Muscular System

by Sophia

WHAT'S COVERED

This lesson will cover the three main types of muscle, how they operate, and roles that play in the human body. Specifically, this lesson will cover:

1. Muscular System

There are 11 body systems, one of which is the **muscular system**. The muscular system allows for movement, production of body heat, and the flow of blood and other substances.

There are three main types of muscle found in the body:

- Skeletal muscle
- Smooth muscle
- Cardiac muscle

Muscles can be either voluntary or involuntary. **Voluntary muscles** are a type of muscle that you have control over. **Involuntary muscles** are muscles that you do not have control over.

THINK ABOUT IT

Let's take a look at two different muscles and decide if they are voluntary or involuntary:

QUESTION: Imagine flexing and extending your arm. Is this voluntary or involuntary?
ANSWER: This is something you consciously have control over, so this would be a voluntary muscle.

QUESTION: Now, think of the muscles in your digestive tract that push food through your small and large intestines. Voluntary or involuntary?
ANSWER: We do not have to consciously think about moving food we ingest through our system. Our body automatically does this, so this is involuntary.

TERMS TO KNOW

Muscular System
One of the 11 organ systems of the human body; contains three types muscle (smooth, cardiac, skeletal) that are found in different areas of the body but all share the same primary function and movement.

Voluntary Muscle

A form of muscle that we have conscious control of; of the three types of muscle, skeletal muscle is the only type that can be voluntary.

Involuntary Muscle

A form of muscle that we have no conscious control of; cardiac and smooth muscle involuntary muscles.

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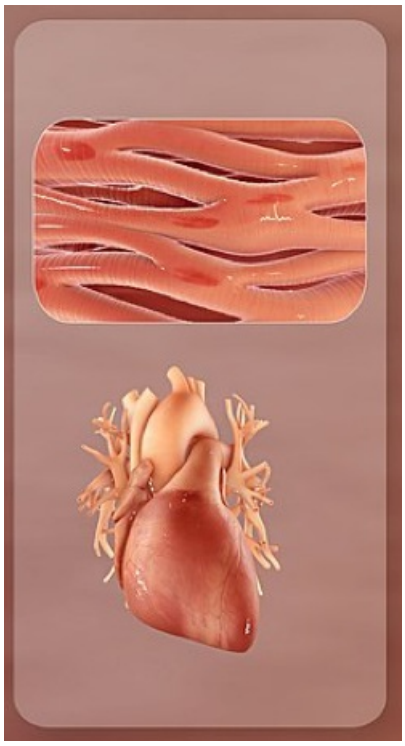
2. Cardiac Muscle

Cardiac muscle is the type of muscle found in the heart. It is a striated muscle, meaning that it has a striped appearance. Look at the diagram below showing what it might look like close up. Notice the little stripes that go through it because of the way that the cells are composed.



Cardiac muscle is an involuntary muscle and can contract without stimulation from the nervous system.

TERM TO KNOW

Cardiac Muscle

A form of muscle that contains short, branched, striated, single-nucleated cells; cardiac muscle is only located in the heart and is used to pump blood throughout the cardiovascular system.

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3. Skeletal Muscle

The majority of muscles in your body are **skeletal muscles,** and they work in conjunction with your skeletal system. They help to stabilize the joints, allow for movement of the body, and they allow for the production of body heat.

The image below is an example of a skeletal muscle. It works with your skeleton, allowing your skeleton to move in the way you want. Skeletal muscles are long thin cells made up of more than one nucleus; these multi-nucleated cells are referred to as fibers. These fibers are arranged into bundles. The bundles are arranged in a way that gives them a striped look, which is called striated muscle, similar to cardiac muscle.

Skeletal muscle is a type of voluntary muscle; you have conscious control over its movements.

TERM TO KNOW

Skeletal Muscle

A form of muscle that contains very long, striated, multinucleated cells; skeletal muscles are the largest form of muscles in the body; skeletal muscles are attached to the skeleton and are used for to move our bones, generate heat and protect deeper internal organs.

4. Smooth Muscle

Smooth muscle composes the walls of hollow organs and tubes like our blood vessels or digestive tract. The name describes the appearance of this type of muscle; it doesn't have a striped (striated) appearance like cardiac and skeletal muscle.

The cells of smooth muscle are also generally a little bit smaller and are organized into sheets. Smooth muscle is a type of involuntary muscle. Look at the picture of a blood vessel below.

The inside of this blood vessel would be lined with smooth muscle, which helps to contract and push blood through. This happens on its own with input from your nervous system.

TERM TO KNOW

Smooth Muscle

A form of muscle that contains short, tube-like (fusiform) single nucleated cells; smooth muscle range from having many layers to a single layer of cells; smooth muscle is found in the walls of hollow organs.

SUMMARY

The **muscular system** is one of 11 body systems, and is responsible for allowing movement, production of body heat, and the flow of blood and other substances throughout your body. Muscles can be voluntary or involuntary. The **cardiac muscle** is the type of muscle found in your heart. It is an involuntary muscle with a striated appearance. **Skeletal muscle** works with your skeletal system to allow for movement and is the only voluntary muscle of the three different types. It also has a striated appearance. **Smooth muscle** is the last type of muscle. It is smooth in appearance and is involuntary. It lines the walls of hollow organs and tubes in our bodies. Keep up the learning and have a great day!

Source: THIS WORK IS ADAPTED FROM SOPHIA AUTHOR AMANDA SODERLIND

ATTRIBUTIONS

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TERMS TO KNOW

Cardiac Muscle

A form of muscle that contains short, branched, striated single-nucleated cells; cardiac muscle is only located in the heart and is used to pump blood throughout the cardiovascular system.

Involuntary Muscle

A form of muscle that we have no conscious control of; cardiac and smooth muscle are in this category.

Muscular System

One of the eleven organ systems of the human body; contains three different types of histological forms of muscle (smooth, cardiac, skeletal) that are found in different areas of the body but all share the same primary function and movement.

Skeletal Muscle

A form of muscle that contains very long, striated, multinucleated cells; skeletal muscles are the largest form of muscles in the body. Skeletal muscles are attached to the skeleton and are used to move our bones, generate heat and protect deeper internal organs.

Smooth Muscle

A form of muscle that contains short, tube-like (fusiform) single-nucleated cells; smooth muscle range from having many layers to a single layer of cells; smooth muscle is found in the walls of hollow organs.

Voluntary Muscle

A form of muscle that we have conscious control of; only skeletal muscles are the only voluntary muscles.