Muscle Tissue

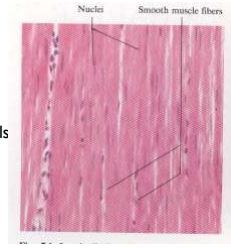
- Sketetal
- Smooth, &
- Cardiac

Classification of Muscle Tissues

- Muscle tissue is composed of large, elongated cells called fibers which have the ability to contract in response to stimuli.
- Three types of muscle tissues in the body are
  - Skeletal (striated, Voluntary)
  - Cardiac muscles, and
  - Smooth Muscles (non-striated, visceral, voluntary)

A. Smooth Muscle

- Non-striated and involuntary muscles
- Examples: gastrointestinal muscle, muscle of urinary bladder, and the uterine muscle
- In longitudinal section:
  - Cytoplasm shows faint myofibrils
  - there is a single central elongated nucleus within each cell.
  - there is no distinct sarcolemma present, but with electron microscope the basement membrane gives the appearance of a sarcolema



Functions of smooth muscles

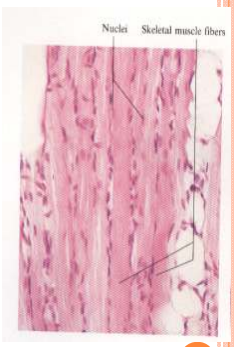
- Control the size and motility of the lumina in cardiovascular, gastrointestinal, urogenital and respiratory systems.
- Control the distribution of blood to different parts of the body.
- Control the peristaltic movements of food in the digestive tract, and
- Function in the reproductive system, in which smooth muscle cells propel gametes towards each other for fertilization

B. Cardiac Muscle

- Fibers branched and anastomose with large nuclei usually near central axis of the fiber.
- Regions surrounding the nucleus contain no myofibrils.
- Intercalated discs are cross bands perculiar to heart muscles.
- Sarcolemma present, but thinner sheath than surrounds skeletal muscle fibers.

SKELETAL MUSCLES

- Striated and voluntary
- Examples: tongue muscle, biceps, and several hundred other muscles.
- Parallel, cylindrical fibers with greater length and diameter than smooth muscle.
- Cross-striations (continuous, alternate dark and light bands)
- Numerous oval nuclei in close relation to sarcolemma. Nuclei eccentric in position.



Histophysiology of the Muscle tissue (Mechanism of Muscle Contraction)

- A nerve impulse via motor neuron arrives at the neuromuscular junction and lead to synaptic transmission.
- This generate a contraction mechanism.