

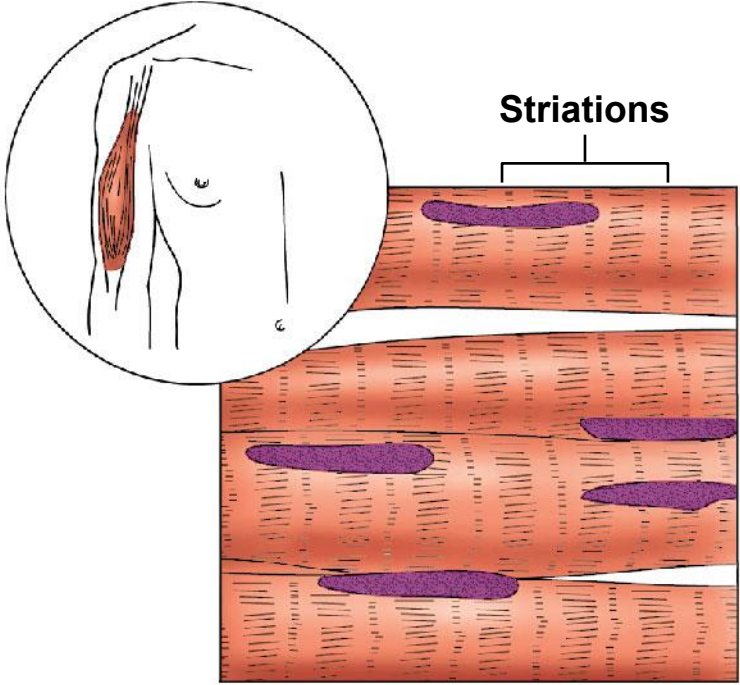
# Muscle Tissue Characteristics

- Muscle cells are also called **muscle fibers** because they are **elongated**
- Function is to **contract**, or shorten, to produce movement
- Three types of muscle tissue
  1. **Skeletal**
  2. **Cardiac**
  3. **Smooth**

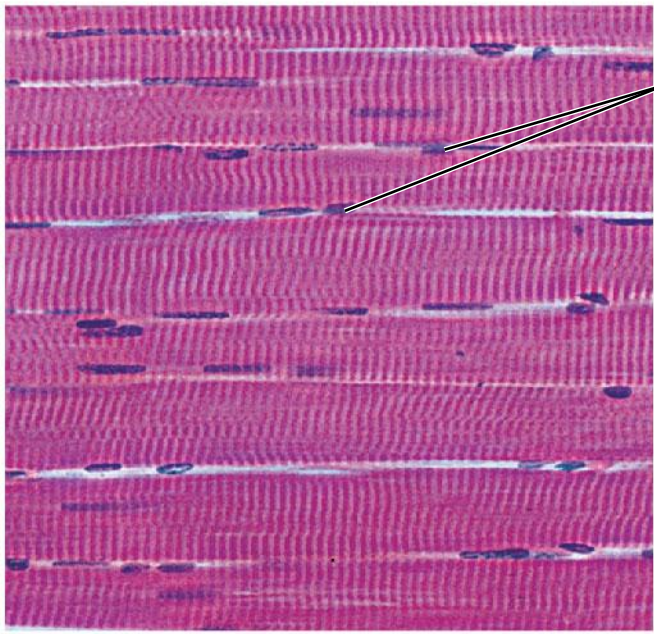
# Skeletal Muscle Tissue

- Structure: **Long, cylindrical shape, multinucleated, obvious striations (stripes)**
- Function: **Controls voluntary muscle contractions (movement and facial expressions)**
- Location: **Attaches to bones**

Figure 3.20a Types of muscle tissue and their common locations in the body.



**(a) Diagram:** Skeletal muscle



Multiple nuclei per fiber

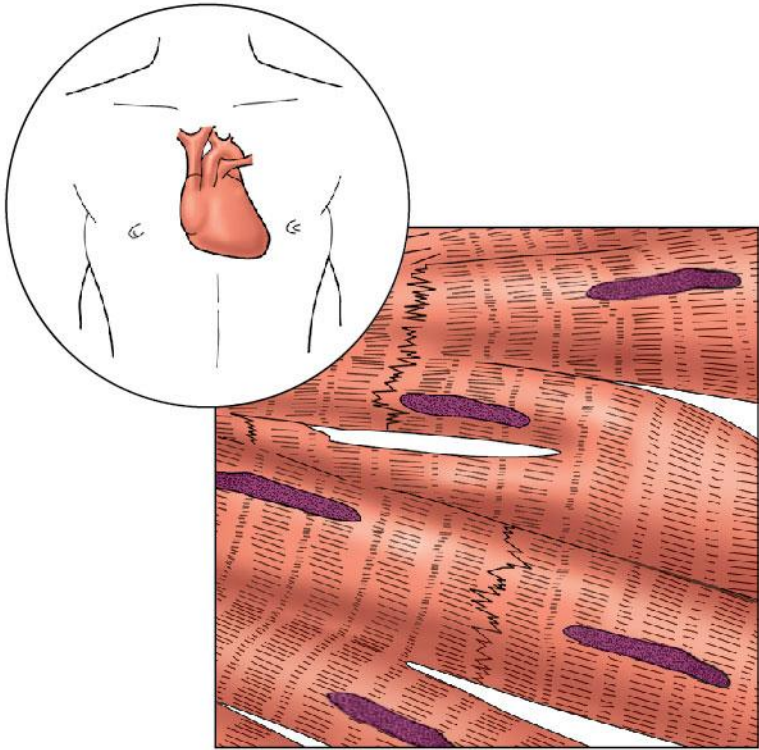
Part of muscle fiber

**Photomicrograph:** Skeletal muscle (195 $\times$ ).

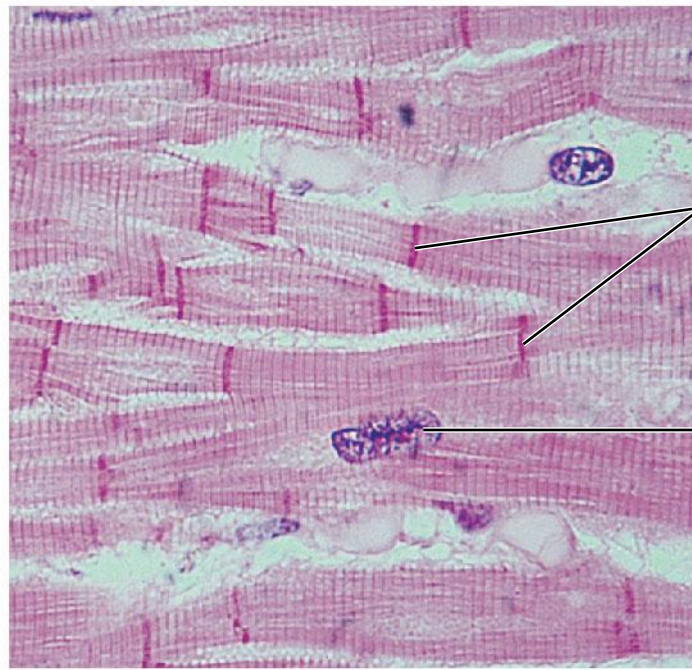
# Cardiac Muscle Tissue

- **Structure: Cells are branched with a single nucleus, striated (striped), joined by intercalated disks (junction that connects cells), forms branched network**
- **Function: Involuntarily controlled, pumps blood through blood vessels**
- **Location: Only in the heart**

Figure 3.20b Types of muscle tissue and their common locations in the body.



**(b) Diagram:** Cardiac muscle



Intercalated discs

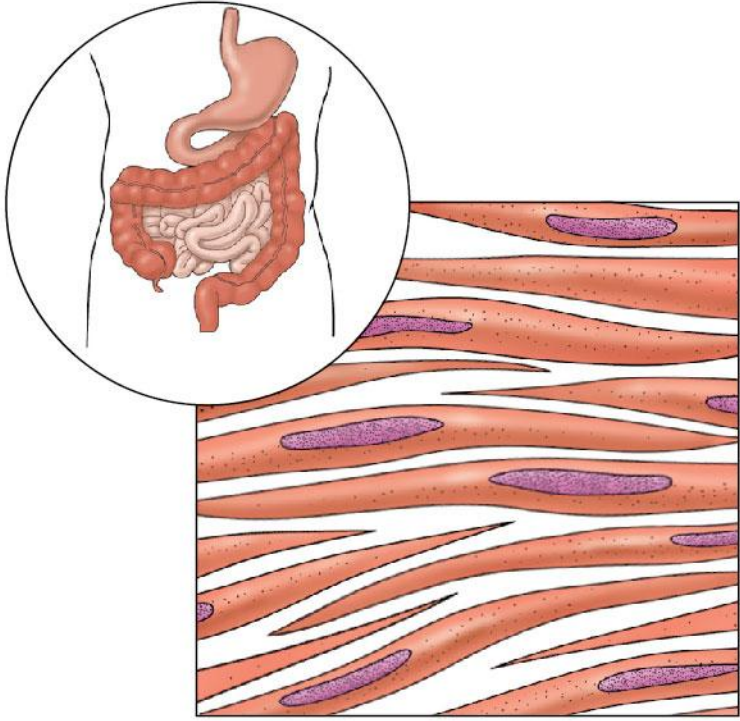
Nucleus

**Photomicrograph:** Cardiac muscle (475 $\times$ ).

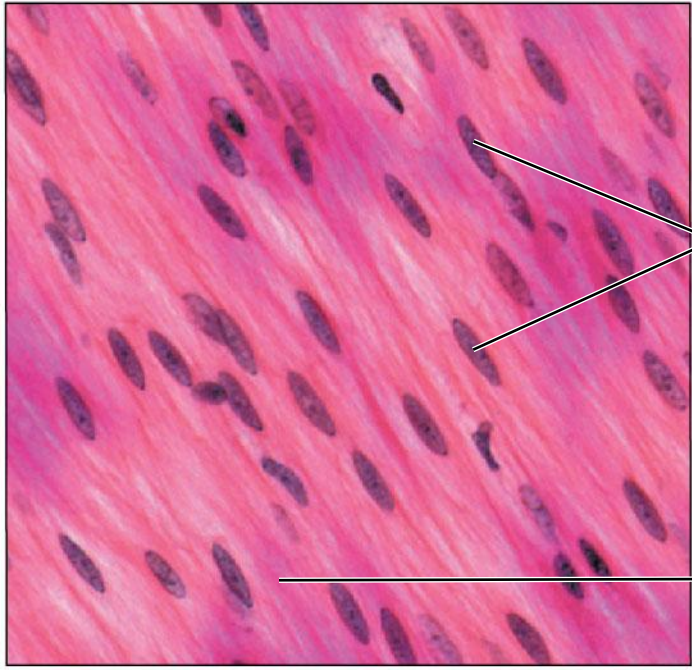
# Smooth Muscle Tissue

- Structure: **Spindle-shaped cells with a single nucleus, no visible striations**
- Function: **Involuntarily controlled**
- Location: **Walls of hollow organs such as stomach, uterus, and blood vessels**

Figure 3.20c Types of muscle tissue and their common locations in the body.



**(c) Diagram:** Smooth muscle



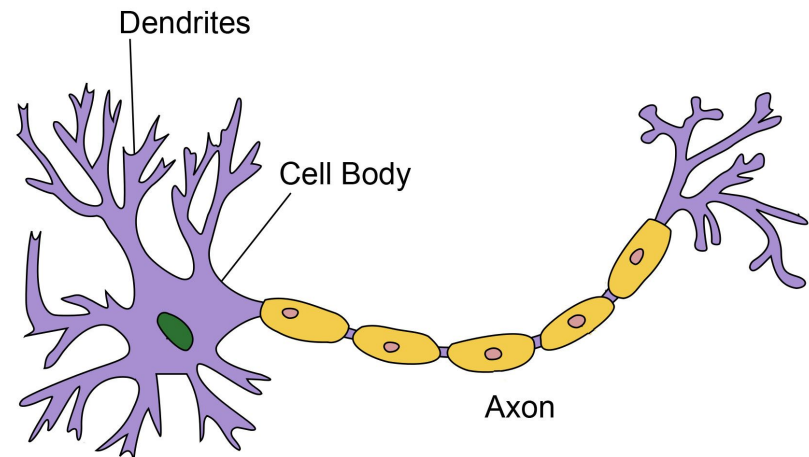
**Nuclei**

**Smooth muscle cell**

**Photomicrograph:** Sheet of smooth muscle (360 $\times$ ).

# Nervous Tissue

- **Structure: composed of cells called neurons and nerve support cells called neuroglia**
  - A neuron is composed of a **cell body, dendrites, and an axon**
    - Cell body: **contains nucleus and organelles**
    - Dendrites: **stimulated by incoming signals**
    - Axon: **conducts impulses away from cell body**
  - The neuroglia **insulate, support, and protect the delicate neurons**





# Nervous Tissue

- **Function: receive and conduct electrochemical impulses to and from body parts**
- **Location: brain, spinal cord, nerves**

