

MUSCULAR TISSUE

Muscular tissue is a specialized tissue in animals that controls movement by contracting. It's made up of long, slender cells called muscle fibers that are arranged in bundles or layers.

Muscle tissue contains special contractile proteins called actin and myosin which interact to cause movement.

• **Properties of Muscular Tissue**

1.Contractibility– It is the ability of muscle cells to shorten forcefully.

2.Extensibility– A muscle has the ability to be stretched.

3.Elasticity– The muscles have the ability to recoil back to its original length after being stretched.

4.Excitability– The muscle tissue responds to a stimulus delivered from a motor neuron or hormone.

Types of Muscular Tissue

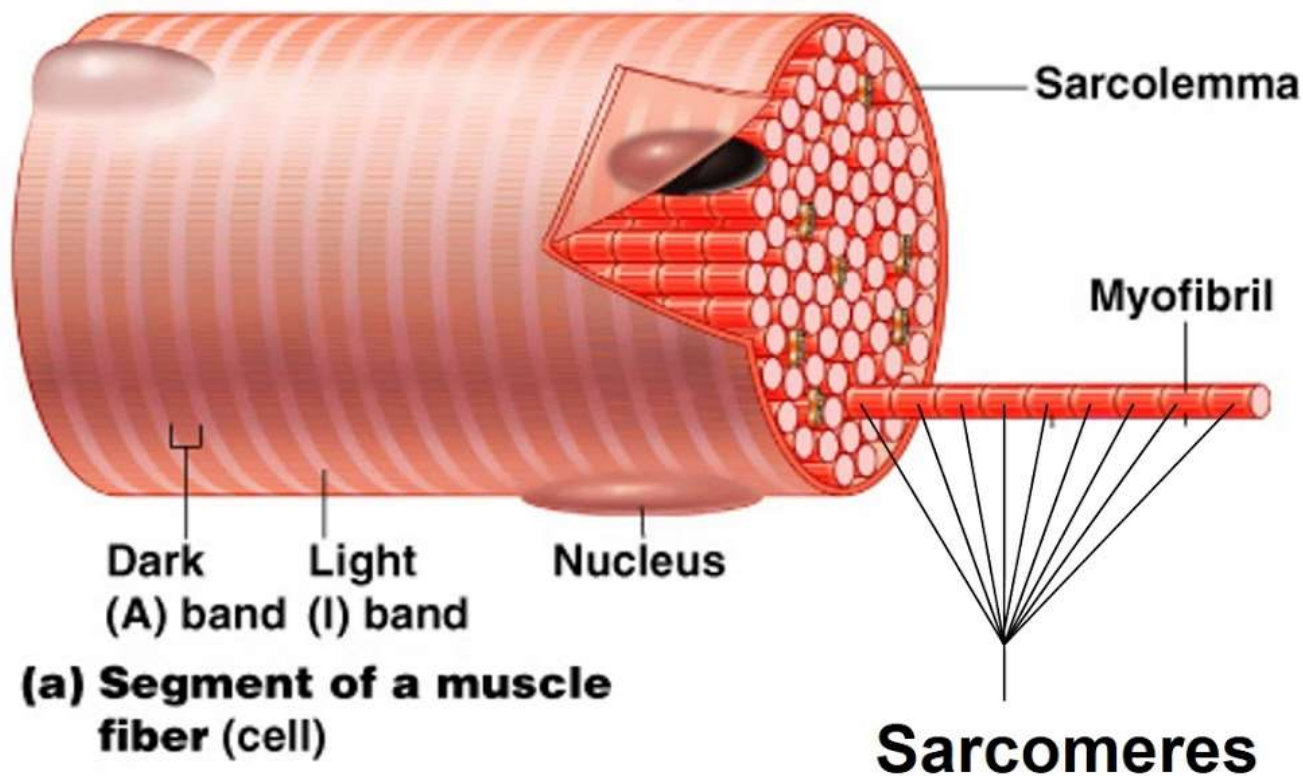
The muscular tissue is of three types:

- Skeletal Muscle Tissue
- Smooth Muscle Tissue
- Cardiac Muscle Tissue

Skeletal Muscular Tissue

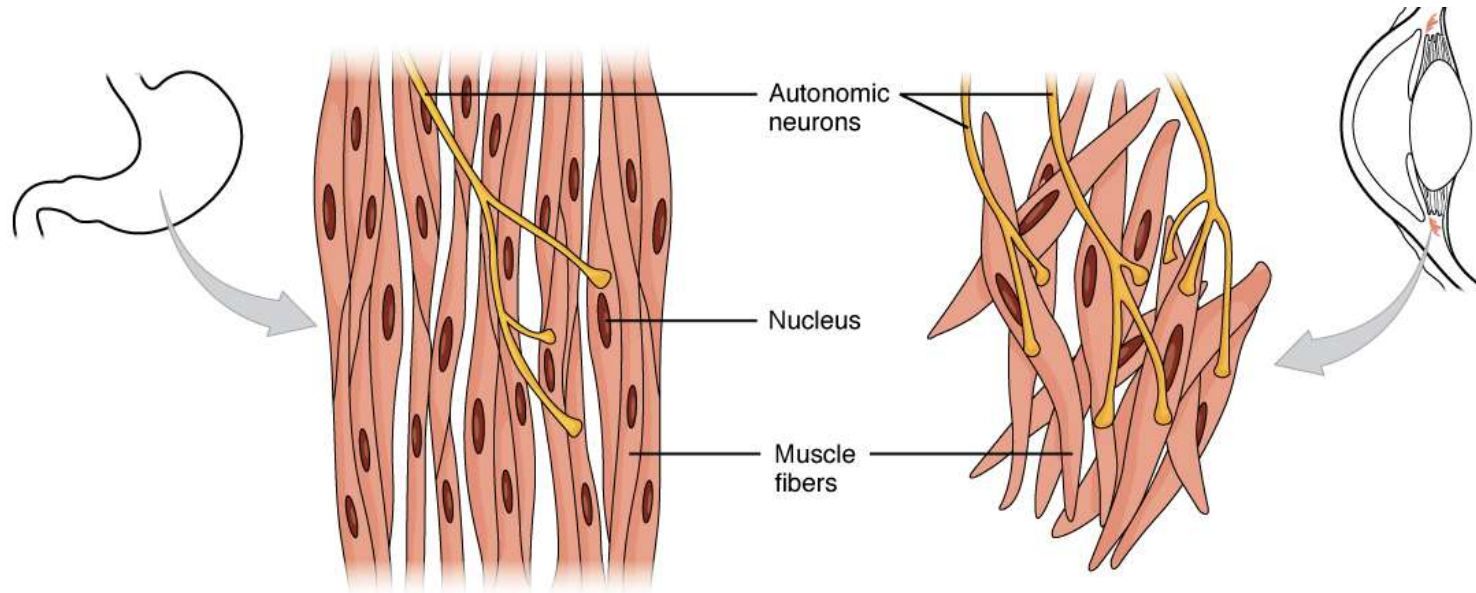
- These muscles are attached to the skeleton and help in its movement.
- The basic unit of muscle cell is called **sarcomere**
- These muscles are also known as striated muscles because of the presence of alternate patterns of light and dark bands.
- Light bands are made up of **actin**
- Dark bands are made up of both **actin and myosin**
- The **sarcolemma**, also called **myolemma**, is the cell membrane surrounding a skeletal muscle fibre.
- Skeletal muscles are **voluntary muscles** composed of muscle fibers.
- The cells of these tissues are **multinucleated**.
- These tissues are provided with blood vessels

- Have many elongated mitochondria and glycogen granules.
- The cytoplasm of muscle fibre is called **sarcoplasm**.
- They bring about the movement of the organs of the body.



Smooth Muscle Tissue

- These are non-striated, involuntary muscles controlled by the Autonomus Nervous System.
- It stimulates the contractility of the digestive, urinary, reproductive systems, blood vessels, and airways.
- The actin and myosin filaments are very thin and arranged randomly, hence no striations.
- The cells are spindle-shaped with a single nucleus.



Cardiac Muscle Tissue

- These are found only in the heart.
- These are involuntary muscles and the heart pumps the blood through cardiac contractions.
- The cells of the cardiac muscles known as the cardiomyocytes are striated.
- They are single-celled and uninucleate.
- The ends of the cells are joined and the junctions are called intercalated discs. The cells are attached to each other by desmosomes.

