurance increases.

Blood pressure is assessed using a sphygmomanometer and a stethoscope. Use a cuff of the appropriate size to get accurate readings. Size is determined by the width of the inflatable bladder, which should be about 80 percent of the circumference of the midpoint of the arm.

Blood pressure usually is measured while the person is in the sitting position, with the forearm and the manometer at the same level as the heart. The arm should be flexed slightly and placed on a flat surface. At first, the pressure is recorded from each arm, and after that from the arm with the highest reading.

The cuff should be applied approximately an inch above the antecubital space (natural crease of the elbow), with the center of the bladder directly over the medial (inner) surface of the arm. The stethoscope head should be applied firmly, but with little pressure, over the brachial artery in the antecubital space.

### Key Terms

- **Bradycardia**: Slower heart rate than normal.
- **Sphygmomanometer**: Inflatable bladder contained within a cuff and a mercury gravity manometer (or aneroid manometer) from which blood pressure is read.

### Table 1.6 Resting Heart Rate Ratings

<table>
<thead>
<tr>
<th>Heart Rate (bpm)</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤59</td>
<td>Excellent</td>
</tr>
<tr>
<td>60–69</td>
<td>Good</td>
</tr>
<tr>
<td>70–79</td>
<td>Average</td>
</tr>
<tr>
<td>80–89</td>
<td>Fair</td>
</tr>
<tr>
<td>≥90</td>
<td>Poor</td>
</tr>
</tbody>
</table>
least a full minute before making the next recording. The person measuring the pressure also should note whether the pressure was recorded from the left or the right arm. Resting blood pressure ratings are given in Table 1.7.

In some cases, the pulse sounds become less intense (point of muffling sounds) but still can be heard at a lower pressure (50 or 40 mm Hg) or even all the way down to zero. In this situation, the diastolic pressure is recorded at the point of a clear, definite change in the loudness of the sound (also referred to as fourth phase) and at complete disappearance of the sound (fifth phase) (e.g., 120/78/60 or 120/82/0).

### Mean Blood Pressure

During a normal resting contraction/relaxation cycle of the heart, the heart spends more time in the relaxation (diastolic) phase than in the contraction (systolic) phase. Accordingly, mean blood pressure (MBP) cannot be computed by taking an average of the SBP and DBP blood pressures. The equations used to determine MBP are shown in Activity 1.4.

When measuring blood pressure, be aware that a single reading may not be an accurate value because of the various factors (rest, stress, physical activity, food) that can affect blood pressure. Thus, if you are able, ask different people to take several readings at different times of the day to establish the real values. You can record the results of your resting heart rate and your SBP, DBP, and MBP assessments in Activity 1.4. You can also calculate the effects of aerobic activity on resting heart rate in this activity.

### Table 1.7 Resting Blood Pressure Guidelines (expressed in mm Hg)

<table>
<thead>
<tr>
<th>Rating</th>
<th>Systolic</th>
<th>Diastolic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>≤120</td>
<td>≤80</td>
</tr>
<tr>
<td>Prehypertension</td>
<td>120–139</td>
<td>80–89</td>
</tr>
<tr>
<td>Hypertension</td>
<td>≥140</td>
<td>≥90</td>
</tr>
</tbody>
</table>

**Key Terms**

- **Systolic blood pressure (SBP)** Pressure exerted by blood against walls of arteries during forceful contraction (systole) of the heart.
- **Diastolic blood pressure (DBP)** Pressure exerted by the blood against the walls of the arteries during the relaxation phase (diastole) of the heart.
Assess Your Behavior

Log on to www.cengagebrain.com to access CengageNOW and the Behavior Change Planner where you can assess the behaviors that might benefit you most from healthy change.

1. Are you aware of your family health history and lifestyle factors that may negatively impact your health?

2. Do you accumulate at least 30 minutes of moderate-intensity physical activity five days per week?

3. Do you make a constant and deliberate effort to stay healthy and achieve the highest potential for well-being?

Assess Your Knowledge

Evaluate how well you understand the concepts presented in this chapter using the chapter-specific quizzing available in the online materials at www.cengagebrain.com.

1. Advances in modern technology
   a. help people achieve higher fitness levels.
   b. have led to a decrease in chronic diseases.
   c. have almost completely eliminated the necessity for physical exertion in daily life.
   d. help fight hypokinetic disease.
   e. make it easier to achieve good aerobic fitness.

2. Most activities of daily living in the United States help people
   a. get adequate physical activity on a regular basis.
   b. meet health-related fitness standards.
   c. achieve good levels of skill-related activities.
   d. Choices a, b, and c are correct.
   e. None of the choices is correct.

3. The leading cause of death in the United States is
   a. cancer.
   b. accidents.
   c. CLRD.
   d. diseases of the cardiovascular system.
   e. drug abuse.

4. Bodily movement produced by skeletal muscles is called
   a. physical activity.
   b. kinesiology.
   c. exercise.
   d. aerobic exercise.
   e. muscle strength.

5. Among the long-term benefits of regular physical activity and exercise are significantly reduced risks for developing or dying from
   a. heart disease.
   b. type 2 diabetes.
   c. colon and breast cancers.
   d. osteoporotic fractures.
   e. All are correct choices.

6. To be ranked in the “active” category, an adult has to take between
   a. 3,500 and 4,999 steps per day.
   b. 5,000 and 7,499 steps per day.
   c. 7,500 and 9,999 steps per day.
   d. 10,000 and 12,499 steps per day.
   e. 12,500 and 15,000 steps per day.

7. The constant and deliberate effort to stay healthy and achieve the highest potential for well-being is defined as
   a. health.
   b. physical fitness.
   c. wellness.
   d. health-related fitness.
   e. physiological fitness.

8. Research on the effects of fitness on mortality indicates that the largest drop in premature mortality is seen between
   a. the average and excellent fitness groups.
   b. the low and moderate fitness groups.
   c. the high and excellent fitness groups.
   d. the moderate and good fitness groups.
   e. The drop is similar among all fitness groups.

9. Metabolic fitness can be achieved through
   a. a moderate-intensity exercise program.
   b. a high-intensity speed-training program.
   c. an increased basal metabolic rate.
   d. anaerobic training.
   e. an increase in lean body mass.

10. What is the greatest benefit of being physically fit?
    a. absence of disease
    b. a higher quality of life
    c. improved sports performance
    d. better personal appearance
    e. maintenance of recommended body weight

Correct answers can be found at the back of the book.
Wellness Lifestyle Questionnaire

Name: ___________________________ Date: ___________________________

Course: ___________________ Section: ___________ Gender: ________ Age: ________

The purpose of this questionnaire is to analyze current lifestyle habits and help determine changes necessary for future health and wellness. Check the appropriate answer to each question, and obtain a final score according to the guidelines provided at the end of the questionnaire.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Always</th>
<th>Nearly always</th>
<th>Often</th>
<th>Seldom</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I participate in vigorous-intensity aerobic activity for 20 minutes on 3 or more days per week, and I accumulate at least 30 minutes of moderate-intensity physical activity on a minimum of 2 additional days per week.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2. I participate in strength-training exercises, using a minimum of eight different exercises, 2 or more days per week.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3. I perform flexibility exercises a minimum of 2 days per week.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4. I maintain recommended body weight (includes avoidance of excessive body fat, excessive thinness, or frequent fluctuations in body weight).</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>5. Every day, I eat three regular meals that include a wide variety of foods.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>6. I limit the amount of saturated fat and trans fats in my diet on most days of the week.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>7. I eat a minimum of five servings of fruits and vegetables and six servings from grain products daily.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>8. I regularly avoid snacks, especially those that are high in calories and fat and low in nutrients and fiber.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>9. I avoid cigarettes or tobacco in any other form.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>10. I avoid alcoholic beverages. If I drink, I do so in moderation (one daily drink for women and two for men), and I do not combine alcohol with other drugs.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>11. I avoid addictive drugs and needles that have been used by others.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>12. I use prescription drugs and over-the-counter drugs sparingly (only when needed), and I follow all directions for their proper use.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>13. I readily recognize and act on it when I am under excessive tension and stress (distress).</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>14. I am able to perform effective stress-management techniques.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>15. I have close friends and relatives with whom I can discuss personal problems and approach for help when needed and with whom I can express my feelings freely.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>16. I spend most of my daily leisure time in wholesome recreational activities.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>17. I sleep 7 to 8 hours each night.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>18. I floss my teeth every day and brush them at least twice daily.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>19. I get “safe sun” exposure—that is, 10 to 20 minutes of unprotected exposure to the face, neck, and arms on most days of the week between the hours of 10:00 a.m. and 4:00 p.m. I avoid overexposure to the sun, and I use sunscreen and appropriate clothing when I am out in the sun for an extended time.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>20. I avoid using products that have not been shown by science to be safe and effective. (This includes drugs and unproven nutrient and weight loss supplements.)</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>21. I stay current with the warning signs for heart attack, stroke, and cancer.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>22. I practice monthly breast/testicle self-exams, get recommended screening tests (blood lipids, blood pressure, Pap tests), and seek a medical evaluation when I am not well or when disease symptoms arise.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>23. I have a dental checkup at least once a year, and I get regular medical exams according to age recommendations.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>24. I am not sexually active. I practice safe sex.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>25. I can deal effectively with disappointments and temporary feelings of sadness, loneliness, and depression. If I am unable to deal with these feelings, I seek professional help.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>26. I can work out emotional problems without turning to alcohol, other drugs, or violent behavior.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
Wellness Lifestyle Questionnaire (continued)

27. I associate with people who have a positive attitude about life.  
   5 4 3 2 1

28. I respond to temporary setbacks by making the best of the circumstances and by  
   moving ahead with optimism and energy. I do not spend time and talent worrying about  
   failures.  
   5 4 3 2 1

29. I wear a seat belt whenever I am in a car, I ask others in my vehicle to do the same, and I  
   make sure that children are in an infant seat or wear a shoulder harness.  
   5 4 3 2 1

30. I do not drive under the influence of alcohol or other drugs, and I make an effort to keep  
   others from doing the same.  
   5 4 3 2 1

31. I avoid being alone in public places, especially after dark; I seek escorts when I visit or  
   exercise in unfamiliar places.  
   5 4 3 2 1

32. I seek to make my living quarters accident-free, and I keep doors and windows locked,  
   especially when I am home alone.  
   5 4 3 2 1

33. I try to minimize environmental pollutants, and I support community efforts to minimize  
   pollution.  
   5 4 3 2 1

34. I use energy conservation strategies and encourage others to do the same.  
   5 4 3 2 1

35. I study and/or work in a clean environment (including avoidance of secondhand smoke).  
   5 4 3 2 1

36. I participate in recycling programs for paper, cardboard, glass, plastic, and aluminum.  
   5 4 3 2 1

How to Score

Enter the score you have marked for each question in the spaces provided below. Next, total the score for each specific wellness lifestyle  

category and obtain a rating for each category according to the criteria provided below.

<table>
<thead>
<tr>
<th>Health-related fitness</th>
<th>Nutrition</th>
<th>Avoiding chemical dependency</th>
<th>Stress management</th>
<th>Personal hygiene/health</th>
<th>Disease prevention</th>
<th>Emotional well-being</th>
<th>Personal safety</th>
<th>Environmental health &amp; protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>5.</td>
<td>9.</td>
<td>13.</td>
<td>17.</td>
<td>21.</td>
<td>25.</td>
<td>29.</td>
<td>33.</td>
</tr>
<tr>
<td>2.</td>
<td>6.</td>
<td>10.</td>
<td>14.</td>
<td>18.</td>
<td>22.</td>
<td>26.</td>
<td>30.</td>
<td>34.</td>
</tr>
<tr>
<td>3.</td>
<td>7.</td>
<td>11.</td>
<td>15.</td>
<td>19.</td>
<td>23.</td>
<td>27.</td>
<td>31.</td>
<td>35.</td>
</tr>
<tr>
<td>4.</td>
<td>8.</td>
<td>12.</td>
<td>16.</td>
<td>20.</td>
<td>24.</td>
<td>28.</td>
<td>32.</td>
<td>36.</td>
</tr>
<tr>
<td>Total:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rating:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Category Rating

Excellent (E) = ≥ 17 Your answers show that you are aware of the importance of this category to your health and wellness. You are putting  
your knowledge to work for you by practicing good habits. As long as you continue to do so, this category should not pose a health risk.  
You are also setting a good example for family and friends to follow. Because you got a very high score on this part of the test, you  
may want to consider other categories in which your score indicates room for improvement.

Good (G) = 13–16 Your health practices in this area are good, but you have room for improvement. Look again at the items you  
answered with a 4 or lower and identify changes that you can make to improve your lifestyle. Even small changes often can help you  
achieve better health.

Needs Improvement (NI) = ≤ 12 Your health risks are showing. You may be taking serious and unnecessary risks with your health. Perhaps  
you are not aware of the risks or what to do about them. Most likely you need additional information and help in deciding how to  
successfully make the changes you desire. You can easily get the information that you need to improve, if you wish. The next step is up to you.

Please note that no final overall rating is provided for the entire questionnaire because it may not be indicative of your overall wellness.  
For example, an excellent rating in most categories will not offset the immediate health risks and life-threatening consequences of using  
addictive drugs or not wearing a seat belt.
PAR-Q and Health History Questionnaire

Name ___________________________ Date _______________ Grade _______________
Instructor _________________________ Course __________________ Section ______________

**Necessary Lab Equipment** None.  

**Objective** To determine the safety of exercise participation.

---

**Physical Activity Readiness Questionnaire - PAR-Q**  
(revised 2002)

Regular physical activity is fun and healthy, and increasingly more people are starting to become more active every day. Being more active is very safe for most people. However, some people should check with their doctor before they start becoming much more physically active.

If you are planning to become much more physically active than you are now, start by answering the seven questions in the box below. If you are between the ages of 15 and 69, the PAR-Q will tell you if you should check with your doctor before you start. If you are over 69 years of age, and you are not used to being very active, check with your doctor.

Common sense is your best guide when you answer these questions. Please read the questions carefully and answer each one honestly: check YES or NO.

---

**YES to one or more questions**

Talk with your doctor by phone or in person BEFORE you start becoming much more physically active or BEFORE you have a fitness appraisal. Tell your doctor about the PAR-Q and which questions you answered YES.

- You may be able to do any activity you want—as long as you start slowly and build up gradually. Or, you may need to restrict your activities to those which are safe for you. Talk with your doctor about the kinds of activities you wish to participate in and follow his/her advice.
- Find out which community programs are safe and helpful for you.

**NO to all questions**

If you answered NO honestly to all PAR-Q questions, you can be reasonably sure that you can:

- start becoming much more physically active – begin slowly and build up gradually.
- take part in a fitness appraisal – this is an excellent way to determine your basic fitness so that you can plan the best way for you to live actively. It is also highly recommended that you have your blood pressure evaluated. If your reading is over 144/94, talk with your doctor before you start becoming much more physically active.

---

**DELAY BECOMING MUCH MORE ACTIVE:**

- if you are not feeling well because of a temporary illness such as a cold or a fever—wait until you feel better; or
- if you are or may be pregnant—talk to your doctor before you start becoming more active.

---

**PLEASE NOTE:** If your health changes so that you then answer YES to any of the above questions, tell your fitness or health professional. Ask whether you should change your physical activity plan.

---

**No changes permitted. You are encouraged to photocopy the PAR-Q but only if you use the entire form.**

---

**Informed Use of the PAR-Q:** The Canadian Society for Exercise Physiology, Health Canada, and their agents assume no liability for persons who undertake physical activity, and if in doubt after completing this questionnaire, consult your doctor prior to physical activity.

---

“I have read, understood and completed this questionnaire. Any questions I had were answered to my full satisfaction.”

NAME ____________________________________________

SIGNATURE __________________________ DATE _____________

SIGNATURE OF PARENT ___________________________ WITNESS ____________________________

or GUARDIAN (for participants under the age of majority)

---

**Note:** This physical activity clearance is valid for a maximum of 12 months from the date it is completed and becomes invalid if your condition changes so that you would answer YES to any of the seven questions.

---

**Source:** Physical Activity Readiness Questionnaire (PAR-Q) © 2002. Used with permission from the Canadian Society for Exercise Physiology, www.csep.ca

---

4/8/11 8:46 AM
Health History Questionnaire

Introduction

Although exercise testing and exercise participation are relatively safe for most apparently healthy individuals, the reaction of the cardiovascular system to increased levels of physical activity cannot always be totally predicted. Consequently, there is a small but real risk of certain changes occurring during exercise testing and participation. Some of these changes may be abnormal blood pressure, irregular heart rhythm, fainting, and in rare instances a heart attack or cardiac arrest. Therefore, you must provide honest answers to this questionnaire. Exercise may be contraindicated under some of the conditions listed below; others may simply require special consideration. **If any of the conditions apply, consult your physician before you participate in an exercise program.** Also, promptly report to your instructor any exercise-related abnormalities that you may experience during the course of the semester.

A. Have you ever had or do you now have any of the following conditions?

- [ ] 1. A myocardial infarction
- [ ] 2. Coronary artery disease
- [ ] 3. Congestive heart failure
- [ ] 4. Elevated blood lipids (cholesterol and triglycerides)
- [ ] 5. Chest pain at rest or during exertion
- [ ] 6. Shortness of breath
- [ ] 7. An abnormal resting or stress electrocardiogram
- [ ] 8. Uneven, irregular, or skipped heartbeats (including a racing or fluttering heart)
- [ ] 9. A blood embolism
- [ ] 10. Thrombophlebitis
- [ ] 11. Rheumatic heart fever
- [ ] 12. Elevated blood pressure
- [ ] 13. A stroke
- [ ] 14. Diabetes
- [ ] 15. A family history of coronary heart disease, syncope, or sudden death before age 60
- [ ] 16. Any other heart problem that makes exercise unsafe

B. Do you have any of the following conditions?

- [ ] 1. Arthritis, rheumatism, or gout
- [ ] 2. Chronic low-back pain
- [ ] 3. Any other joint, bone, or muscle problems
- [ ] 4. Any respiratory problems
- [ ] 5. Obesity (more than 30 percent overweight)
- [ ] 6. Anorexia
- [ ] 7. Bulimia
- [ ] 8. Mononucleosis
- [ ] 9. Any physical disability that could interfere with safe participation in exercise

C. Do any of the following conditions apply?

- [ ] 1. Do you smoke cigarettes?
- [ ] 2. Are you taking any prescription drugs?

D. Do you have any other concern regarding your ability to safely participate in an exercise program? If so, explain:


Student’s Signature: ___________________________________________  Date: _______________________________
Name: ___________________________________________ Date: _________________

Course:_____________ Section:_____________ Gender:_______ Age:________

Resting Heart Rate and Blood Pressure

Resting Heart Rate: [ ] Rating: [ ] (see Table 1.6, page 29)

Blood Pressure (see Table 1.7, page 30, for ratings):

<table>
<thead>
<tr>
<th>Systolic</th>
<th>Right arm</th>
<th>Rating</th>
<th>Left arm</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diastolic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mean Blood Pressure Computation

The following equation is used to determine MBP:

\[
MBP = DBP + \frac{1}{3} PP
\]

Where PP = pulse pressure, or the difference between the systolic and diastolic pressures.

1. Compute your MBP using your own blood pressure results:

\[
PP = \underline{[ ] \text{(systolic)}} - \underline{[ ] \text{(diastolic)}} = \underline{[ ] \text{mm Hg}}
\]

\[
MBP = \underline{[ ] \text{(DBP)}} + \frac{\underline{[ ] \text{(PP)}}}{3} = \underline{[ ] \text{mm Hg}}
\]

2. Determine the MBP for a person with a BP of 130/80 and a second person with a BP of 120/90.

130/80 _______ 120/90 _______

Which person has the lower MBP? _______
Computing the Effects of Aerobic Activity on Resting Heart Rate

Using your actual resting heart rate (RHR), compute the total number of times your heart beats each day and each year:

A. Beats per day = \( \text{RHR bpm} \times 60 \times 24 \) \( \frac{\text{beats per day}}{\text{min per hour}} \times \frac{\text{hours per day}}{24} \) = _______ beats per day

B. Beats per year = \( \text{heart rate in beats per day, use item A} \times 365 \) = _______ beats per year

If your RHR dropped 20 bpm through an aerobic exercise program, determine the number of beats that your heart would save each year at that lower RHR:

C. Beats per day = \( \text{RHR, use your current RHR} - 20 \times 60 \times 24 \) = _______ beats per day

D. Beats per year = \( \text{heart rate in beats per day, use item C} \times 365 \) = _______ beats per year

E. Number of beats saved per year (B - D) = _______ - _______ = _______ beats saved per year

Assuming that you will reach the average U.S. life expectancy of 80 years for women or 75 for men, determine the additional number of “heart rate life years” available to you if your rhr was 20 bpm lower:

F. Years of life ahead = _______ (use 80 for women and 75 for men) - _______ (current age) = _______ years

G. Number of beats saved = _______ (use item E) \times _______ (use item F) = _______ beats saved

H. Number of heart rate life years based on the lower RHR = _______ (use item G) \div _______ (use item D) = _______ years
### Instructions

1. In the Wellness Dimension chart below, record the date at the top of the first column, then fill in that column using the following scale to indicate your wellness rating for each dimension:
   - poor = 5, fair = 4, average = 3, good = 2, excellent = 1
2. Next, write a goal that you want to accomplish prior to the end of this course for each wellness dimension, and list three specific objectives that will help you accomplish each goal.
3. Once a month, review this form, fill in another column of self-evaluation, and adjust your objectives as necessary.

Here’s an example:

<table>
<thead>
<tr>
<th>Wellness Dimension</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td></td>
</tr>
<tr>
<td>Emotional</td>
<td></td>
</tr>
<tr>
<td>Social</td>
<td></td>
</tr>
<tr>
<td>Environmental</td>
<td></td>
</tr>
<tr>
<td>Mental</td>
<td></td>
</tr>
<tr>
<td>Spiritual</td>
<td></td>
</tr>
<tr>
<td>Occupational</td>
<td></td>
</tr>
</tbody>
</table>

#### Goals and Objectives

**Physical goal:**

Specific objectives

1. 
2. 
3. 

**Emotional goal:**

Specific objectives

1. 
2. 
3. 

**Social goal:**

Specific objectives

1. Find study buddies. Ask each instructor and counselor about study groups.
2. Attend Friday night discussion groups in Student Center.
3. Locate activities I enjoy—basketball, chess, dancing—and start a conversation.

Specific objectives

1. 
2. 
3. 

**Environmental goal:**

Specific objectives

1. 
2. 
3. 

**Mental goal:**

Specific objectives

1. 
2. 
3. 

**Spiritual goal:**

Specific objectives

1. 
2. 
3. 

**Occupational goal:**

Specific objectives

1. 
2. 
3. 
Notes and Suggested Readings

Chapter 1:

Notes

27. Cooper Institute, Texas Youth Fitness Study (Dallas, TX), http://www.cooperinstitute.org/youth/documents/Texas%20Youth%20Fitness%20Study.%20-%20Charts.pdf, downloaded March 9, 2011.

Suggested Readings


Answer Key

Chapter 1

This page contains answers for this chapter only
Research indicates that adhering to the following 12 lifestyle habits will significantly improve health and extend life.

- Participate in a lifetime physical activity program.
- Do not smoke cigarettes.
- Eat right.
- Avoid snacking.
- Maintain recommended body weight through adequate nutrition and exercise.
- Get enough rest.
- Lower your stress levels.
- Be wary of alcohol.
- Surround yourself with healthy friendships.
- Be informed about the environment.
- Increase education.
- Take personal safety measures.