



Chapter 9

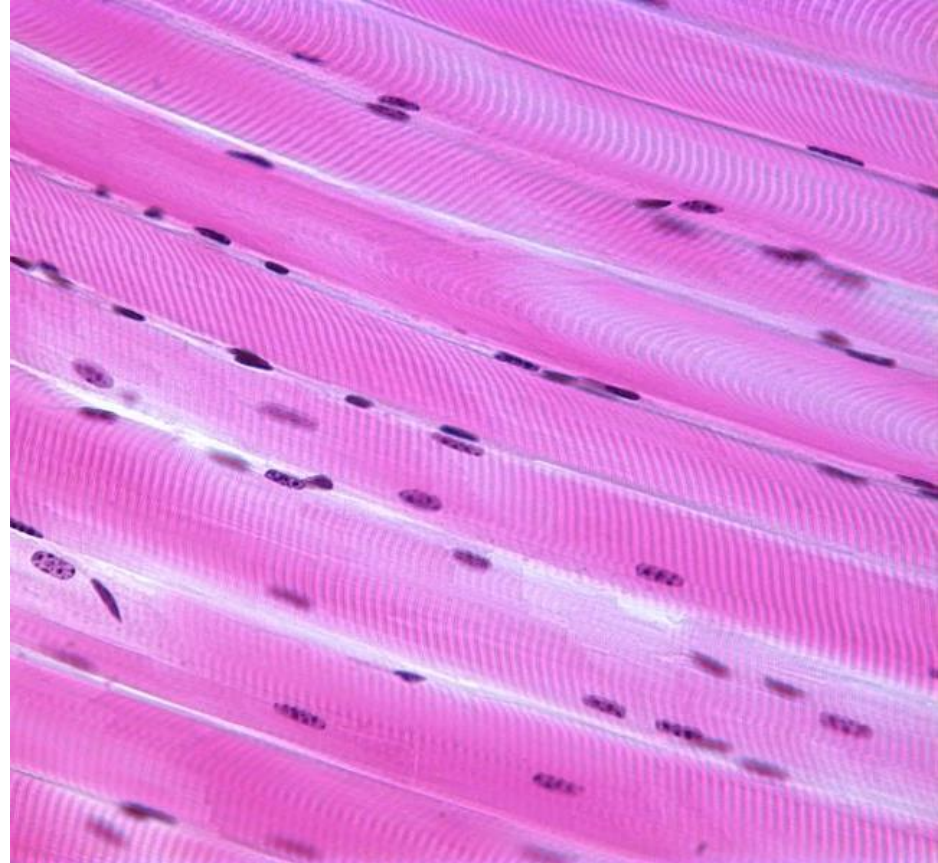
Muscles and Muscle Tissue

Types, Coverings, & Gross Anatomy



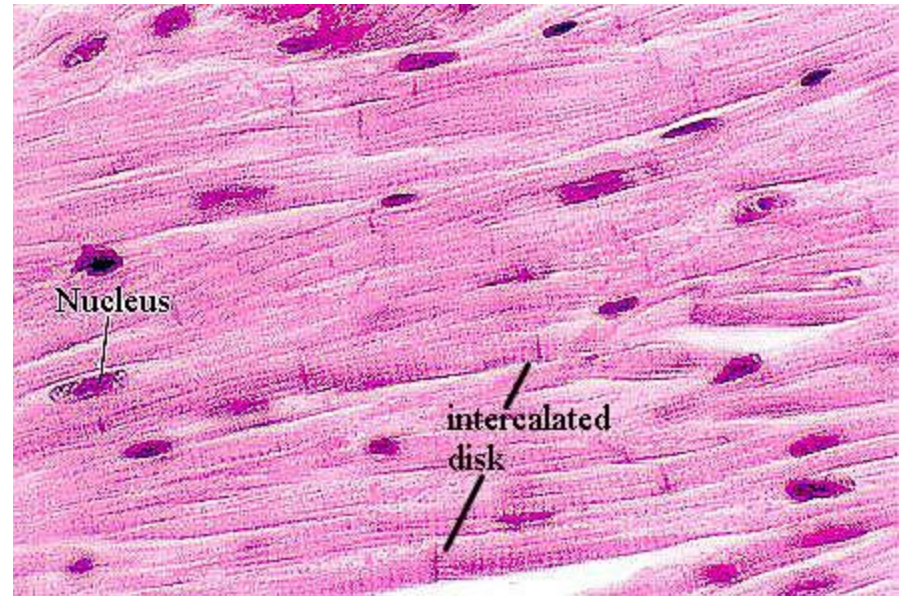
Types of Muscle Tissue

- **Skeletal Muscle**
 - Attach to and cover the bony skeleton
 - Has longest fibers
 - Have stripes → striations
 - Voluntary muscle – subject to our conscious control
 - Can contract rapidly, but tires easily; adaptable



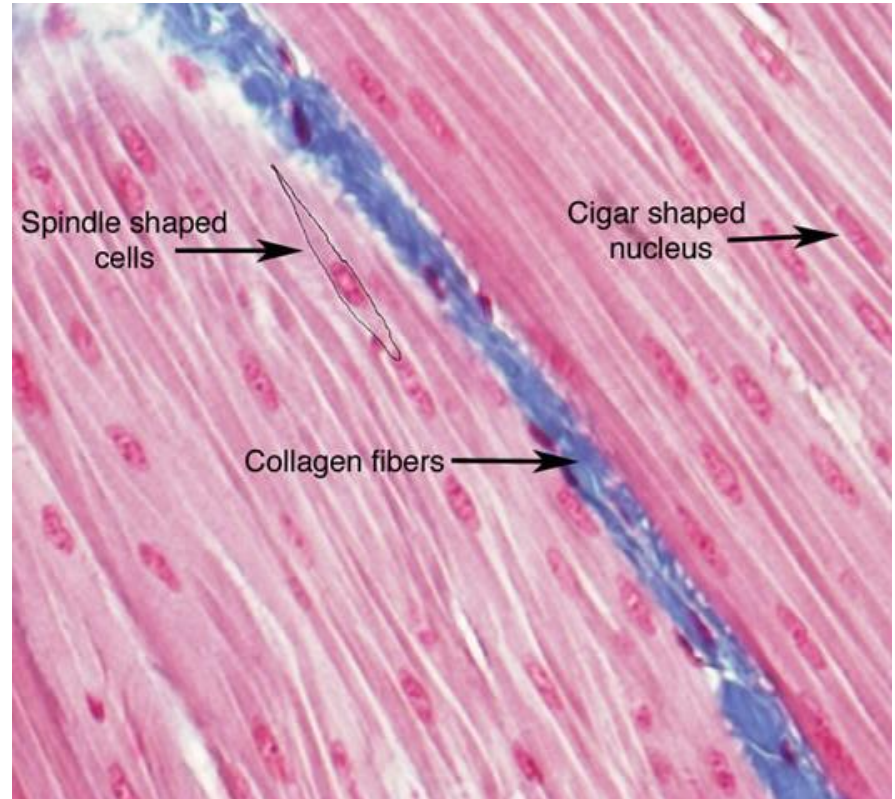
Types of Muscle Tissue

- **Cardiac Muscle**
 - In the heart → most of the mass of heart walls.
 - Striated – intercalated discs
 - Involuntary muscle
 - Contracts at a fairly steady rate



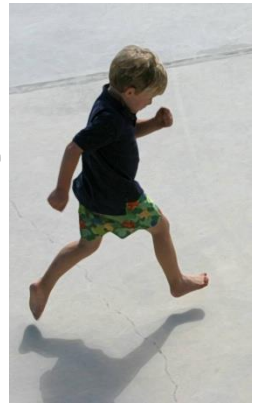
Types of Muscle Tissue

- **Smooth Muscle**
 - Wall of hollow visceral organs (stomach, urinary bladder, resp passages)
 - No striations
 - Involuntary muscle
 - Contractions are slow and sustained

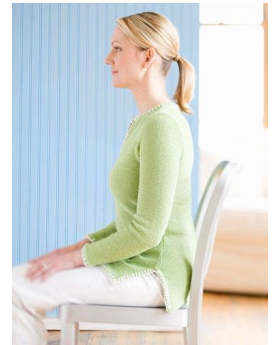




Functions of Skeletal Muscle



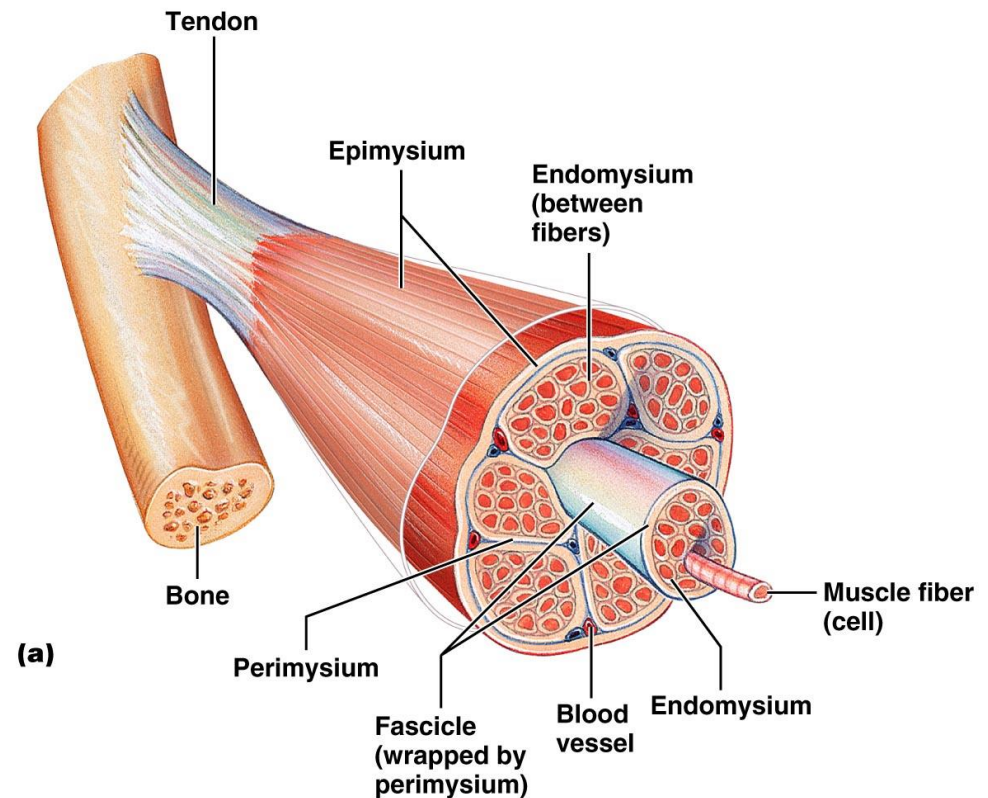
- **Produces movement**
 - Skeletal muscle contractions pull on tendons and moves the bones of the skeleton
- **Maintains posture**
 - Tension in our skeletal muscles maintains body posture
 - Example: holding your head up, standing
- **Generates heat**
 - Generate heat as they contract
 - Important in maintaining normal body temperature
 - Released through integumentary system
- **Stabilizes joints**
 - Tendons of muscles extend over the joint



Skeletal Muscle – Gross Anatomy

Connective Tissue Wrappings

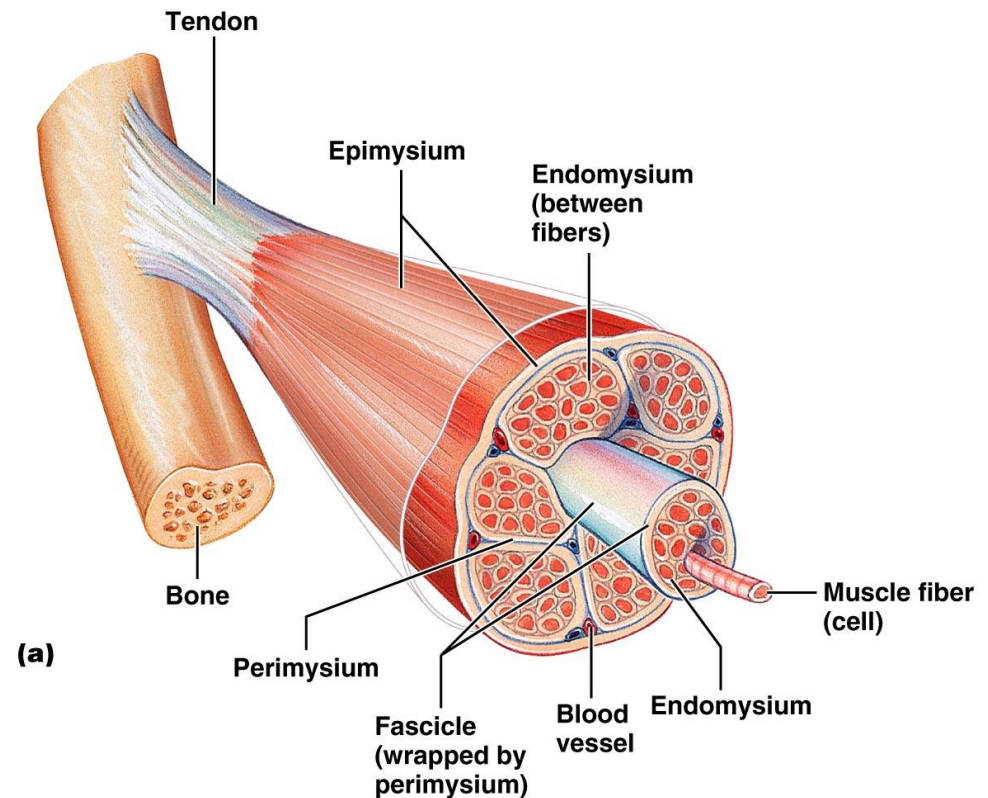
- **Epimysium (“outside the muscle”)**
 - Surrounds the entire muscle
 - Composed of dense irregular connective tissue



Skeletal Muscle – Gross Anatomy

Connective Tissue Wrappings

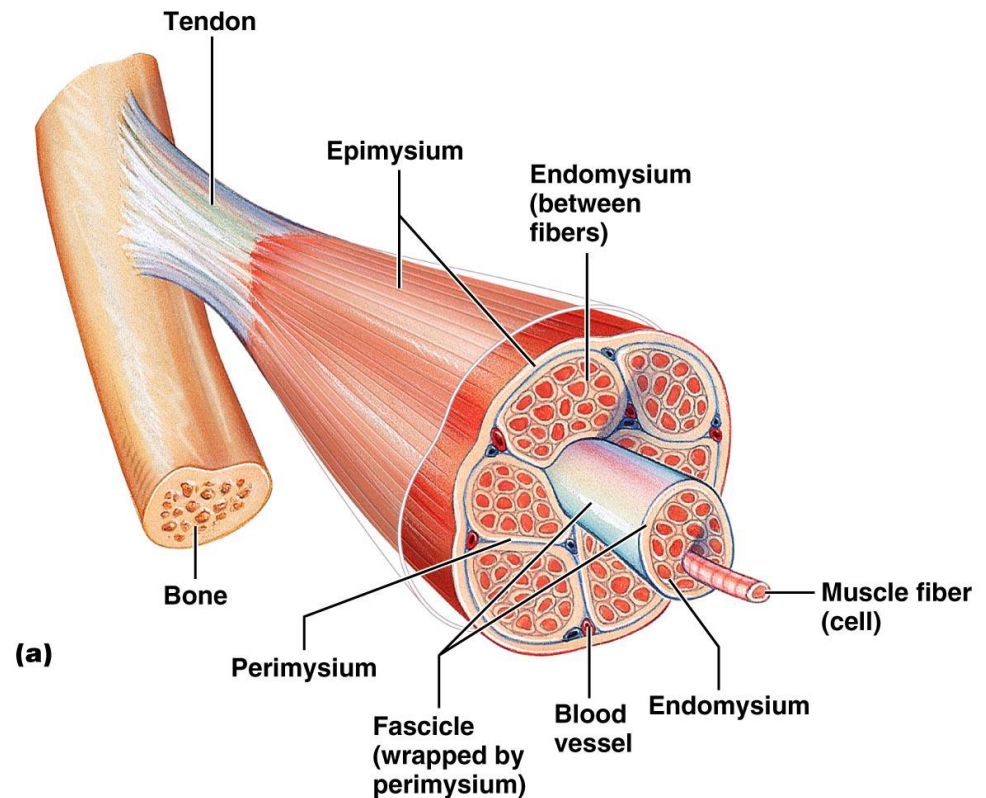
- **Perimysium (middle)**
 - Surround the fascicles
 - Fascicles – bundles of muscle fibers



Skeletal Muscle – Gross Anatomy

Connective Tissue Wrappings

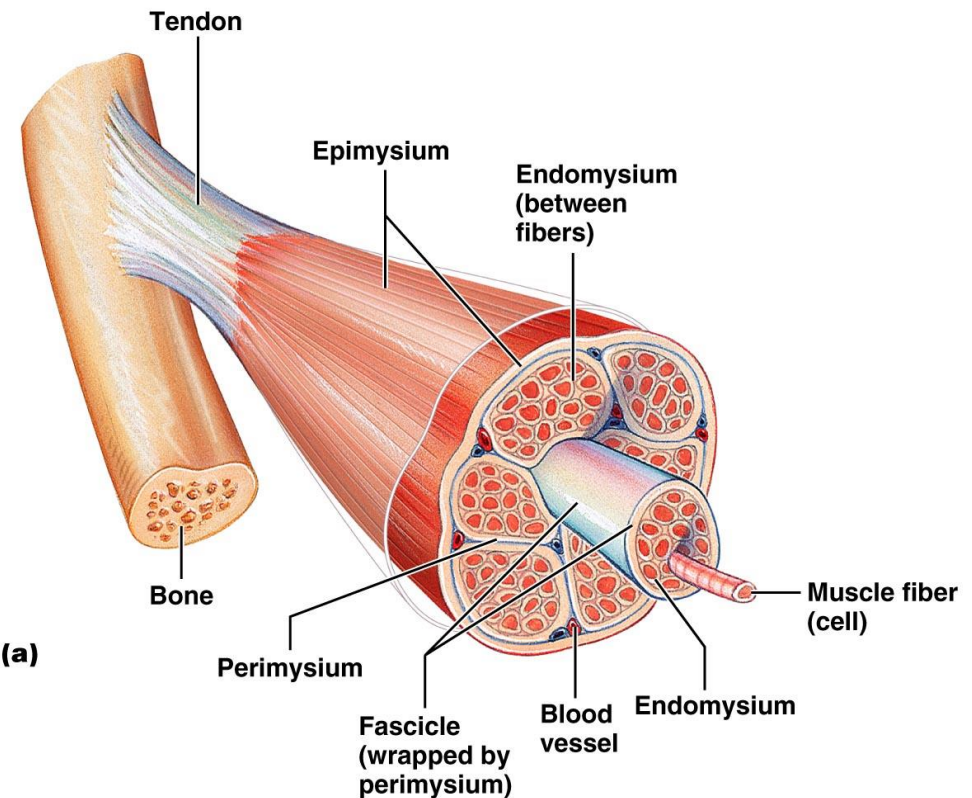
- **Endomysium**
(“within the muscle”)
 - Surrounds individual muscle fibers



Skeletal Muscle – Gross Anatomy

Tendons

- Attach muscle to bones
 - Collagen fibers from all the coverings are interwoven with the periosteum and extend into the bone matrix, providing a firm attachment
 - Any contraction of the muscle will pull on its tendon thereby exerting a pull on the bone



Skeletal Muscle – Gross Anatomy

Nerves

- Skeletal muscles can only contact with stimulation from the CNS
- Nerves are seen throughout each layer of muscle
- Generally served by only one nerve



Skeletal Muscle – Gross Anatomy

Blood Supply

- Generally served by one artery and by one or more veins.
- Contracting muscle fibers use huge amounts of energy and give off large amounts of metabolic wastes → need a continuous supply of blood!

