

An Overview of the Muscular System

By Jennifer Kenny

¹ Can you play the violin or run in your backyard? Can you jump? Can you turn the page of your favorite book or pick up the television remote? If you can, your muscles are moving your body in some form or fashion. Even if you think you are completely still, there are muscles in your body that are causing your eyelids to blink or making you breathe.



² In the average person, forty percent of the body weight comes from muscles. Ten percent comes from fat. You have approximately 640 muscles that you can control and many others that you can't.

³ How do muscles move your body? By contracting, of course. When a muscle contracts, it shortens, thereby moving the bones to which it is attached. Muscles tend to work in pairs. When one pulls the bone, another relaxes. Muscles are attached to bones by tendons. These are narrow, ropelike tissues.

⁴ Muscles are made of muscle fibers. These are bundles of long, thin cells. A single muscle fiber is extremely thin, but it can be very long. Each muscle fiber is made up of thousands of fibrils, which are even thinner threads. Each fibril contains two proteins - actin and myosin. Nerves in the brain and spinal cord control the muscles.

⁵ There are three kinds of muscle in the body - skeletal, smooth, and cardiac. Skeletal muscles are the muscles attached to bones. They are voluntary muscles because you can control them. They look striated, or striped, under the microscope. Smooth muscles don't look striped. They are involuntary because you can't consciously move them. These muscles line the stomach and intestinal walls to help move food through the digestive system. The cardiac muscle is the heart. It constantly contracts and relaxes to pump blood around your body. It doesn't tire like your skeletal muscles do. It is involuntary.

⁶ There are thirty different sets of muscles in your face and neck. They help you to express your moods, speak, and eat. Torso muscles help you to move, breathe, twist, and turn. Some even help you to stay upright. Your diaphragm is a strong muscle that moves up and down as you breathe. Muscles in your hands and arms help you pick up a feather or do a handstand. The largest and strongest skeletal muscles are in your legs to let you walk, run, or stand still. The biggest muscle in the body is the gluteus maximus in your buttocks.

⁷ Muscles need food and oxygen to work. Chemicals in foods build muscle cells and repair them. Oxygen enters your muscles and allows you to exercise. They need more oxygen when the muscles are working harder. If the muscles use up oxygen faster than the body can supply it, you may get cramps because lactic acid has built up.

⁸ People often stretch and warm up before exercise in order to prevent injury. However, a painful, strained muscle can result if you use a muscle too much and tear muscle fibers. Doctors can see muscles through the use of computerized axial tomography (CAT) scan or magnetic resonance imaging (MRI) scan.

⁹ You are a complex individual. Your muscles are at work all the time even when you don't realize it. Your muscles keep you active and alive.

Name _____

Science Pd: _____

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<p>1. Muscles are working in your body even when you are asleep and still.</p> <p><input type="radio"/> A False</p> <p><input type="radio"/> B True</p>	<p>2. In the average person, _____ % of body weight comes from muscles.</p> <p><input type="radio"/> A 40</p> <p><input type="radio"/> B 10</p> <p><input type="radio"/> C 60</p> <p><input type="radio"/> D 20</p>
<p>3. Muscles are attached to bones by _____.</p> <p><input type="radio"/> A Fibers</p> <p><input type="radio"/> B Joints</p> <p><input type="radio"/> C Tendons</p> <p><input type="radio"/> D Ligaments</p>	<p>4. Which is not a protein found in fibrils?</p> <p><input type="radio"/> A Myosin</p> <p><input type="radio"/> B Myactin</p> <p><input type="radio"/> C Actin</p>
<p>5. I am a muscle attached to a bone. I am a voluntary muscle. I appear striped under the microscope. What kind of muscle am I?</p> <p><input type="radio"/> A Skeletal muscle</p> <p><input type="radio"/> B Cardiac muscle</p> <p><input type="radio"/> C Smooth muscle</p>	<p>6. What kind of muscle is the heart?</p> <p><input type="radio"/> A Cardiac muscle</p> <p><input type="radio"/> B Smooth muscle</p> <p><input type="radio"/> C Skeletal muscle</p>
<p>7. What kind of muscle is found in the stomach wall?</p> <p><input type="radio"/> A Smooth muscle</p> <p><input type="radio"/> B Skeletal muscle</p> <p><input type="radio"/> C Cardiac muscle</p>	<p>8. What two items do muscles need to work?</p> <p>_____</p> <p>_____</p>