Health and Wellness Benefits

Lesson Objectives
After reading this lesson, you should be able to
1. Describe some hypokinetic conditions.
2. List some benefits of physical activity that contribute to health and wellness.
3. Explain, using examples, how physical activity is related to hypokinetic conditions.

Lesson Vocabulary
- Activity neurosis (p. 47), atherosclerosis (p. 43), blood pressure (p. 44), diabetes (p. 45), diastolic blood pressure (p. 44), eating disorders (p. 47), heart attack (p. 13), hyperkinetic conditions (p. 47), hypertension (p. 14), osteoporosis (p. 46), risk factor (p. 43), stroke (p. 14), systolic blood pressure (p. 44)

Prior to 1900 the leading cause of death was pneumonia. Many of the other leading causes of death were from infections caused by bacteria or viruses. Modern science found cures or vaccinations for many of these conditions, and now in the 21st century these diseases are no longer the leading health problems. Diseases such as heart disease (#1), cancer (#2), and stroke (#3) are now considered the leading health threats. These and many other diseases are considered to be hypokinetic conditions because they are caused in part from sedentary living. In this lesson you will learn more about how physical activity reduces your risk of hypokinetic conditions and increases your personal wellness.

Hypokinetic Diseases and Conditions
Sedentary living costs our nation $150 billion each year because of increased need for health care and loss of productivity. Approximately 250,000 people die prematurely because they are inactive. Reports of major health organizations, including the Office of the Surgeon General, indicate that regular physical activity is one of the best ways of reducing illness and increasing wellness in our society. Sometimes teenagers feel that these statistics are not relevant to them; they think illness happens only to old people. As you will see next, many hypokinetic diseases are now prevalent among teens and many teens are not active enough to resist these conditions.

Cardiovascular Diseases
Did you know that cardiovascular disease has been the leading cause of death in the United States each year since 1920? Cardiovascular disease is a primary or contributing cause of 60 percent of all deaths in our country. Currently about one in every four Americans has one or more forms of cardiovascular disease.

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People get cardiovascular disease for many reasons, each one called a risk factor. The more risk factors you have, the more chance you have of getting a disease. Two kinds of risk factors exist: primary (most important) and secondary (less important). Sedentary, or inactive, living is one primary risk factor, so cardiovascular disease is considered a hypokinetic condition. Other primary risk factors that contribute to heart disease include smoking, high blood pressure, high fat levels in the blood, having too much body fat, or having diabetes. Secondary risk factors include stressful living and excessive alcohol use.

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Various conditions are considered to be cardiovascular diseases. Coronary artery disease is a cardiovascular disease that is the number one cause of early death. Coronary artery disease exists when the arteries in your heart become clogged. Arteries are like pipelines that carry blood from the heart to all parts of your body. Clogging of the arteries is called atherosclerosis. It occurs when substances including fats, such as cholesterol, build up on the inside walls of the arteries. This build-up narrows the openings through the arteries. As a result, the heart must work harder to pump blood. Atherosclerosis can begin early in life but typically develops with age.

A heart attack occurs when the blood supply into or within the heart is severely reduced or cut off. As a result, an area of the heart muscle can die. The main reasons for heart attacks are arteries blocked by atherosclerosis, blood clots in narrowed arteries, spasms in the muscle of the artery, or a combination of these causes. During a heart attack, the heart may beat...
abnormally or even stop beating. Medicines are often used to stabilize the heartbeat of someone in distress. Also, cardiopulmonary resuscitation (CPR) often is done to restore circulation of oxygen when the heart stops beating.

**Stroke** is another form of cardiovascular disease. It is the third leading cause of early death and occurs when oxygen in the blood supply to the brain is severely reduced or cut off. A blood clot or atherosclerosis can block any artery that supplies blood to the brain, causing a stroke. A stroke also can occur when an artery to the brain bursts. Because a stroke damages the brain, it can affect a person's ability to move, think, and speak. Some strokes are severe enough to cause death.

Each time your heart beats, it forces blood through your arteries, causing the blood to push against the artery walls. This force of blood against your artery walls is called **blood pressure**. When the doctor checks your blood pressure, he or she looks for two readings. The pressure in your arteries immediately after the heart beats—called **systolic blood pressure**—is the higher of the two readings. Your **diastolic blood pressure** is the lower of the two numbers and is the pressure in the artery just before the next beat of the heart. High blood pressure is sometimes referred to as **hypertension**. It is a condition in which blood pressure is consistently higher than normal. It is not considered a leading cause of death as are coronary heart disease and stroke, but it is a primary risk factor for both of these conditions as well as many others. High blood pressure is a hypokinetic condition because regular physical activity is one way to help lower blood pressure. You can see the range of normal blood pressure in table 3.1. The table also shows the blood pressures for prehypertension, a new category that has recently been added. People in this range have higher than normal blood pressure and should start to take precautions to prevent even higher blood pressure. There are three stages of high blood pressure with stage 1 being the least severe and stage 3 the most severe. It is important to take your blood pressure when you are rested and relaxed. While a long-term effect of regular exercise a decrease in blood pressure, involvement in exercise immediately before taking blood pressure will cause to be higher than normal. Your blood pressure is also affected when you are excited or anxious.

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Table 3.1
Blood Pressure Readings

<table>
<thead>
<tr>
<th></th>
<th>Normal</th>
<th>Prehypertension</th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systolic</td>
<td>&lt;120</td>
<td>120-139</td>
<td>140-159</td>
<td>160-179</td>
<td>180+</td>
</tr>
<tr>
<td>Diastolic</td>
<td>&lt;80</td>
<td>80-89</td>
<td>90-99</td>
<td>100-109</td>
<td>110+</td>
</tr>
</tbody>
</table>

The figure on this page illustrates some of the ways that regular physical activity reduces the risk of cardiovascular disease. An active person has arteries in the heart that are healthy and more likely to be free from atherosclerosis (see small pictures in the figure). The active person also has healthy arteries in the brain as well as in the muscles and other body organs, has a strong heart muscle capable of pumping adequate blood to the body, has fit blood low in fats such as cholesterol, and has blood pressure in the healthy range. Regular physical activity not only reduces risk of heart attack and stroke, it is often prescribed by medical doctors to help people recovering from these conditions.

Cancer
More than 100 different diseases characterized by the uncontrollable growth of abnormal cells are categorized as cancer. Cancer’s uncontrolled cells invade normal cells, steal their nutrition, and interfere with the cells’ normal functions.

Cancer is the second leading cause of death in the United States. When diagnosed early, many forms of cancer can be treated and even cured through surgery, chemical or radiation therapy, or medication. We know that the death rate from all forms of cancer is lower in active people than in inactive people. Certain forms of cancer, such as breast cancer and colon cancer, are considered hypokinetic conditions because people who are physically active are less likely to get them than people who are inactive. Many of the risk factors for heart disease are also risk factors for cancer. Getting regular physical exams is a good way to help prevent cancer. It is not clear why physical activity helps reduce the risk of cancer, but as shown in the figure one of the health benefits of activity is an immune system that is more capable of fighting diseases that invade the body.

Diabetes
When a person’s body cannot regulate sugar levels, the person has a disease called diabetes. A person with diabetes will have excessively high blood sugar unless he or she gets medical assistance. Over time, diabetes can damage the blood vessels, heart, kidneys, and eyes. A very high level of sugar in the blood can cause coma and death. Several effective medical treatments exist to help diabetics regulate their blood sugar and lead normal lives.

One kind of diabetes—Type I—is not a hypokinetic condition. This condition is often hereditary and accounts for about 10 percent of all diabetics. Type I diabetics take insulin, a hormone made in the pancreas, to help control blood sugar levels.
The most common kind of diabetes—Type II—is a hypokinetic condition because people who are physically active are less likely to have it. As shown in the figure, active people are more likely to have blood with healthy sugar levels. Also, activity helps control body fat. Overfatness is considered to be a major risk factor for Type II diabetes. Diabetes has many of the same risk factors as heart disease.

**FACTS**

Type I diabetes used to be called juvenile diabetes because it affects young children. The main adult cause is no longer clear because most adults, once the disease has become common among youth, physical activity can reduce risk of Type II diabetes by helping young people keep body fat levels in the healthy range that or helping the body regulate blood sugar levels more effectively.

**Obesity**

A condition in which a person has a high percentage of body fat—called obesity—often is the result of inactivity, although many other factors may contribute. Having too much body fat contributes to other diseases such as heart disease and diabetes. Since 1980 the incidence of obesity among teens in the United States has increased from 5% to 14%, an increase of almost 300%, and there is a similar upward trend in other developed nations. You will learn more about obesity in chapter 13.

**Osteoporosis**

When the structure of the bone deteriorates and the bones become weak, a condition called osteoporosis exists. Osteoporosis is most common among older people, but it has its beginnings in youth. You develop your greatest bone mass—a also called your peak bone mass—when you are young. As illustrated in the figure on the preceding page, those who exercise regularly develop stronger bones than those who are sedentary. It is especially important to do physical activities that cause you to bear weight, such as walking and running, and that stress the bones, such as resistance training. If you do the right kind of activity when you are young, you will build a higher peak bone mass. As a result, if you lose bone mass as you get older, you will have stronger bones than if you hadn't exercised while young.

Lack of calcium in the diet, especially when a person is young, contributes to osteoporosis. Women are more likely to have osteoporosis than men because, as a result of hormonal changes that take place in women later in life, calcium absorption becomes less efficient. For bone health throughout life, good nutrition, regular activity, and proper medical attention are necessary.

**Other Hypokinetic Conditions**

Evidence suggests that regular physical activity can enhance the function of the immune system, helping the body resist infections such as the common cold and the flu. Moderate activity has been shown to help reduce symptoms of some forms of arthritis. Being active can also help people avoid depression or reduce symptoms of depression. One-third of all adults report that they often feel depressed.

**Physical Activity and Wellness**

As you can see, physical activity plays an important role in the prevention of hypokinetic diseases and conditions. Therefore, physical activity is important to good health. But remember—health is more than freedom from disease; it also means being positively healthy. Two components of positive health identified as important national goals by the Healthy People 2010 report are helping all people have a sense of well-being, and helping them have a high quality of life. Some of the benefits of activity include:

- Improved sense of well-being and mental functioning
- Looking your best
  - Good fitness
  - Healthy lifestyle
- Enjoying leisure activities
  - Good fitness
  - Healthy body systems
  - Resistance to fatigue
- Ability to meet emergencies
  - Good fitness

*Wellness and physical activity.*
of physical activity that contribute to these two factors are illustrated in the figure on the previous page.

Hyperkinetic Conditions
You’ve probably heard the saying, “too much of a good thing can be bad.” This saying can be true of physical activity. Just because some physical activity is good, more activity is not always better. In some cases people experience hyperkinetic conditions—health problems caused by doing too much physical activity.

Overuse Injuries
You learned in chapter 2 that overuse injuries occur when you do so much physical activity that your bones, muscles, or other tissues are damaged. It is easy to see that overuse injuries—for example, stress fractures, shin splints, and blisters—are a type of hyperkinetic condition.

Activity Neurosis
Neurosis is a condition that occurs when a person is overly concerned or fearful about something. Excessive fear of high places is one type of neurosis. People with an activity neurosis are overly concerned about getting enough exercise and are upset if they miss a regular workout. In addition, they often continue physical activity when they are sick or injured. Runners and bodybuilders are more likely than other exercisers to experience activity neurosis. It is interesting that the risk of getting a cold or the flu is reduced if you are a regular exerciser but those who do excessive exercise have increased risk of getting a cold or the flu. Even those who do not have activity neurosis should avoid doing excessive exercise and reduce or avoid exercise when they are sick.

Body Image Disorder
This disorder occurs when a person tries to achieve an ideal body by doing excessive exercise. The ideal body is unrealistic and distorted. Teenaged boys and young adult men with body image disorder perform excessive resistance training and sometimes use dangerous supplements or substances such as steroids. Teenaged girls and young women often strive for extreme thinness, which is unhealthful and unrealistic. Several of the eating disorders described in chapter 13 are associated with body image disorders. People with body image disorders often need the help of an expert to overcome their problem.

Eating Disorders
Several kinds of eating disorders result from an extreme desire to be abnormally thin. People with these conditions have dangerous eating habits and often resort to excessive activity to expend calories for fat loss. Eating disorders that abuse exercise are considered hyperkinetic conditions. You will learn more about eating disorders in chapter 13.

Lesson Review
1. What are three hypokinetic conditions? How can activity reduce the risk of getting these conditions?
2. What are some wellness benefits of physical activity?
3. How is physical activity related to hyperkinetic conditions? Give examples.