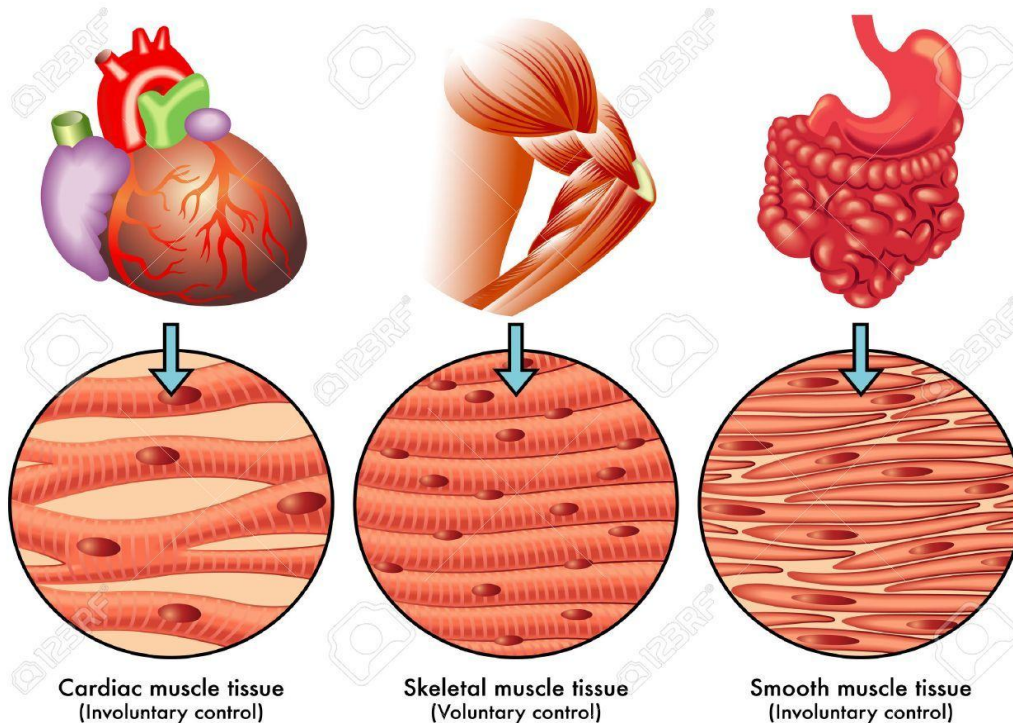


(Muscular Tissue)

Muscle tissue is a soft tissue composed of cells that have the special ability to shorten or contract in order to produce movement of the body parts. The tissue is highly cellular and is well supplied with blood vessels. Actin and myosin are contractile proteins in muscle tissue.

Muscle tissue can be categorized into:

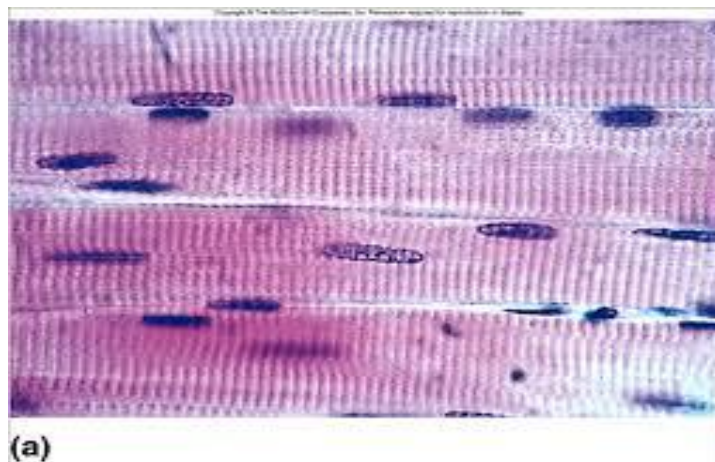
- 1- Skeletal muscle tissue
- 2- Smooth muscle tissue
- 3- Cardiac muscle tissue.



❖ Skeletal muscle

Skeletal muscle fibers are cylindrical, multinucleated, striated, and under voluntary control. Muscle fibers are composed of myofibrils. The myofibrils are composed of actin and myosin filaments, repeated in units called sarcomeres, which are the basic functional units of the muscle fiber. The striations microscopically visible in skeletal muscle are formed by the regular arrangement of proteins inside the cells. There are light and dark striations in each cell. The dark areas are called **A bands** (protein **myosin**). The light areas are called **I bands** (protein **actin**).

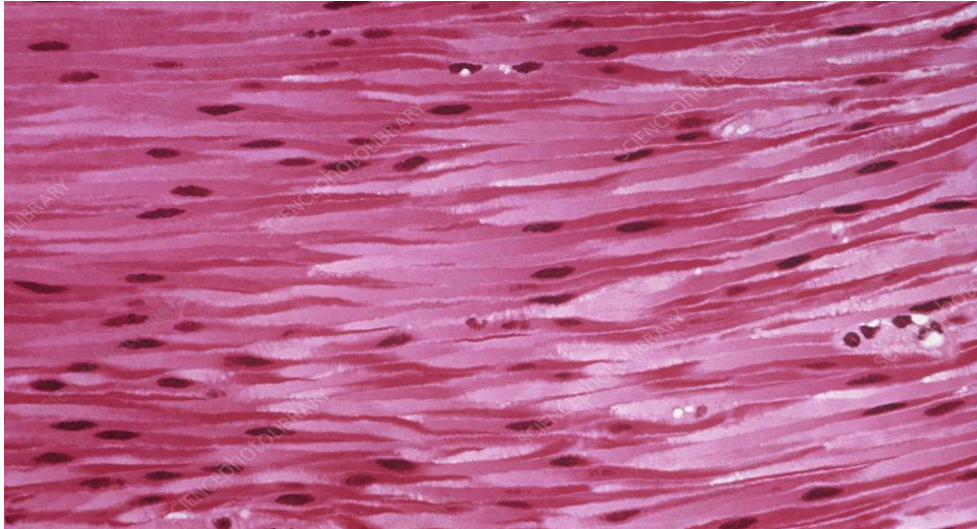
Muscle tissue is attached to the bones through *tendons* to control movement of the body



❖ Smooth muscle

Smooth muscle cells are spindle shaped, have a single, centrally located nucleus, and lack striations (it contains the same myofilaments they are just organized differently) and involuntary. Smooth muscle is found in the walls of hollow organs throughout the body. It plays an important role in the regulation of flow in

such tissues for example aiding the movement of food through the digestive system via peristalsis.



❖ Cardiac muscle

Cardiac muscle has branching fibers connected to one another at their ends by intercalated discs, one nucleus per cell, is striated. Its contraction is not under voluntary control. Cardiac muscle tissue is found only in the heart where cardiac contractions pump blood throughout the body and maintain blood pressure.

