

Muscular Tissue Notes

Three types of muscle:

- **Skeletal**
 - Attaches to bone
 - Longest fibers
 - Has striations
 - Voluntary
 - Rapid contractions, but tire easily
- **Cardiac**
 - Only in the heart
 - Striated
 - Involuntary
 - Contracts at a steady rate over a long period of time
- **Smooth**
 - Makes up walls of hollow organs
 - Stomach, intestines, arteries, urinary bladder, respiratory passages, uterus
 - Contractions force stuff through these passages (**peristalsis**)
 - No striations
 - Involuntary
 - Slow, sustained contractions

Functions of Muscle:

- Producing body movements
- Maintains posture
- Storing and moving substances within the body (urine, blood, food, babies, etc.)
- **Generate body heat**

Properties of Muscles:

- **Electrical excitability:** an ability to respond to certain stimuli by producing electrical signals called **action potentials**
 - Ex: the heart's pacemaker generates autorhythmic electrical signals. The stimulus can also be chemical, such as **neurotransmitters**, or hormonal.
- **Contractility:** ability to shorten when stimulated
- **Extensibility:** ability to be stretched
- **Elasticity:** ability to return to its original shape and length
- Each muscle is a separate organ made of many tissues (blood vessels, nerve fibers, connective tissue).
- Individual muscles are separated by fascia, which also forms tendons.
- They are made up of thousands of cells called muscle fibers. (muscle fiber = muscle cell).

Anatomy of Skeletal Muscle:

- **Connective Tissue Wrappings** - they join together at the end of the muscle to make the tendons
 - **Epimysium** - covering around the outside of the muscle (dense irregular connective tissue).
 - **Perimysium** - surrounds groups of ten to one hundred fibers. These bundles are called fascicles. (Dense irregular connective tissue).
 - **Endomysium** - covers each individual muscle fiber (areolar tissue).

Muscle Fiber:

- **Sarcolemma:** Plasma membrane around muscle cell
- **Sarcoplasm:** Cytoplasm of muscle cell