

For use with the unit: The Inside Story
Reading in the content area.
(LA.A.2.2.1.4.1)

Muscular System

Do you feel strong today? Let's see if you are. Place your left hand on your right arm just above your wrist. Make a fist with your right hand. Now, pull your fist really tight. Did you feel your right arm tighten up, too? What you are feeling is a pair of your striated muscles voluntarily at work. What you did not feel are the hundreds of involuntary muscles in your body that are working all the time without you even thinking about it.

Our bodies have over 600 muscles consisting of three types of muscle cells, striated, smooth, and cardiac. Striated muscle cells make striated muscle tissue. These striated muscles are voluntary muscles. We can move these muscles when we choose. Striated muscles are the muscles attached to our bones that make movement of our bones possible. Striated muscles work in pairs. As one of the pair contracts, or pulls, the other muscle in the pair relaxes. This gives the feeling of pulling and pushing muscles, but the truth is that muscles only pull. They cannot push; only relax (*not* pull). This pull-only action is true of all muscles of the body.

Smooth muscle cells make smooth muscle tissue. Smooth muscles are very important to the health of our body cells, as it is the smooth muscles that are in our organs. Smooth muscles in our stomachs push food into our small intestines. Smooth muscles in our diaphragms force air into and out of the lungs. Smooth muscles of the bladder push waste out of the body. Smooth muscles are involuntary and contract as a result of impulses from our nerves. In other words, our brains automatically control these muscles, but we can't choose to control them.

The third type muscle cell is the cardiac. Cardiac muscles are the muscles of the heart that force blood through our body. Cardiac muscles are involuntary.

To strengthen muscles and have them work efficiently, they must be exercised. Poorly exercised muscles become slow and weak. Regularly exercised muscles become toned, or quick and powerful. Both voluntary and involuntary muscles should be exercised to stay toned. Without exercise, the smooth muscles of our diaphragm and rib cage become weak and breathing becomes difficult. Without exercise, our cardiac muscle becomes weak and cannot pump blood fast enough to keep our cells healthy and a heart attack could occur. Without exercise, our striated muscles cannot hold our skeletons straight and move our bones properly causing injury. Exercise is the key to keeping muscles toned and our body systems working properly.

Voluntary or involuntary, the over 600 muscles of our muscular systems control all of the movements of our bodies thus keeping our cells healthy.

Muscle System

Sample Outline

- I. How muscles work
 - A. Voluntary
 - B. Involuntary
 - C. Push (never pull)
- II. Kinds of muscles
 - A. Striated
 - 1. Voluntary
 - 2. Attached to bones
 - 3. Work in pairs
 - B. Smooth
 - 1. Involuntary
 - 2. Muscles in our organs
 - C. Cardiac
 - 1. Involuntary
 - 2. Heart
- III. Exercise