

Are Your Muscles Healthy?

Integration: Health (Personal Health, Safety and First Aid), Physical Education; Science

Grade Levels: K-2

Time: 1 class period

Materials:

- Diagram of the muscular system
Available at www.innerbody.com/image/musfov.html (front view) and www.innerbody.com/image/musbov.html (back view)
- Chicken leg quarter (thigh and drumstick) (Optional)

Objectives:

Students will:

1. Explain the function of their muscles.
2. Describe the importance of exercise.
3. Identify injuries to the muscles, tendons, and ligaments that Antarctic explorers may experience.
4. Practice exercises.

Lesson:

1. Ask students to answer the following questions:
 - a. What part of your body allows you to run and jump? (muscles)
 - b. What part of your body allows you to breathe? (Muscles expand and contract the lungs.)
 - c. What allows blood to be pumped throughout your body? (The heart is a muscle.)

Students may answer legs, lungs, and heart. Help them to the conclusion that the muscles are what allow the movement.

2. Explain that the muscular system is made up of muscles and tendons that support your skeleton, allowing your body to move.
 - a. Muscles are strong, flexible tissues that make the body move by tightening and relaxing.

There are more than 600 muscles connected to your skeleton.
They are of different shapes and sizes, according to the job that they do.
 - b. Tendons are strong bands of material that attach muscles to bones or other parts of the body.
 - c. Remind students that when they eat beef, pork, chicken, etc. they are eating muscle.

OPTIONAL: Bring in a chicken leg quarter (thigh and drumstick) to show students how the muscles are attached to the bone. Tendons are also visible. Handle the raw chicken with latex/rubber gloves and clean up thoroughly.

3. Explain that ligaments are other bands of strong tissue that connect bones or hold an organ in place. They are part of the skeletal system.
4. Explain that exercise is important to good health of muscles and the entire body. Exercising muscles helps them to function better. It also helps to prevent injury to muscles and tendons, keeps the body healthy and strong, and helps the lungs and heart to work more efficiently.
5. Ask students to name some ways they can exercise their muscles (aerobic exercise, stretching, running, walking, swimming, weightlifting, jumping rope, playing sports, bike riding, etc.).
6. Tell students that if the muscles and joints of the body are not exercised regularly, injuries are more likely to occur.
7. Ask students if their muscles can be hurt. If so, how? (Muscles can be bruised or torn.) Can ligaments and tendons be hurt? If so, how? (Ligaments and tendons can be stretched or torn.) Two of the most common muscle injuries are sprains and strains. Ask if any students have experienced these injuries.
8. Explain the injuries.
 - a. Sprain: an injury that occurs when ligaments or tendons near a joint are torn or stretched.

Sprains often result from violently twisting a joint, such as ankle, knee, wrist, etc.

Symptoms include pain on movement, swelling, and discoloration.
 - b. Strain: an injury caused when a muscle or tendon is overstretched.

Strains often result from lifting heavy objects improperly.

Symptoms include intense pain, swelling, and difficulty moving or using that part of the body.
9. Tell students that exercise is especially important to prepare people who will be working hard for long periods of time.
 - a. Give the example of Ann Bancroft and Liv Arnesen, who will ski for 8-14 hours every day while pulling 200 lb. (113 kg) sleds, which hold their supplies and equipment.
 - b. Ask students what would happen if Ann and Liv did not prepare for their expedition by exercising (they might be injured worse or more frequently).
 - c. Tell the students that Ann and Liv start preparing over a year before they go on an expedition.

10. Tell students that they will practice an exercise. Bring in a Physical Education teacher to help (optional).
 - a. Note: you can either allow them to select an exercise to practice or lead the class in an exercise.
11. If the students will be choosing an exercise, divide them into groups and have each group demonstrate the exercise to the rest of the class.

EXTENSION: Invite a delivery person (milk, package delivery, etc.) to come to school and demonstrate to the students how they are taught to lift heavy objects and why they are taught to do it that way.

Assessment:

Teachers will assess:

1. Student's understanding of the function of the muscular system.
2. Student's ability to explain the importance of exercise, and in particular to Antarctic explorers.
3. Student's ability to explain injuries such as sprains and strains.
4. Student's exercise skills.