

CHAPTER  
**11**

# Physical Fitness

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“**My family** lives pretty close to my school. So, I usually **walk** to school. Walking is **good exercise** and helps me stay fit. I usually walk with my friends. So, walking to school is also a great way to catch up with my friends.”

## Health IQ

### PRE-READING

Answer the following multiple-choice questions to find out what you already know about physical fitness. When you've finished this chapter, you'll have the opportunity to change your answers based on what you've learned.

1. Physical fitness can prevent which of the following?
  - a. shortness of breath
  - b. soreness
  - c. feeling very tired
  - d. all of the above

2. Which of the following is NOT a component of physical fitness?
  - a. flexibility
  - b. endurance
  - c. fitness goal
  - d. muscular strength

3. Which of the following is an example of exercise?
  - a. running
  - b. raking the leaves
  - c. walking to school
  - d. all of the above

4. Which of the following is NOT a warning sign of injury?
  - a. swelling
  - b. muscle soreness
  - c. bruises
  - d. sharp pain

5. Which of the following is a benefit of exercise?
  - a. improving physical fitness
  - b. managing stress
  - c. meeting new friends
  - d. all of the above

6. Which of the following activities can help you prevent injury?
  - a. warming up until you sweat lightly
  - b. cooling down until your heart beats slower
  - c. stretching
  - d. all of the above

ANSWERS: 1. d; 2. c; 3. d; 4. b; 5. d; 6. d

# Lesson 1

## What Is Physical Fitness?

### What You'll Do

- Describe the relationship between fitness and exercise.
- List the four parts of physical fitness.
- Describe the physical benefits of exercise.
- Explain the mental, emotional, and social benefits of exercise.

### Terms to Learn

- physical fitness
- exercise
- strength
- endurance
- flexibility

### Start Off Write

What are some benefits of exercise?

Javier likes to skateboard. He and his friends try new tricks almost every day. They don't think of themselves as athletes. But they are in good shape.

You may not think of skateboarding as a sport. But it can improve your physical fitness. **Physical fitness** is the ability to do daily physical activities without becoming short of breath, sore, or very tired.

### Physical Fitness and Exercise

Physical fitness means different things to different people. For children, it may mean playing without getting tired. For some people, it may mean being able to do chores. An athlete might think that physical fitness is being able to play his or her best. In any case, physical fitness helps you do the things you need to do every day.

Sometimes, people spend too much time watching TV or using the computer. As a result, their physical fitness suffers. People need to exercise to improve their physical fitness. **Exercise** is any physical activity that maintains or improves your physical fitness. Chores, such as raking the leaves or mowing the lawn, are exercise. Playing at the park with friends is exercise. Physical education class and walking to school are also exercise. For Javier, skateboarding is exercise. If you start exercising now, you're more likely to keep exercising as you get older. Regular exercise can help you stay healthy throughout your life.

**Figure 1** If you start good fitness habits now, you can benefit from lifelong health.





**Figure 2** Different activities use different parts of physical fitness. Here are some examples.



## Four Parts of Physical Fitness

There are four basic parts of physical fitness: strength, endurance (en DOOR uhns), flexibility (FLEK suh BIL uh tee), and body composition (KAHM puh ZISH uhn).

**Strength** is the amount of force muscles apply when they are used. This force can be measured as the amount of weight you can lift. Strength helps support bones and makes joints stronger. It can also keep you from getting hurt if you fall. You use strength when you are lifting, pushing, and pulling.

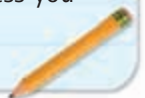
**Endurance** is the ability to do activities for more than a few minutes. There are two kinds of endurance. Muscular endurance is the ability of the muscles to work over time. It lets you repeat an activity without losing the strength to keep going. For example, you use muscular endurance when you lift something several times. The second type of endurance is heart and lung endurance. It is the ability of your heart and lungs to work efficiently during exercise. Heart and lung endurance helps you run, walk, and bicycle without becoming short of breath.

**Flexibility** is the ability to bend and twist joints easily. Flexibility helps you move. It also helps keep you from getting hurt. You use flexibility when you bend, turn, and reach.

*Body composition* compares the weight of your fat to the weight of your muscles, bones, and joints. Fat is important to your health. But too much fat can make staying fit hard.

### Health Journal

Make a list of the physical activities you do for fun and the physical activities that you do at home, such as yardwork. Describe which parts of physical fitness you use for each activity.



## MATH ACTIVITY

If you use more Calories than you eat, your body begins to use the energy stored in fat. Colleen eats 2,000 Calories per day. She uses 1,200 Calories per day for everyday activities. If a person uses 500 Calories per hour while cycling, for how long would Colleen have to cycle before her body would begin to use energy from fat?

## Physical Benefits of Exercise

Exercise is important for physical fitness. Poor fitness can make doing everyday tasks hard. Regular exercise can make the following happen:

- Your strength and muscular endurance improve. Muscles become stronger.
- Your endurance improves. The heart gets stronger. The lungs can take in more air.
- Your flexibility improves. When you exercise, you stretch the muscles around your joints.
- Your coordination improves. Coordination is the ability to use your body to make difficult movements.
- Your body burns more fat. Burning fat by exercising can help you improve body composition.

Different physical activities benefit different parts of fitness. Some activities improve endurance. Other activities improve strength or flexibility. The figure below lists some of the activities that can improve strength, endurance, and flexibility.

**Figure 3** Activities That Benefit Parts of Fitness



### Strength

weight lifting  
rock climbing  
wrestling



### Endurance

swimming  
cycling  
soccer  
skating



### Flexibility

yoga  
dancing  
martial arts  
gymnastics



**Figure 4** Exercise gives you a chance to meet new people.

## Other Benefits of Exercise

Exercise doesn't just make you more fit. Exercise also has mental, emotional, and social benefits.

- **Mental** Physical activity improves blood flow to the brain. So, you feel more awake. You can also think more clearly.
- **Emotional** Exercise can improve your self-esteem. Exercise can also help you deal with stress. It gives you a chance to release the tension caused by stress.
- **Social** You will most likely exercise with other people. Exercise gives you a chance to make new friends. So, you can also work on your social skills while you exercise.

## Lesson Review

### Using Vocabulary

1. Describe the relationship between physical fitness and exercise.

### Understanding Concepts

2. Compare muscular endurance and heart and lung endurance.
3. List the four parts of fitness. Which part do you use when you bend down? when you carry your books?

### Critical Thinking

4. **Making Predictions** Ben and Greg joined the track team. How might their fitness improve?
5. **Identifying Relationships** Since Sofia started skating after school, she has felt more alert in class and has felt better about herself. How would you explain how she feels?

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# Lesson 2

## Your Fitness and Goals

### What You'll Do

- Explain why you should visit the doctor before starting a fitness program.
- List physical fitness standards for your age group.
- Describe two things you should consider when choosing activities.
- List two influences on physical fitness goals.

### Terms to Learn

- sports physical
- fitness goal

### Start Off Write

When should you change your fitness goals?

Nicole had to visit the doctor before her first season on the school basketball team. She was very nervous. But the visit wasn't bad. The doctor and nurse did some simple tests and told her everything was OK.

Nicole visited her doctor because she was starting a new sport. Nicole wanted to make sure that she could play basketball safely.

### Visiting the Doctor

Everyone should go to the doctor regularly, especially when starting a new exercise program. Ask your parents to make an appointment for you. One of your parents will need to go with you. The doctor will have questions about your health history. He or she will want to know about any illnesses and shots you've had. The doctor will also want to know about your past injuries. Your parents can help you answer these questions.

Many schools ask students to see a doctor before they can play sports. A **sports physical** is a medical checkup that is required before playing with a sports team. The doctor will check your height, weight, heart rate, and blood pressure. The doctor may also test your reflexes. Sometimes, the doctor asks for blood and urine samples. The doctor wants to make sure you can play sports safely.



**Figure 5** This student is getting his blood pressure checked as part of a sports physical.



**Figure 6** The sit-and-reach test checks flexibility. A ruler on the box shows how far you reach. If your flexibility is healthy, you will be able to reach farther than the standard for your age group.

## Testing Your Fitness

Maybe you don't want to play sports. You should still know your fitness strengths and weaknesses. There are simple tests for each part of physical fitness. Pull-ups and curl-ups test your strength and muscular endurance. The 1-mile run tests your heart and lung endurance. The sit-and-reach test checks your flexibility. Your teacher or coach can help you test your fitness.

Physical fitness standards are different for different people. For example, someone who plays sports usually has to meet higher standards. If you don't play sports, you should try to meet healthy standards. Table 1 shows the healthy fitness zones for your age group. If you don't meet these standards, you should try to exercise more.

## Brain Food



In 2001, Alan Webb set the high school record for the 1-mile run. He ran the mile in 3 minutes and 53.43 seconds!

**TABLE 1 Healthy Fitness Zones for Ages 11 to 13**

Activity		11	12	13
<b>Pull-ups</b>	Boys	1–3	1–3	1–4
	Girls	1–2	1–2	1–2
<b>Curl-ups</b>	Boys	15–28	18–36	21–40
	Girls	15–29	18–32	18–32
<b>1-mile run (minutes and seconds)</b>	Boys	11:00–8:30	10:30–8:00	10:00–7:30
	Girls	12:00–9:00	12:00–9:00	11:30–9:00
<b>Sit and reach (inches)</b>	Boys	8	8	8
	Girls	10	10	10

Source: FITNESSGRAM.



## LIFE SKILLS ACTIVITY

### SETTING GOALS

Draw a table with five columns. In column one, list your fitness goals. What part of your fitness do you want to improve? In column two, list the activities that will help you reach your fitness goals. In column three, describe how each activity you listed in column two will help you

reach your fitness goals. Use column three to help you decide which activities you want to try. List those activities in column four. Do these activities for 4 weeks. Then, describe your progress in column five.

## Choosing Your Activities

After testing your physical fitness, you may want to improve your fitness. Use your interests and your goals to choose physical activities. If you try many different activities, you will find some that you enjoy. If you choose activities you like, you're more

likely to keep doing them. Do not limit yourself to one sport or activity. As shown in Figure 7, even professional athletes play other sports.

Some people set fitness goals before choosing an activity. A **fitness goal** is a goal to improve your physical fitness. When you set fitness goals, choose activities that will help you meet your goals. For example, if your goal is to improve your flexibility, you might take yoga or martial arts classes. If your goal is to improve your endurance, try running or bicycling.



**Figure 7** Even professional athletes play other sports. Michael Jordan played golf to relax between basketball seasons.

## Influences on Your Goals

You should pick your goals carefully. Set goals that are reasonable. Ask your parents or teacher to help you with your goals. Set short-term goals to help you meet a long-term goal. Meeting your short-term goals will help you feel good about yourself. Also, don't be afraid to change your goals. You can change your goals if they're unreasonable or if you don't like the results.

Many things will affect your fitness goals. One is the risk of injury. You're more likely to get hurt while doing certain activities. Maybe your fitness goals include risky activities, such as mountain biking. Before doing these activities, talk to someone who knows how to do them. He or she can tell you what to expect. Your values and the values of the people around you also affect your goals. If people around you think physical fitness is important, you are more likely to meet your fitness goals. This is especially true if good physical fitness is also important to you.

**Figure 8** These students have set short-term goals that will help them meet their long-term goal of running in a 5-kilometer race.



### Lesson Review

#### Using Vocabulary

1. What is a sports physical? Why should you see your doctor?
2. What is a fitness goal?

#### Understanding Concepts

3. What two things affect the activities you try?
4. Why should you try many different activities?

5. What are two influences on your fitness goals?

#### Critical Thinking

6. **Applying Concepts** Andrea is 12 years old. She can do 2 pull-ups and 20 curl-ups. She runs a mile in 13 minutes and reaches 9 inches on the sit-and-reach test. Is Andrea meeting healthy fitness standards? If not, what does she need to improve?

# Lesson 3

## Meeting Your Goals

### What You'll Do

- List three things you can change to meet personal fitness goals.
- Describe how resting heart rate and recovery time change as fitness improves.

### Terms to Learn

- resting heart rate (RHR)
- recovery time

### Start Off Write

What can you do to make sure your fitness improves?

Shari read about an Olympic training program in a sports magazine. She couldn't understand why anyone would want to train so much. Some of the athletes trained for more than 6 hours each day!

Olympic athletes don't start out by training 6 hours a day. They start with shorter workouts. Then, they slowly increase the length of their workouts. This helps Olympic athletes improve.

### Frequency, Intensity, and Time

When you exercise, you can change three things to improve your fitness. They are frequency (FREE kwuhn see), intensity (in TEN suh tee), and time, or FIT.

- **Frequency** is how often you exercise. The more often you exercise, the more your fitness can improve.
- **Intensity** is how hard you work out. When you increase intensity, your body works harder. Your fitness can also improve more.
- **Time** is how long you work out. Olympic athletes work out longer to become better at their sports.

To avoid getting hurt, do not increase more than one part of FIT at a time. Also, don't increase any part too much. Keep a fitness log to describe how you use FIT. A *fitness log* is a notebook you can use to record your progress.

Fitness Log		
<b>Sunday</b> May 6	Played soccer at the park. We played pretty hard. I was tired when we were done, but I had a good time.	1 hour
<b>Monday</b> May 7	I didn't do anything today.	
<b>Tuesday</b> May 8	We played basketball in PE today. I got pretty hot, but our team won!	40 minutes
<b>Wednesday</b> May 9	We learned some new forms in Karate class tonight. They were pretty hard. I'm going to practice them to get better.	1 hour

**Figure 9** Keeping a fitness log is one way to keep yourself working toward your goals.

## Checking Your Heart Rate

One way to measure your physical fitness is to check your heart rate. You can use your resting heart rate to see if your fitness has improved. **Resting heart rate (RHR)** is the number of beats your heart makes per minute when you are not exercising. Your RHR decreases as your physical fitness improves. You can check your heart rate, or pulse, on your neck and wrist. To find your pulse, place your index and middle fingers under your jaw and in front of your ear. You can also put your fingers on the thumb-side of your wrist. Do not use your thumb to check your pulse.

To improve your endurance, you need to exercise at a higher heart rate. For example, a 12-year-old should exercise at a rate between 125 and 177 beats per minute. This range is called a *target heart rate zone*. The amount of time your heart takes to return to RHR after exercise is called **recovery time**. As your physical fitness improves, your recovery time gets shorter.



**Figure 10** This student is checking his pulse by placing two fingers on his neck.

## Hands-on ACTIVITY

### CHECKING YOUR PULSE

1. Find your pulse. Count beats for 10 seconds. Multiply the number of beats by 6 to find your RHR.
2. Jog for 3 minutes.
3. As you finish jogging, check your pulse to see if you reached your target heart rate zone.
4. Check your pulse each minute for the next 10 minutes. Record your results.

### Analysis

1. How long was your recovery time after you jogged?
2. If you increase the amount of physical activity you do, what do you think will happen to your recovery time?

## Lesson Review

### Using Vocabulary

1. What are resting heart rate and recovery time? How do they change as fitness improves?

### Understanding Concepts

2. What is FIT?

### Critical Thinking

3. **Making Predictions** If you do the same workout for several weeks, what will happen to your fitness?

# Lesson 4

## Sports

### What You'll Do

- Compare individual and team sports.
- Describe six benefits of sports.

### Terms to Learn

- individual sport
- team sport
- competition

### Start Off Write

What are some benefits of competition?

Stefan wants to join the wrestling team. But he doesn't understand why it's called a *team*. Everyone wrestles individually. Why would his school have a wrestling team if no one competes together?

Although wrestlers work on their own, they can still be part of a team. The team members work out together. And the scores for each of the team members are combined for a team score during wrestling matches.

### Types of Sports

Wrestling is an example of an individual sport. An **individual sport** is a sport in which athletes play alone against other players. You may want to try individual sports if you like one-on-one games. Or maybe you want to focus on personal goals. Individual sports include track and field, swimming, and gymnastics. Many individual sports have teams. Players can practice their sport with a group. These groups are different from team sports. **Team sports** are sports in which two or more people work together against another team. Team sports let you share your skills with others. Team sports include soccer, basketball, and ice hockey.

You can play sports for fun with your friends, with a group in your community, or with a school team. Many people also play sports because they like competition. **Competition** is a contest between two or more individuals or teams. Competition gives you a chance to test your skills. It also helps some people improve their fitness.

**Figure 11** These are just two examples of the many kinds of individual and team sports.





**Figure 12** Each person on this field hockey team leads by taking responsibility for her position.

## Benefits of Sports

Sports are a fun way to exercise. When you play sports, the following may happen:

- You can improve your fitness.
- You can manage your weight.
- You can work on social skills and make friends.
- You can improve your self-esteem.
- You can learn teamwork. Being part of a team helps you learn to work with other people.
- You can learn leadership. *Leadership* is the ability to guide other people in an organized and responsible way. Leadership can help you make decisions that are good for the whole team.

### Health Journal

Make a list of the sports or physical activities you have tried. Describe some of the skills you need for these activities. Write about the skills that you gained while trying these activities.

## Lesson Review

### Using Vocabulary

1. Compare individual and team sports.

### Understanding Concepts

2. List three examples of individual and team sports other than those in the text.
3. If you join a sports team, how will your fitness change?

### Critical Thinking

4. **Applying Concepts** Brian has a hard time working with others and making decisions. He wants to play baseball. How do you think playing baseball can help Brian learn how to make decisions? How can it help him work with other people?

# Lesson 5

## Injury

### What You'll Do

- **Identify** three warning signs of injuries.
- **Compare** muscle soreness and the warning signs of injury.
- **Describe** the steps of RICE.
- **Describe** strains, sprains, and fractures.

### Terms to Learn

- strain
- sprain
- fracture

### Start Off Write

How do you know if you have an injury?

Lanny really likes to play soccer. He read a magazine article about soccer players who got injured. They pushed themselves too hard or played while they were hurt. Lanny doesn't want that to happen to him.

You might get hurt when you do physical activity. This risk doesn't mean you should avoid activity. But you should know the warning signs of injury.

### Warning Signs of Injury

The day after hard exercise, you might feel uncomfortable. This feeling is called *muscle soreness*. It usually goes away the next time you exercise. Muscle soreness is caused by hard exercise. It is not a sign of injury. However, the following are warning signs of injury:

- **Sharp Pain** The area may hurt more when you touch it. You may also feel sharp pain when trying to use an injured body part.
- **Swelling** Swelling often starts right after the injury happens. Swelling is usually painful.
- **Bruises** The injured area may bruise right after an accident. Bruises may also take a few days to appear. They can cover a large area. Bruising and swelling often happen together.



**Figure 13** Injuries are often painful. Some injuries cause swelling and bruising.

## First Aid for Injury

If you think you are injured, tell your parents or teacher right away. You may need to see a doctor. You may also need to take the following steps:

- **Rest** Stop playing. Rest keeps the injury from getting worse. Keep the injured body part still until you can find out how badly you are hurt.
- **Ice** Put ice or a cold pack on the injury to reduce swelling and pain. Don't put ice on your bare skin. Wrap the ice in a towel first.
- **Compression** Wrap the injury with an elastic bandage or athletic tape. This reduces swelling and keeps the injured area from moving. Don't wrap too tightly. You may cut off blood flow if you do.
- **Elevation** Raise the injured body part. This helps bring down swelling. Don't elevate the injury if doing so makes the injury hurt more.

It may help you recall these steps if you remember that the first letters of the words spell *RICE*.

Injuries heal best when you get plenty of rest and eat right. Take your doctor's advice about exercising again. If you exercise too soon, you may hurt yourself again. When you begin activity again, slowly increase exercise until you regain your fitness.



**STUDY TIP** for better reading

**Organizing Information**  
An acronym is a word formed from the first letters or the first few letters of a series of words. Acronyms such as RICE are good ways to help you remember information.

**Figure 14** An elastic bandage will reduce swelling in an injured knee.



**Figure 15** Can you identify the parts of RICE in this photo? The student is using ice and elevation to take care of his ankle.



## Strains

Maybe you've heard someone say that he or she pulled a muscle or tendon. A *tendon* attaches a muscle to a bone. When someone has a pulled muscle or tendon, he or she has a strain. A **strain** is a muscle or tendon that has been stretched too far or torn. Signs of a strain may include pain and weakness in the injured area. Strains can be caused by doing too much exercise. Sometimes, a muscle is stretched too far or too quickly. Mild muscle strains can take as little as a week to heal. Some strains need surgery.

## Myth & Fact

**Myth:** No pain, no gain.

**Fact:** Pain that doesn't go away or gets worse is a sign of injury.

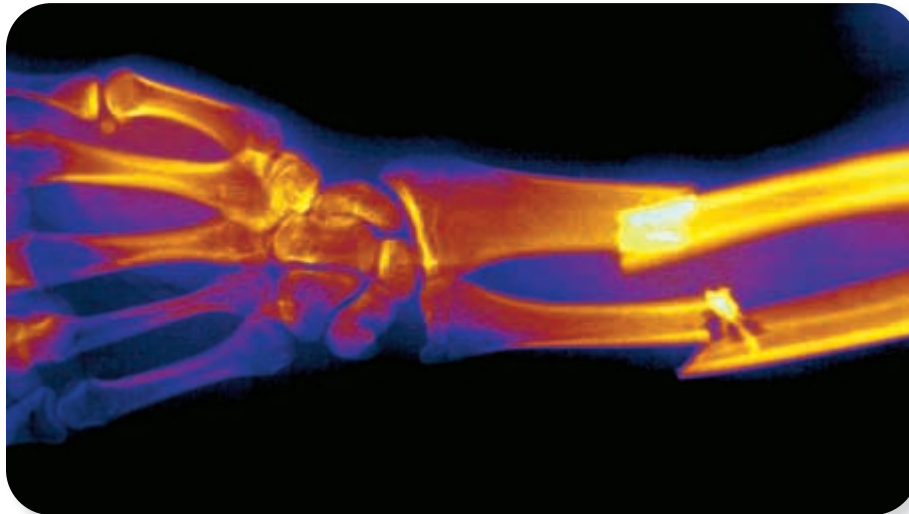
## Sprains

A *ligament* attaches one bone to another bone in a joint. A **sprain** is an injury that happens when a joint is twisted suddenly and the ligaments in the joint are stretched too far or torn. Sprains often happen when a joint is twisted in a way that it does not normally move. A sprain is often painful. Also, it may be hard to move a sprained joint. Sprained joints often swell and bruise. A sprained ankle or knee can make it hard to stand. Many sprains heal in about 2 to 6 weeks. Some sprains need surgery to repair the torn ligaments.

## Fractures

Have you ever broken a bone? If not, maybe someone you know has. A **fracture** (FRAK chuhr) is a cracked or broken bone. Fractures can cause pain, swelling, bruising, and weakness in the injured area. Sometimes, a body part with a fracture doesn't move the way it should. You should see a doctor if you think you have a fracture.

There are many different kinds of fractures. The treatment depends on the kind and location of the fracture. The damage to the area around a fracture may also affect how the fracture is treated. A cast is often used to keep the bone or joint still while the fracture heals. However, some fractures are only wrapped or braced. Many fractures take 4 to 12 weeks to heal. Some fractures need surgery to help them heal.



**Figure 16** This photo shows an X-ray image of a broken forearm. You can see that both bones are broken.

### Lesson Review

#### Using Vocabulary

1. Describe strains, sprains, and fractures.

#### Understanding Concepts

2. List three warning signs of injury. Compare the warning signs of injury with muscle soreness.
3. Describe the steps of RICE.

#### Critical Thinking

##### 4. Identifying Relationships

Swelling is the body's response to injury. Swelling actually helps keep an injured body part from moving. If this is the case, why do people use ice, compression, and elevation to reduce swelling?



# Lesson 6

## Avoiding Injury While Exercising

### What You'll Do

- Explain why you should warm up, cool down, and stretch each time you exercise.
- Describe eight basic stretches.

### Terms to Learn

- warm-up
- cool-down
- stretching

Start Off  
Write

What does a cool-down do?

Rosa has a friend who complains about stretching before practice. Rosa doesn't understand why. She knows stretching can help keep her friend from pulling a muscle.

Rosa is right. Injuries can happen easily when you play sports. But you can avoid most injuries by warming up, cooling down, and stretching every time you exercise. Read on to find out more!

### Warming Up

You should warm up before you exercise. A **warm-up** is any activity you do to get your body ready for exercise. A warm-up increases your heart rate and the blood flow in your body. It loosens muscles so that they move easily. A warm-up also slightly raises your body temperature. A fast walk or a slow jog is a good warm-up. You should warm up until you're sweating lightly. This usually takes about 15 to 20 minutes. By taking time to warm up, you can prevent injuries, such as strains.

You may also want to do some exercises similar to the activity you will be doing. For example, you can throw and catch before playing baseball or pass and serve before playing volleyball. These exercises aren't just a good way to warm up. Warming up can also help you work on your skills.

**Figure 17** An easy jog is one way to warm up for a soccer game.



## Cooling Down

Cooling down after an activity is as important as warming up. A **cool-down** is any activity that helps your body return to the way it was before exercising. A cool-down helps the heart return to its resting heart rate. Cooling down can also keep your muscles from getting tight and sore. A good cool-down is often a slow activity, such as jogging or walking.

You may have noticed that runners don't stop moving after a race is over. The runners walk or keep running at a slower pace. This cool-down helps their bodies return to normal.

A cool-down is also a good time to work on your flexibility. So, you can stretch as part of your cool-down. Stretching during a cool-down makes it less likely that you will feel sore later.



**Figure 18** A slow jog after a hard workout gives the heart a chance to recover slowly.

## LIFE SKILLS ACTIVITY

### BEING A WISE CONSUMER

1. Work in small groups. Take a look at popular fitness, health, and fashion magazines. Look for articles about short workouts.
2. Discuss each of the workouts with your group. What do the workouts have in common? What is different?
3. Do the workouts have warm-ups and cool-downs? Why do you think some workouts have warm-ups and cool-downs and others don't?
4. If a workout doesn't have a warm-up and cool-down, would you still do it? Explain your answer.
5. Make a short workout in your group. What is the shortest workout you can make that includes a warm-up and cool-down? Does it improve physical fitness?
6. Describe your workout on a poster, and present it to the class.

**Figure 19** Some Easy Stretches



► **Standing quadriceps stretch**

Put your right hand on the wall for balance. With your left hand, grab the ankle of your left foot. Pull the heel of your foot up until you feel a stretch in your thigh. Don't lean forward while stretching. Repeat the stretch for your right leg.



◀ **Calf stretch**

Lean forward, and place your hands against the wall. Place your right foot near the wall. Slowly move your left foot away from the wall until you feel a stretch in your left calf muscle. Repeat for your right calf.

► **Groin stretch**

Sit with the soles of your feet together. Hold your ankles, and rest your elbows on the inside of your knees. Slowly lean forward and push your knees down with your elbows. Keep your back straight.



▲ **Back stretch**

On your hands and knees, slowly lift your back toward the ceiling to stretch your upper back.

## Stretching

Stretching is an important part of physical activity. **Stretching** is any activity that loosens muscles and increases flexibility. Stretching prevents injury. Stretch only after a warm-up or during a cool-down. Stretching muscles that haven't been warmed up can cause injury. Stretch slowly and without bouncing. Bouncing can also cause injury. Stretch until you feel a stretch in your muscles. Don't hold a stretch that hurts. Hold your stretch about 10 to 30 seconds.

Stretches must be done correctly. If you stretch incorrectly, you can hurt yourself. Ask your coach or teacher to show you how to stretch correctly. Figure 19 shows some examples of stretches.



#### ◀ Shoulder stretch

Extend your right arm in front of your body. Use your left arm to pull the arm toward your body while keeping your right arm straight. Repeat for your left arm.



#### ◀ Trunk twist stretch

Put your left leg straight in front of you while seated. Bend your right leg, and put your right foot on the outside of your left knee. Put your right arm behind you. With your left arm on the outside of your right leg, twist your body toward your right until you feel a stretch in your right side. Repeat for your left side.



#### ▲ Sitting hamstring stretch

Sit with your feet together. With your knees slightly bent, reach toward your toes until you feel a stretch in the back of your legs. Keep your back straight while bending.



#### ◀ Forearm stretch

Extend your left arm with your palm up. With your right hand, pull the fingers of your left arm down and back toward your body. Repeat for your right arm.

## Lesson Review

### Using Vocabulary

1. Use each of the following terms in a sentence: *warm-up*, *stretching*, and *cool-down*.

### Understanding Concepts

2. Which four stretches would you do to stretch your legs? Which four stretches would you use for your arms and upper body?

### Critical Thinking

3. **Making Predictions** Diego plays basketball for his school's team. Diego warms up, but he doesn't cool down at the end of practice. What do you think may happen to Diego if he keeps playing without cooling down? Explain your answer.

**internet connect**

[www.scilinks.org/health](http://www.scilinks.org/health)  
Topic: **Stretching**  
HealthLinks code: **HD4097**

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# Lesson 7

## Safety Equipment

### What You'll Do

- Explain why you should use safety equipment.
- List six examples of sports safety equipment.

### Terms to Learn

- safety equipment

### Start Off Write

Describe safety equipment for a sport.

Xavier likes to ride his bicycle. Some of his friends give him a hard time because he always wears his helmet, even if he is just going down the block. But Xavier knows the helmet could save his life.

Xavier's helmet is an example of safety equipment. **Safety equipment** is equipment that helps prevent injury. Many physical activities can be unsafe if you don't use safety equipment.

### Why Use Safety Equipment?

Safety equipment helps protect you from injury. In sports such as football and hockey, you run into other players during games. So, players wear helmets and pads to protect themselves. Skateboarders and in-line skaters often fall while they work on tricks. They use helmets, elbow pads, and knee pads

to stay safe. You should use safety equipment when you play a sport in which you may run into other people or fall.

Safety equipment doesn't just protect you from injury. It also makes sports more fun. You can enjoy sports more when you don't have to worry as much about getting hurt. And some activities wouldn't be possible without safety equipment. For example, rock climbers would not be able to climb mountains without ropes and harnesses. And helmets help keep rock climbers from getting hurt. So, rock climbers can have more fun.



**Figure 20** Skateboarders use helmets and pads to protect themselves from injury.



**Figure 21** Many activities have special safety equipment to prevent injury.

## Examples of Safety Equipment

Over time, improvements in safety equipment have made some sports safer. For example, until the mid 1970s, many bicyclists used hockey helmets or helmets made of leather strips. These helmets were often big and uncomfortable. Some of these helmets didn't provide much protection. Today, bicyclists wear helmets that are lightweight and wind resistant. These helmets also protect bicyclists' heads better.

There is safety equipment for almost every sport. Soccer players wear shin guards. Skaters use helmets, knee pads, and elbow pads. Helmets, harnesses, and ropes protect rock climbers. Gymnasts use soft mats. Safety equipment must be used correctly. And make sure you use the right equipment for your sport.

## Brain Food



Bicycle helmets should always be replaced after an accident in which you hit your head. Bicycle helmets are made with a special foam that crushes on impact. After the foam is crushed, the helmet no longer protects your head.

## Lesson Review

### Using Vocabulary

1. What is safety equipment?

### Understanding Concepts

2. List two examples of safety equipment other than those described in the text. Why are they used?

### Critical Thinking

3. **Making Good Decisions** Imagine there is a new sport. The players in this sport tackle each other and kick a ball into a goal to score. Would players need safety equipment? Explain your answer.



### Chapter Summary

- Physical fitness is the ability to do everyday activities without becoming short of breath, sore, or tired.
- Four parts of physical fitness are muscular strength, endurance, flexibility, and body composition.
- Exercise is any activity that maintains or improves physical fitness.
- Interests and goals influence your selection of physical activities.
- Increasing frequency, intensity, and time of exercise improves physical fitness.
- Recovery time is the amount of time the heart takes to resume its resting heart rate after exercise.
- The warning signs of injury are sharp pain, swelling, and bruising.
- Warming up, cooling down, and stretching prevent injury.
- Equipment that prevents injury is called *safety equipment*.

### Using Vocabulary

For each sentence, fill in the blank with the proper word from the word bank below.

strain	strength
resting heart rate	exercise
physical fitness	flexibility
stretching	sprain
recovery time	fitness goal

- 1 \_\_\_ is the ability to do everyday activities.
- 2 \_\_\_ improves or maintains your physical fitness.
- 3 You use \_\_\_ when you lift and carry a backpack full of books.
- 4 If you plan to run a 5-kilometer race next month, you have set a(n) \_\_\_.
- 5 \_\_\_ is the number of beats your heart makes per minute when you are not exercising.
- 6 \_\_\_ is the amount of time your heart takes to return to its resting heart rate.
- 7 A(n) \_\_\_ happens when the ligaments in a joint are stretched too far or are torn.
- 8 \_\_\_ is an activity that increases the flexibility of a joint.

### Understanding Concepts

- 9 Describe the four parts of physical fitness.
- 10 Describe the physical benefits of exercise.
- 11 How can exercise improve mental, emotional, and social health?
- 12 Why should you warm up, cool down, and stretch every time you exercise?
- 13 Why should you visit a doctor before starting a fitness program?
- 14 List the healthy fitness zones for pull-ups, curl-ups, and the 1-mile run for your age group.
- 15 What two things should you keep in mind when choosing a new physical activity?
- 16 List six benefits of sports.
- 17 What four steps are used to treat sports injuries?
- 18 List examples of sports safety equipment for five sports.

## Critical Thinking

### Making Inferences

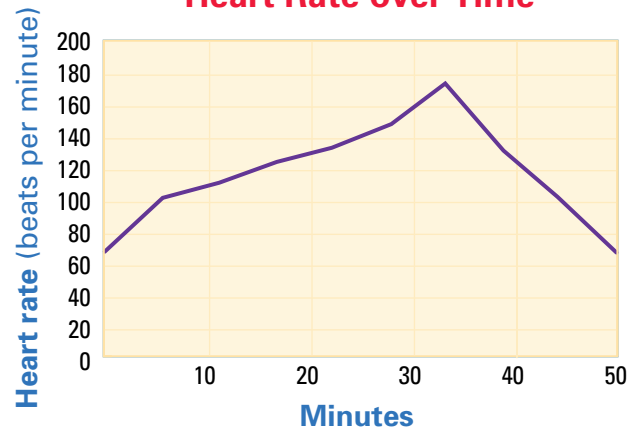
- 19 Kaya has been exercising with the swim team for 6 weeks. When she started, she noticed that her heart beat very quickly when she swam. Now, it doesn't seem to beat so quickly, and it doesn't take as long to slow down when she's finished. What do you think made Kaya's heart rate change?
- 20 Tanya wants to play soccer. Her friend Keith doesn't want to play soccer, but he wants to stay fit. How might Tanya's and Keith's values affect their fitness goals?
- 21 Ranjan likes to challenge himself when he tries a physical activity. He always tries to do better than he did last time. He also likes to focus on his fitness goals. What type of sport do you think Ranjan would prefer? Explain your answer.

### Making Good Decisions

- 22 Imagine you are practicing for a running race. After working out for over a month, you have met your first goal of running a mile in less than 10 minutes. However, you notice that you aren't improving anymore. What do you think you need to do to keep getting faster?
- 23 Imagine that you notice a sharp pain in your knee. When you look at it, the knee is a little swollen. It doesn't hurt too badly, and you want to keep exercising. What should you do?

## Interpreting Graphics

Heart Rate over Time



Use the graph above to answer questions 24–26.

- 24 What is this person's resting heart rate (RHR)?
- 25 The maximum heart rate for a person is estimated by subtracting the person's age from 220. This person is 11 years old. What is her maximum heart rate?
- 26 To improve physical fitness, a person should make sure his or her heart rate falls within a target heart rate zone during exercise. The target heart rate zone for an 11-year-old is 125 to 178 beats per minute. Did this person reach his or her target heart rate zone? If so, how long was he or she in the target heart rate zone?

## Reading Checkup

Take a minute to review your answers to the Health IQ questions at the beginning of this chapter. How has reading this chapter improved your Health IQ?

## Setting Goals

A goal is something that you work toward and hope to achieve. Setting goals is important because goals give you a sense of purpose and achieving goals improves your self-esteem. Complete the following activity to learn how to set and achieve goals.

### Hayley's Goal

#### Setting the Scene

Hayley is in OK physical condition, but she doesn't exercise as much as she probably should. One day, Hayley's physical education teacher announces to the class that they will take a physical-fitness test called the *President's Challenge* in 3 months. Last year, Hayley's older sister, Tia, took the same test and won a Presidential Physical Fitness Award. Hayley wants to win an award, too.



## The 5 Steps of Setting Goals

1. Consider your interests and values.
2. Choose goals that include your interests and values.
3. If necessary, break down long-term goals into several short-term goals.
4. Measure your progress.
5. Reward your success.



## Guided Practice

### Practice with a Friend

Form a group of three. Have one person play the role of Hayley and another person play the role of Tia. Have the third person be an observer. Walking through each of the five steps of setting goals, role-play Hayley working toward her goal of winning a Presidential Physical Fitness Award. Tia should offer advice and support as Hayley works toward her goal. The observer will take notes, which will include observations about what the person playing Hayley did well and suggestions of ways to improve. Stop after each step to evaluate the process.

## Independent Practice

### Check Yourself

After you have completed the guided practice, go through Act 1 again without stopping at each step. Answer the questions below to review what you did.

1. What are some values that Hayley might consider before setting her goal?
2. Hayley's long-term goal is to win a Presidential Physical Fitness Award. What are some short-term goals that will help her achieve this long-term goal?
3. How can Hayley measure her progress toward her long-term goal?
4. What is one of your long-term goals? What short-term goals will help you reach your long-term goal?



### ACT 2

### On Your Own

Three months later, Hayley takes the President's Challenge and wins the Presidential Physical Fitness Award. Her physical education teacher congratulates her and tells her about another award she could try to earn. The award is the Presidential Active Lifestyle Award. Hayley's teacher suggests that she read about it on the Internet. Make a pamphlet that explains how Hayley could use the five steps of setting goals to earn a Presidential Active Lifestyle Award. You will need to research the requirements of the award on the Internet.