

Muscular System Functions

■ Produce Movement

- ✓ Muscles generate force required to cause movement by **contracting**

■ Maintain Posture

- ✓ Muscles function continuously to maintain an erect or seated posture despite **gravity**

■ Generate Heat

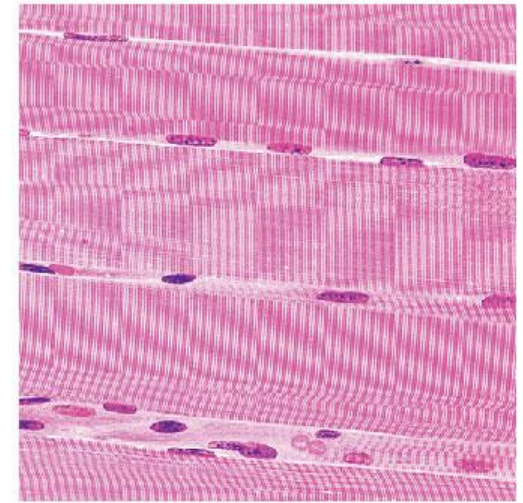
- ✓ As **ATP** is used to power muscle contraction, nearly 75% of its energy escapes as heat

Types of Muscles

- Three basic muscle types are found in the body:
 1. **Skeletal muscle**
 2. **Cardiac muscle**
 3. **Smooth muscle**

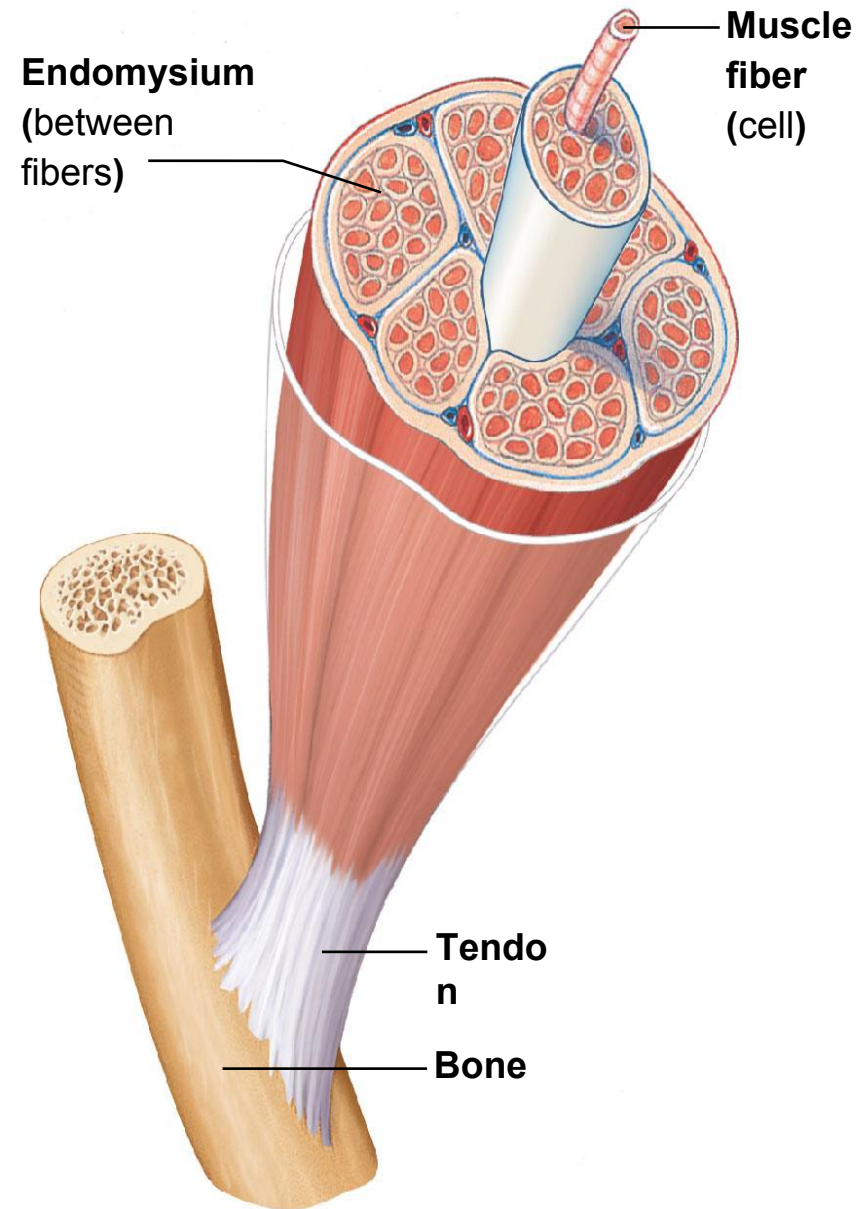
Skeletal Muscle

- Structure: **Long, cylindrical shape, multinucleated, obvious striations (stripes)**
- Function: **Controls movement and facial expressions**
- Location: **Attaches to bones**
- Regulation of Contraction: **Voluntary via nervous system control**



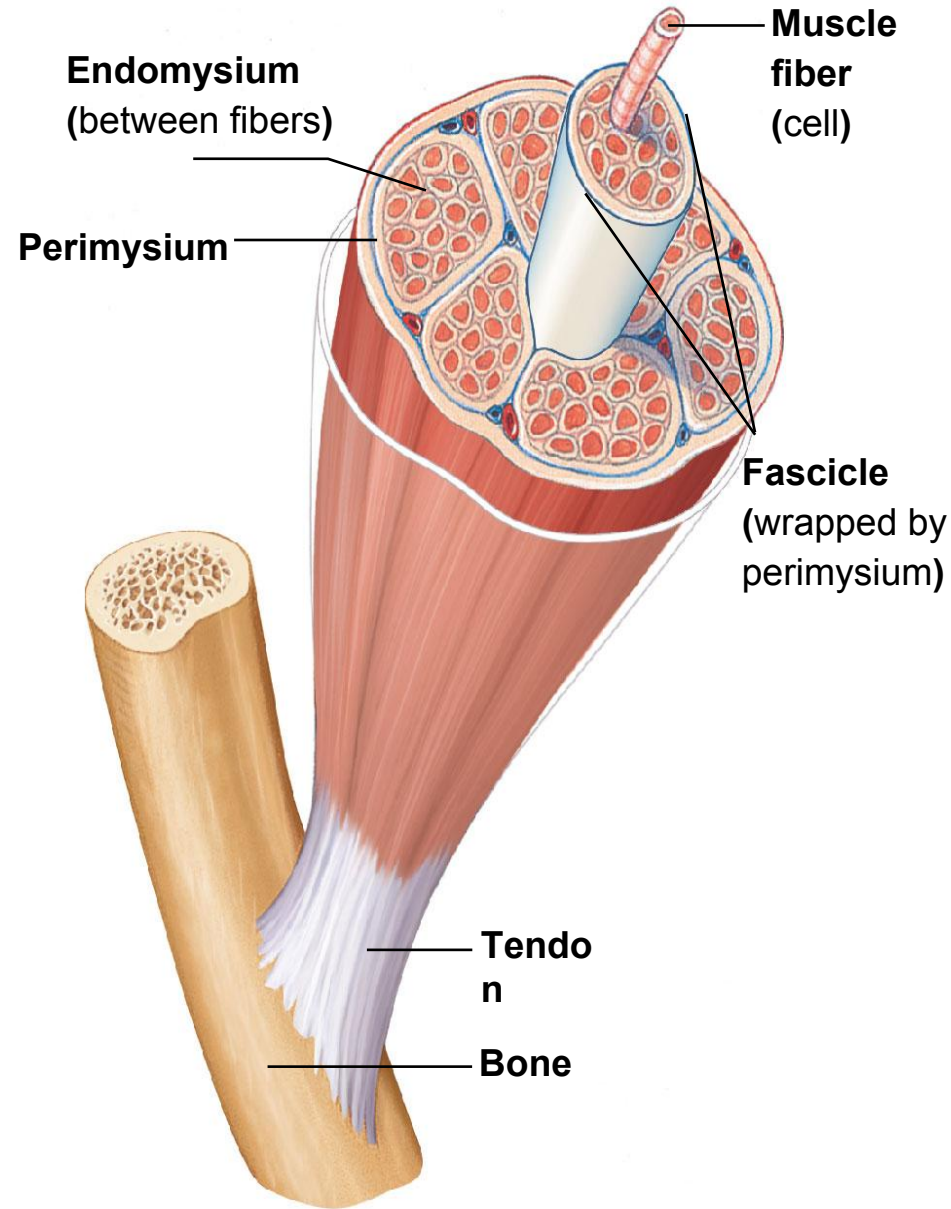
Skeletal Muscle

- Skeletal muscle cells are surrounded and bundled by **connective tissue**
 - ✓ **Endomysium** - encloses a single muscle fiber (cell)



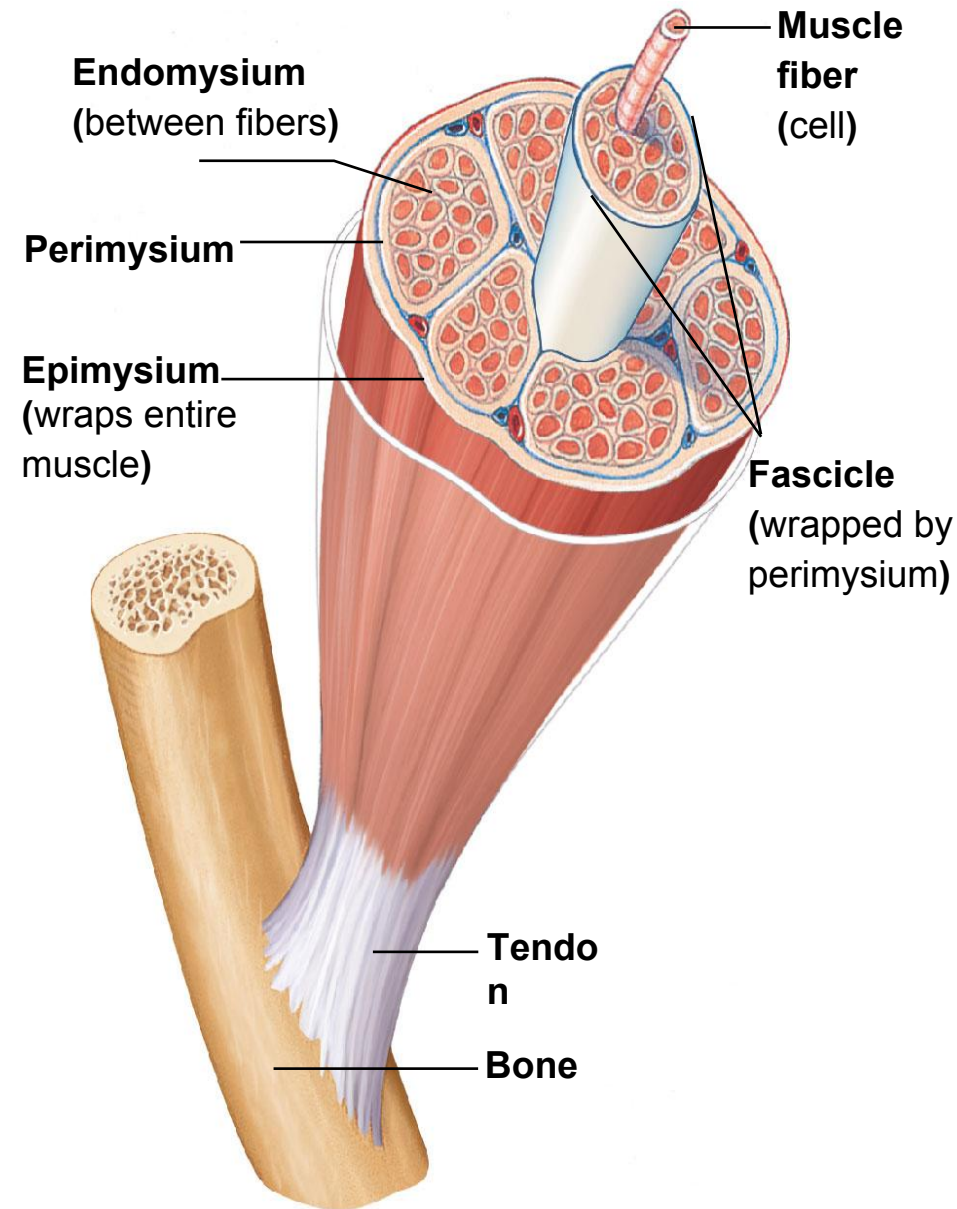
Skeletal Muscle

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 - ✓ **Endomysium** - encloses a single muscle fiber (cell)
 - ✓ **Perimysium** - wraps around a **fascicle** (bundle) of muscle fibers



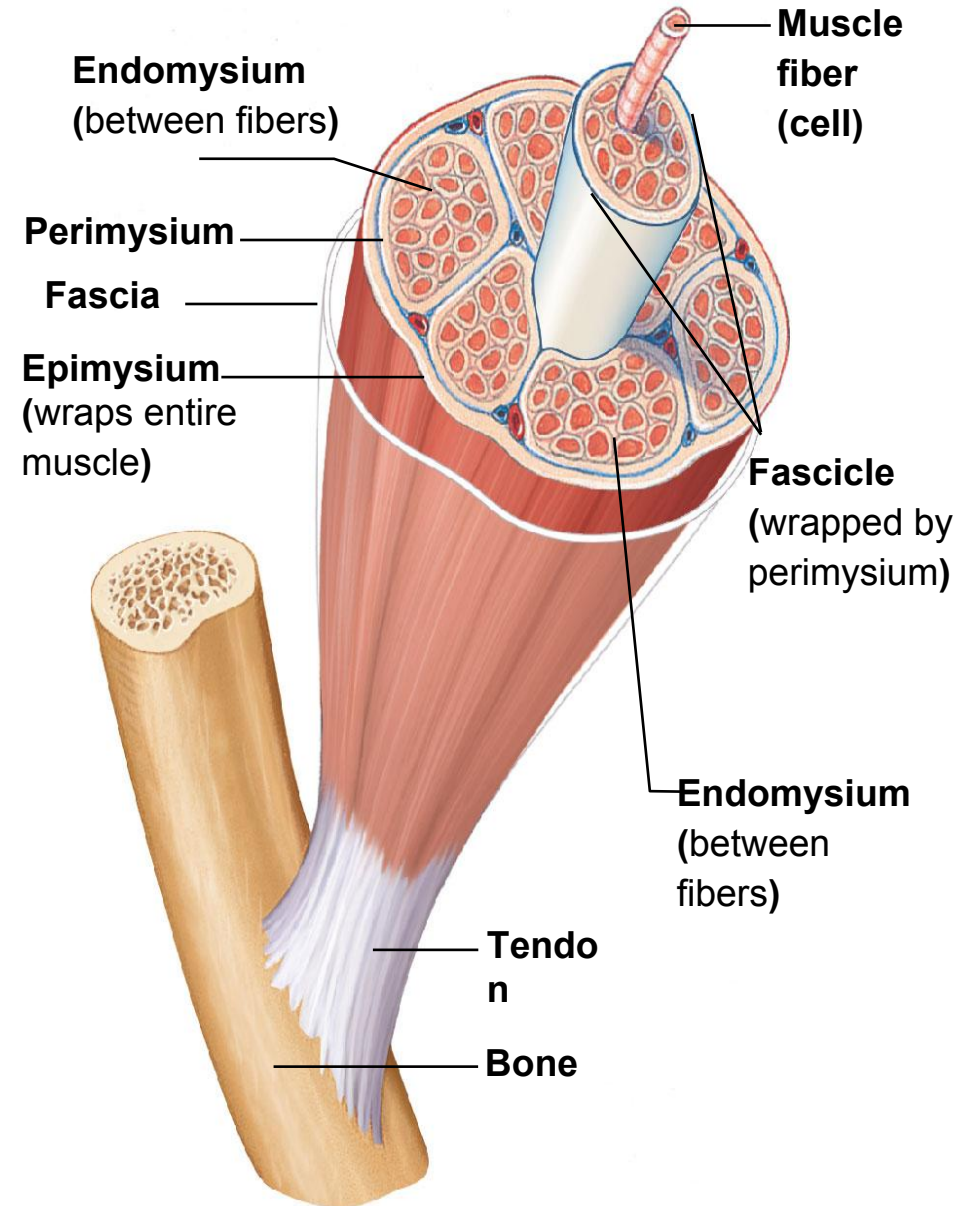
Skeletal Muscle

- Skeletal muscle cells are surrounded and bundled by **connective tissue**
 - ✓ **Endomysium** - encloses a single muscle fiber (cell)
 - ✓ **Perimysium** - wraps around a fascicle (bundle) of muscle fibers
 - ✓ **Epimysium** - covers the entire skeletal muscle



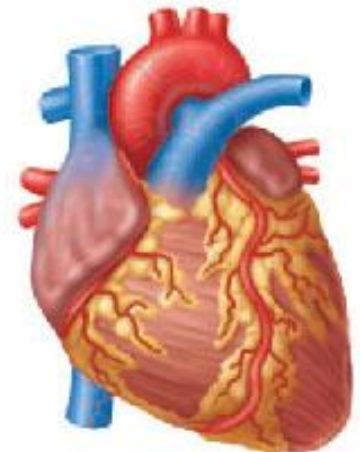
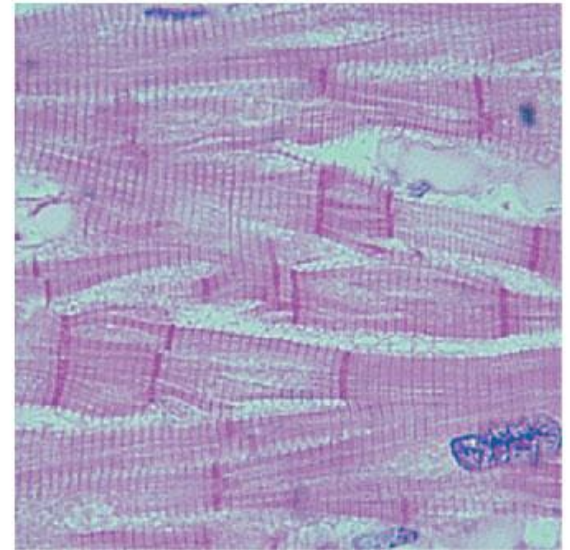
Skeletal Muscle

- Skeletal muscle cells are surrounded and bundled by **connective tissue**
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 - ✓ **Perimysium** - wraps around a fascicle (bundle) of muscle fibers
 - ✓ **Epimysium** - covers the entire skeletal muscle
 - ✓ **Fascia** - on the outside of the epimysium



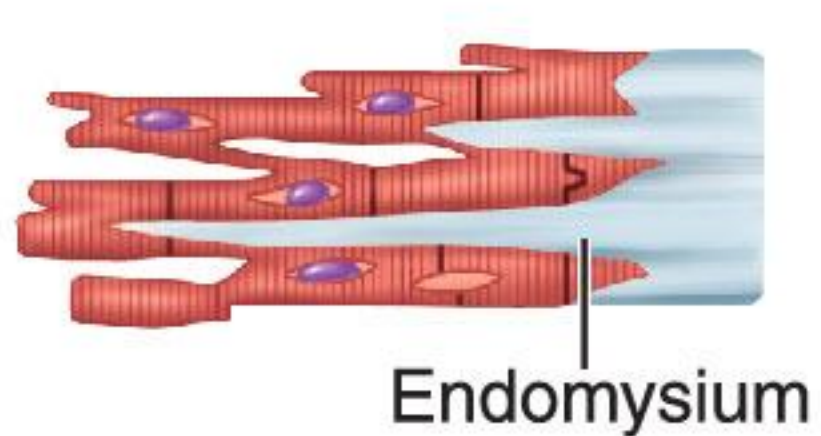
Cardiac Muscle

- Structure: **Branched, single nucleus, striated, joined by intercalated disks forming a network**
- Function: **Pumps blood through blood vessels**
- Location: **Only in the heart**



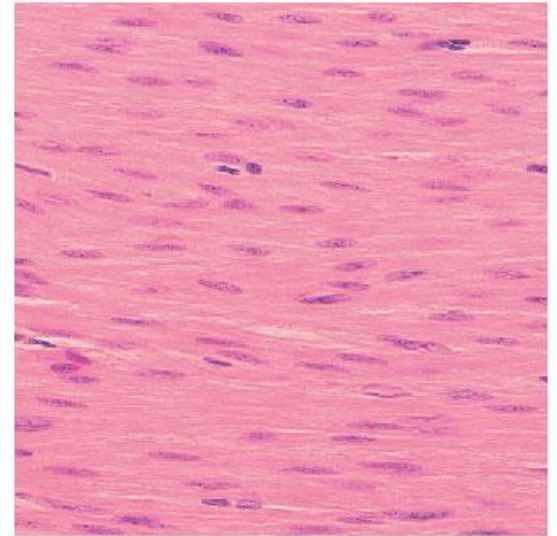
Cardiac Muscle

- Regulation of Control:
Involuntary via the heart's pacemaker; also nervous system and hormonal control
- Connective Tissue
Components: **Endomysium attached to the fibrous skeleton of the heart**



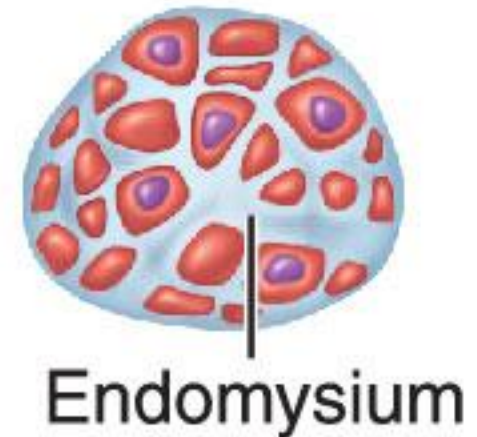
Smooth Muscle

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



Smooth Muscle

- Regulation of Control: **Involuntary via nervous system and hormonal control; also chemical and mechanical stimuli**
- Connective Tissue Components: **Surrounded by endomysium**



Exit Slip

- Read the directions on your exit slip and choose from the following material list:

- Material list:

- ✓ Cotton
- ✓ Saran Wrap
- ✓ Aluminum Foil
- ✓ Pipe Cleaner
- ✓ Press-n-Seal

