

Lesson 6.3

Fitness Safety

Key Terms



E-Flash Cards

In this lesson, you will learn the meanings of the following key terms.

amenorrhea
female athlete triad

Lesson Objectives

After studying this lesson, you will be able to

- apply safe and proper weight lifting techniques;
- recognize types of back pain and injuries;
- implement strategies for preventing back pain;
- apply guidelines to prevent injuries from physical activity; and
- summarize common fitness concerns for women.

Before You Read

Staying Hydrated

Sports drinks and energy drinks are advertised as good ways to stay hydrated while engaging in physical activity. Use the Internet and what you may already know to analyze the difference between energy drinks and sports drinks. Do you think there are any differences between these two products? Do you think energy drinks are a health concern for today's teens? Explain your answers.



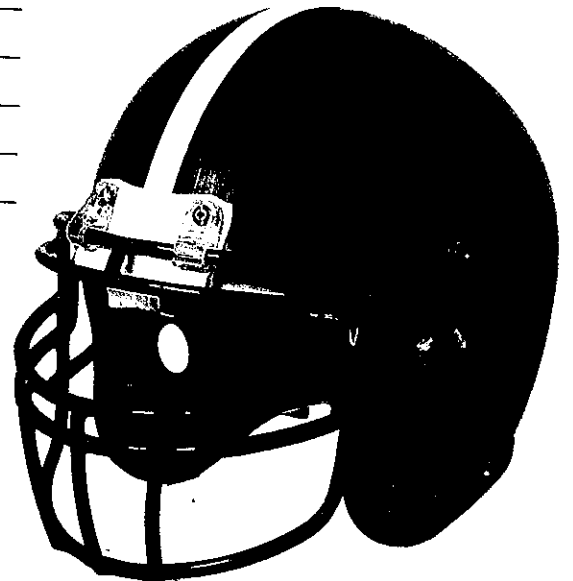
Warm-Up Activity

Staying Safe

This lesson is about preventing fitness-related injuries. Before reading the lesson, make five predictions of safety strategies that you think might be included in the lesson. For each prediction, explain why you think this is an important guideline for avoiding injuries. Use your previous personal experience as well as information you may have learned elsewhere.

My Predictions

1. _____
2. _____
3. _____
4. _____
5. _____



As you know, engaging in regular physical activity is an important part of staying healthy. You probably also know that you can't engage in regular physical activity if you are injured. This means that taking the necessary precautions and following accepted guidelines when exercising are critical to your health. This lesson will examine actions you can take to avoid common injuries and maximize your physical activity experiences.

Start Slowly and Don't Overdo It

If you are just starting a fitness program, you should take care to start slowly (Figure 6.19). It can be tempting to exercise too much or too strenuously when you are first getting started. You should resist this temptation because overexercising can be harmful. If you overdo any type of physical activity during the first couple of days, you increase your chances of an injury.

Once you feel more comfortable with physical activity, you can increase the time, frequency, and intensity of your exercise. For example, you could eventually walk, roller skate, or bike for 30 minutes instead of just 10 to 20 minutes. You could jog instead of walk, or increase the amount of weight you lift during strength training. Gradually increase the demands on your body over a period of time and be patient rather than trying to do too much too soon.



Figure 6.19

If you have been inactive and decide to start a fitness program, start slowly — don't overdo it. And even if you have been exercising regularly for some time, you need to gradually warm up at the beginning of each workout. *Why is it important to warm up?*

Warm Up and Cool Down

No matter what type of physical activity you are doing—aerobic, strength training, or flexibility—it is important to warm up your muscles before you begin. A simple 5- to 10-minute warm-up helps get much-needed blood to your muscles, which helps to prevent injuries.

The warm-up should include two distinct components:

- a low- to moderate-intensity cardiorespiratory activity, such as light jogging, jumping jacks, or brisk walking
- at least 5 minutes of muscle stretching, starting at the top of your body and moving to your lower body

Some experts recommend doing a light version of the activity you are about to do as your warm-up. For example, just before a basketball game, you might shoot some baskets and retrieve missed shots. Before a tennis match, you might casually hit some balls back and forth with a partner.

You should also cool down after engaging in physical activity. The cool-down helps your heart rate return to a normal, lower level. A cool-down should include some gentle stretching, which helps prevent your muscles from feeling stiff and sore the next day. Any light activity can serve as your cool-down. Many people simply slow down to low levels of their current activity for a cool-down.



Stay Hydrated

Your body sweats during physical activity, which decreases the amount of fluids in your body. This fluid loss causes blood volume to decrease and, as a result, the heart must work harder to circulate blood throughout your body. A loss of fluid can also lead to muscle cramps, dizziness, and fatigue.

It is, therefore, essential to drink lots of water before, during, and even after engaging in physical activity (Figure 6.20). Make sure to bring water when you exercise, and remember to drink frequently.

Sports and Energy Drinks

Some people think that it is a good idea to use a sports drink or an energy drink to help the body recover after working out. Be aware, however, that sports drinks and energy drinks are very different.

Sports drinks are flavored beverages designed to help restore water and electrolytes that are lost through sweating. These drinks have specific amounts of carbohydrates, minerals, electrolytes (sodium, potassium, calcium, magnesium), and other vitamins and nutrients.

In contrast, energy drinks are designed to help improve energy, concentration, stamina, and athletic performance. These drinks may contain caffeine, vitamins, carbohydrates (sugar), and other supplements. Using a drink that contains caffeine (as all energy drinks do) after exercising is not a good idea. Caffeine does not help replenish the water your body has lost during exercise. It can also have side effects that hinder performance, such as headaches, abnormally fast heartbeat, nausea, and jitteriness.

Chocolate Milk

Are sports drinks that contain carbohydrates and electrolytes better than water for staying hydrated? It depends on how long you plan to exercise. For most types of physical activity, plain water is exactly what your body needs. If, however, you will be exercising for more than an hour, getting some extra calories from a sports drink or fruit juice (diluted with some water) is a good idea. Chocolate milk is an even better idea.

Sports beverage companies rely on consumers believing that sport drinks are the best way to replenish the body after a workout. These companies don't broadcast the fact that chocolate milk provides more needed nutrients than sports drinks do. Chocolate milk contains three grams of carbohydrates for every one gram of protein, which helps muscles recover. It also contains whey protein, which helps build and repair muscles, and the protein *casein*, which helps reduce muscle breakdown. Chocolate milk also costs less than sports drinks.

Figure 6.20

Drinking water before, during, and after engaging in physical activity will prevent fluid loss that can lead to heat-related illnesses. *What are some heat-related illnesses?*

Use Proper Equipment

When you exercise or play sports, you should be sure to use the necessary safety equipment. You should also make sure that your equipment fits well. Don't use hand-me-downs or used equipment that is overly worn or the wrong size for you. Common safety equipment for popular activities includes the following:

- Helmets should be worn for organized sports such as baseball, softball, and football. You should also wear a helmet when participating in many recreational activities, including biking, skiing, and rollerblading (Figure 6.21).
- Mouth guards protect your teeth and tongue and are needed in sports such as lacrosse, ice hockey, and football.
- Eye protection, such as goggles or a face mask, is recommended for participants in many sports, such as ice hockey goalies, swimmers, and baseball catchers.
- Padding for wrists, knees, hips, shoulders, and elbows prevents injuries common in sports such as ice hockey, football, soccer, and lacrosse, as well as ice-skating, rollerblading, and snowboarding.
- Reflective gear makes you more visible when you are riding your bike or running along the side of a road.



Figure 6.21

Helmets are one of the most valuable pieces of safety equipment. They should be worn during physical activities such as bicycling, and for sports such as baseball and football.

Follow the Rules

Many types of physical activity, especially sports, have certain rules that must be followed. These rules are created, at least in part, to help people stay safe. It is important to know and follow the rules of your chosen activity to keep you and the people you are playing with safe and free from injury.

Rules can vary considerably based on the activity. For example, a rule stating that all activity on the field must stop when the referee blows the whistle is important in sports such as football, soccer, lacrosse, or ice hockey. A rule that traffic laws must be obeyed is important for activities such as biking, running, or rollerblading. Because rules can vary depending on the location or organization in which an activity occurs, you should always take the time to know the particular rules under which you are playing.

It is also important to follow rules for taking care of sporting equipment and facilities. Sports equipment is expensive, so you should keep your equipment in good condition and store it in a safe place. Follow rules at sports facilities, which may include not bringing in food or drink, leaving off equipment when you are finished with your workout, and wearing proper clothing and shoes.

Practice Good Sportsmanship

Another important aspect of playing sports is practicing good sportsmanship, which means you play fair and treat people with respect. You should use good sportsmanship with people on your team, people on the opposing team, spectators, coaches, and officials. Good sportsmanship includes shaking hands with members of the opposing team at the end of the game, accepting the officials' calls (even if you don't believe they were right), and acknowledging good performance by members of both teams.

Sometimes it can be hard to congratulate the other team when your team has just lost a close game. It is important to remember, however, that sports should be about learning new skills and having fun, not just winning. Treating members of the other team how you'd like to be treated shows respect for yourself, your teammates, coaches on both sides, officials, and the game.

Use Caution in Extreme Conditions

Exercising or playing sports outside in extreme conditions such as high heat and humidity, temperatures below 0°F, rain or snow, high altitudes, and low visibility requires extra precautions.

Heat and Humidity

Try to avoid exercising outside when it is hot and humid. Doing so can lead to serious problems, including the following:

- dehydration (a lack of body fluids)
- heat exhaustion (which can include nausea, dizziness, weakness, headache, weak pulse, disorientation, and fainting)
- heat stroke (which can lead to shock, coma, and even death)

If you are engaging in physical activity outside in high temperatures, steps you can take to stay safe include the following:

- Drink at least 8 ounces of fluid—preferably water—every 20 minutes while you are exercising.
- Drink more water once you are finished exercising to help your body replenish the fluid it lost.
- Wear light-colored and lightweight clothing.
- Use misting sprays to keep cool.
- Be aware of the signs and symptoms of heat-related health problems, including confusion, dizziness, fainting, headache, nausea, and weakness. If you are experiencing any of these symptoms, immediately tell your coach or someone who is with you.

Cold Weather

Exercising in very cold weather can also be dangerous. If you are engaging in physical activity outside in very cold temperatures, you need to stay safe. Steps you should take to ensure your safety include the following:



Figure 6.22

Participating in outdoor sports during very cold weather can be dangerous. *What steps do these hockey players need to take to protect themselves?*

- Check the temperature—including the wind chill factor—carefully before you go outside.
- Dress warmly with several layers of clothing.
- Make sure to protect your head, hands, feet, and ears, which are especially vulnerable to frostbite (Figure 6.22).
- Drink plenty of fluids, just like you would when exercising in hot weather.
- Know the signs and symptoms of frostbite and hypothermia, including numbness, loss of feeling or a stinging sensation, intense shivering, slurred speech, and a loss of coordination.

High Altitudes

Another extreme condition that some people may face is exercising at high altitudes, meaning areas in which you are high above the level of the ocean. Areas of high altitude have lower levels of oxygen in the air, which means you have to breathe faster and more deeply to take in enough oxygen. This can make engaging in physical activity even more difficult than usual.

If you exercise or engage in any physical activity in a mountainous area, you should take precautions to do so safely. Ideally, you should try not to exercise when you first arrive in an area of high altitude. This will give your body time to *acclimate*, or get used to, the change in oxygen level. When you do exercise, make sure to reduce the time and intensity of your workout.

Take Care of Your Back

After colds and the flu, back pain is the third most common reason that people see their healthcare providers. Although pain can occur in any part

of the back, the most common location for injury is the lower back, which supports most of the body's weight. Many types of physical activity, especially if they are done improperly, can lead to back injuries (Figure 6.23).

One of the best ways to reduce your risk of experiencing back pain is to engage in regular exercise. Exercise reduces the likelihood of back pain by improving your posture, strengthening your back, and improving your flexibility.

Doing exercises, such as sit-ups, which strengthen your abdominal muscles also helps reduce the likelihood of developing back pain. Strong abdominal muscles strengthen your body's core and give your back more support.

Most back pain goes away on its own over time. In some cases, however, it is important to seek medical treatment. If you experience severe back pain that does not improve, or which was the result of a fall or other injury, talk to a school nurse or a doctor.

Fitness Concerns for Women

Some girls who play sports or exercise intensely are at risk for a health problem called *female athlete triad*, which is a combination of three conditions:

female athlete triad
a health problem
characterized by three
conditions—amenorrhea,
disordered eating, and
osteoporosis

amenorrhea
a condition in which a
female's menstrual cycle is
abnormally absent

- Disordered eating, which can include avoiding certain foods, eating too few calories, or eliminating consumed calories in an unhealthy way (such as by vomiting or exercising excessively). Engaging in some types of disordered eating can develop into eating disorders, such as anorexia nervosa and bulimia nervosa.
- *Amenorrhea* (meaning abnormal absence of menstrual period), which is a sign that the body doesn't have sufficient fat tissue to function normally. Amenorrhea can be caused by eating too little or by exercising too much.
- Osteoporosis (meaning weak bones), which can lead to stress fractures. This condition is caused by getting too little calcium and

Figure 6.23 Strategies for Safe Lifting

- If an object is too heavy or awkward to lift or carry alone, get help.
- Spread your feet apart to shoulder width when lifting to give you a wide base of support.
- Stand as close as possible to the object you are lifting, and lift it close to your body.
- Bend at your knees, not at your waist.
- Tighten your stomach muscles as you lift and lower the object.
- Use your leg muscles to lift, not your back muscles.
- Keep your back as straight as possible; do not bend forward or twist while holding the object.

vitamin D, which can have a permanent effect on bone strength for the rest of your life.

A female athlete can have one, two, or all three conditions in the triad. If you or someone you know is experiencing any of these conditions, it is very important to talk to an adult you trust (Figure 6.24). Each of these conditions can lead to serious, and even life-threatening, health problems, so seeking help is very important.

Seek Medical Advice

If you have an ongoing health condition, such as arthritis, diabetes, or high blood pressure, it is a good idea to talk with your doctor before you start on a particular exercise program. A healthcare provider can help you determine the activities and the levels of intensity that are safe for you.

Medical help may become necessary while you are actively engaging in a physical activity. Inform your parents or guardian if you

- experience severe pain;
- see swelling around a particular part of your body; or
- experience pain that makes it difficult for you to engage in normal daily activities, such as walking and sleeping.

If you do experience an injury, be sure to follow your doctor's instructions. These instructions could include taking appropriate medications, performing recommended exercises and stretches, or receiving physical therapy. Be sure to follow the doctor's recommendations regarding amount of time to refrain from certain physical activities. Returning to the activity that led to your injury too soon after the injury increases your risk of re-injury.



Figure 6.24

What three health problems make up the female athlete triad?

Lesson 6.3 Review

Know and Understand



Assess

1. Why is it important to start slowly with any new fitness program? *2 pts*
2. What is the purpose of a warm-up when working out? a cooldown? *2 pts*
3. Explain why chocolate milk is preferable to a sports drink for hydration. *P. 186 3 pts*
4. List at least four examples of physical activity safety equipment. *P. 187*

Analyze and Apply

1. Analyze the effect of hydration on your heart.
2. Evaluate the need for rules in sports and other physical activities. *Why do we need them?*

7. Evaluate the safety concerns described in this lesson as they relate to you and to your community.

Real World Health

Staying hydrated is important whether or not you are engaging in physical activity. According to some experts, a good guideline for minimum water intake per day is determined by dividing a person's weight in pounds by two. For example, someone who weighs 150 lbs should drink a minimum of 75 ounces of water per day. Make a chart and record how many ounces of water you drink daily. Write a few sentences each day reflecting on how and why you were successful or not successful in staying hydrated.