

Module 8 LO2

Skeletal Muscle Anatomy

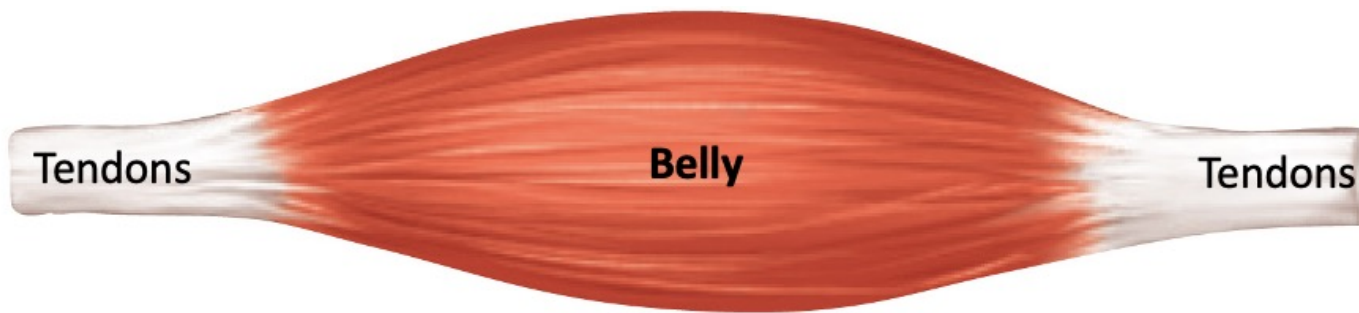
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[Video Recording Link](#)

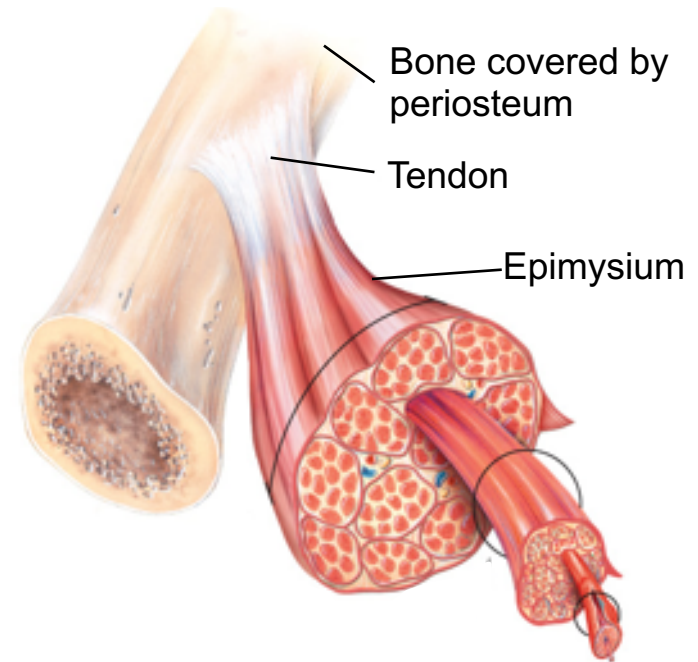
2. Skeletal Muscle Anatomy

- Each skeletal muscle is a separate organ
 - Composed of hundreds - thousands of skeletal muscle cells called muscle fibers
 - Red color - blood vessels
- Anatomy of skeletal muscle
 - Consists of body (belly) connected by tendons to the skeleton



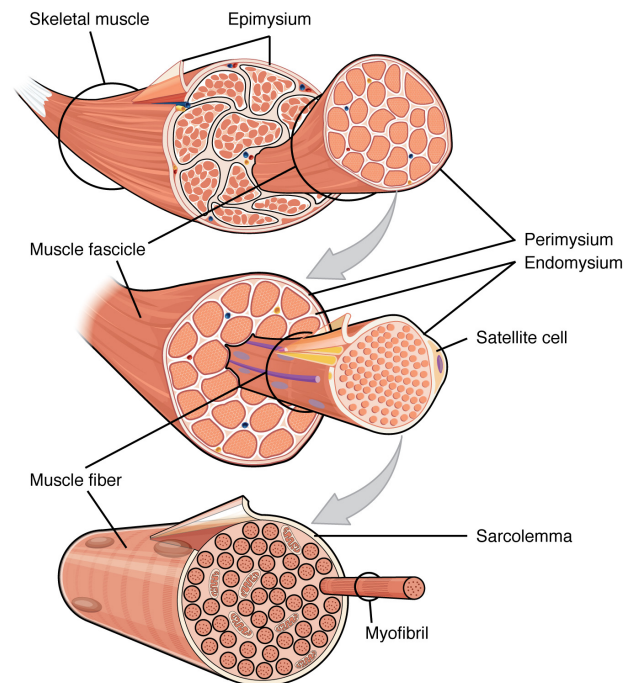
Tendons

- Tough, glistening white dense regular connective tissue
 - Attaches muscles to bones
 - Minimally vascular
 - Lack muscle cells
 - Consist of collagen fibers
 - Ex. Aponeuroses – flat tendon sheet

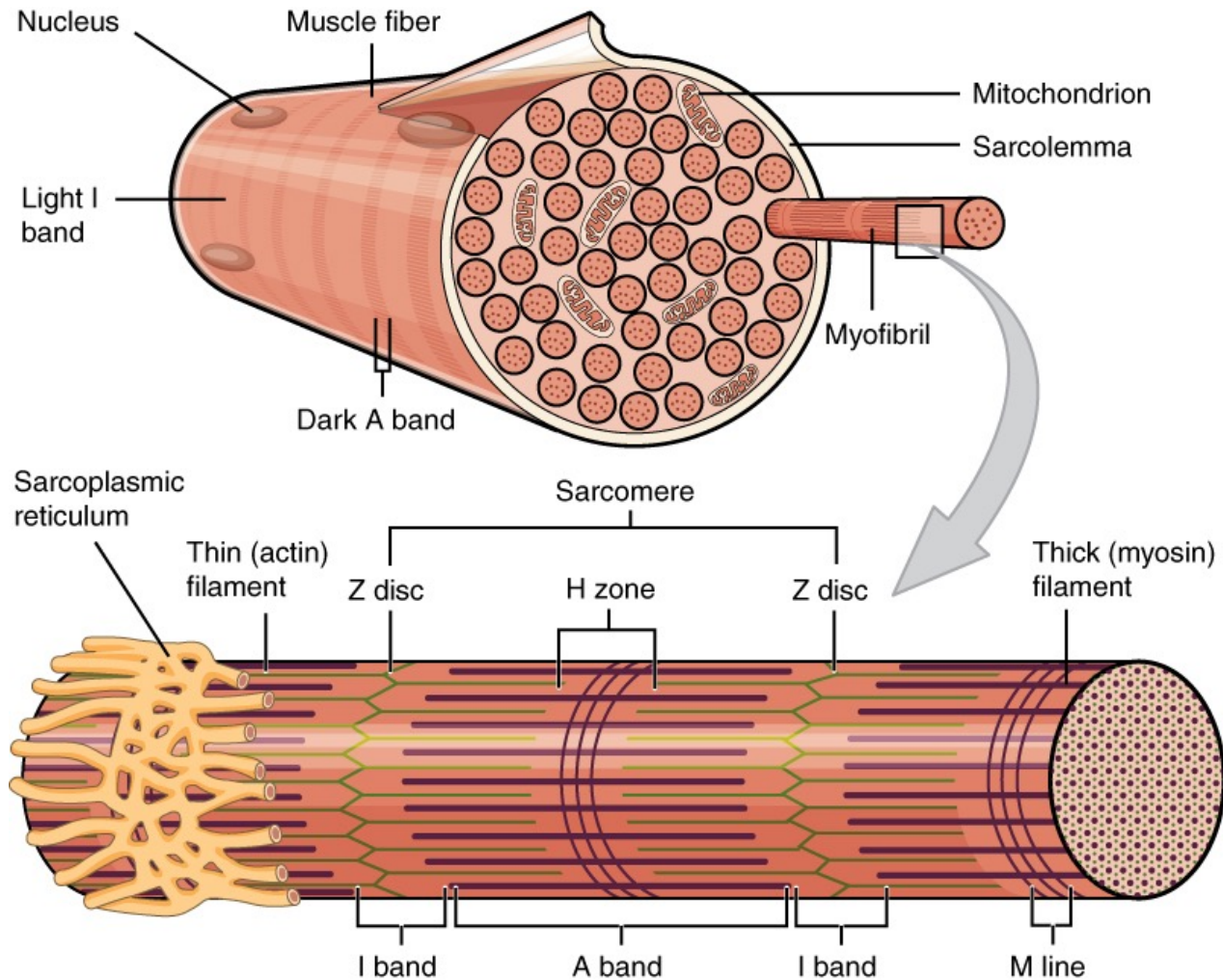


Connective Tissue Layers

- Endomysium – covers muscle fibers (formed by myofibrils)
- Perimysium – covers fascicles (bundles of muscle fibers)
- Epimysium – covers skeletal muscle (bundles of fascicles)

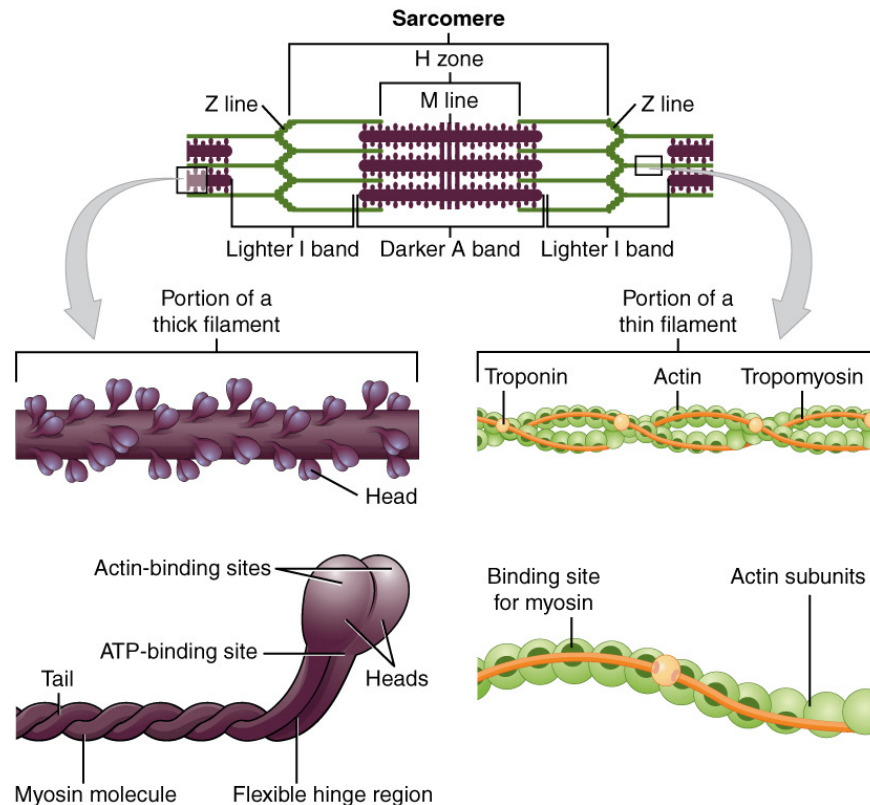


Skeletal Muscle Fibers



Sarcomere

- Skeletal muscle fiber's functional unit
- Region from one Z-line to the next Z-line

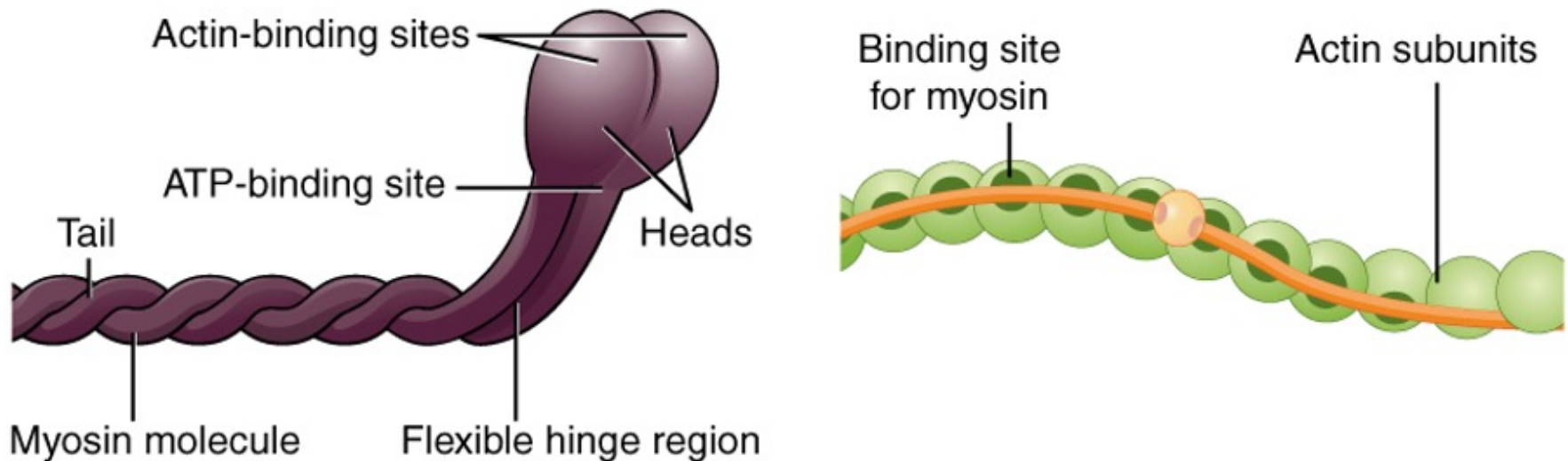


Muscle Proteins

- Myofibrils are built from three kinds of proteins:
 - A. Contractile proteins
 - Generate force during contraction
 - B. Regulatory proteins
 - Help switch the contraction process on and off
 - C. Structural proteins
 - Keep thick and thin filaments aligned
- All proteins:
 - Give myofibrils elasticity and extensibility
 - Link myofibrils to sarcolemma and extracellular matrix

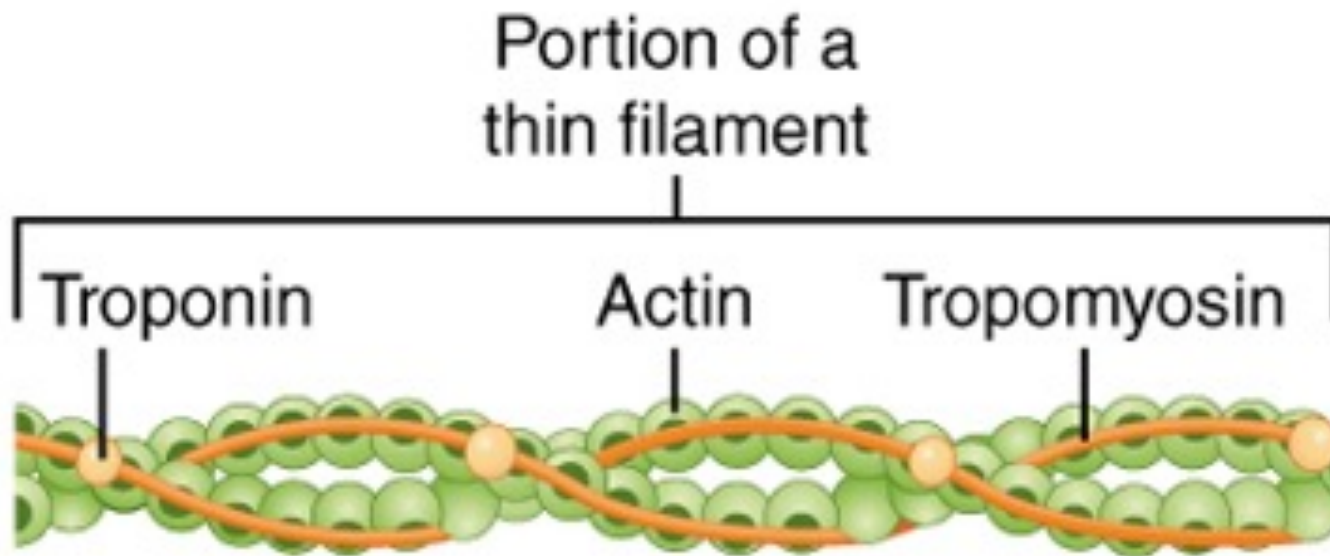
A. Contractile Proteins

- Myosin is the major component of thick filaments
- Actin is the major component of thin filaments



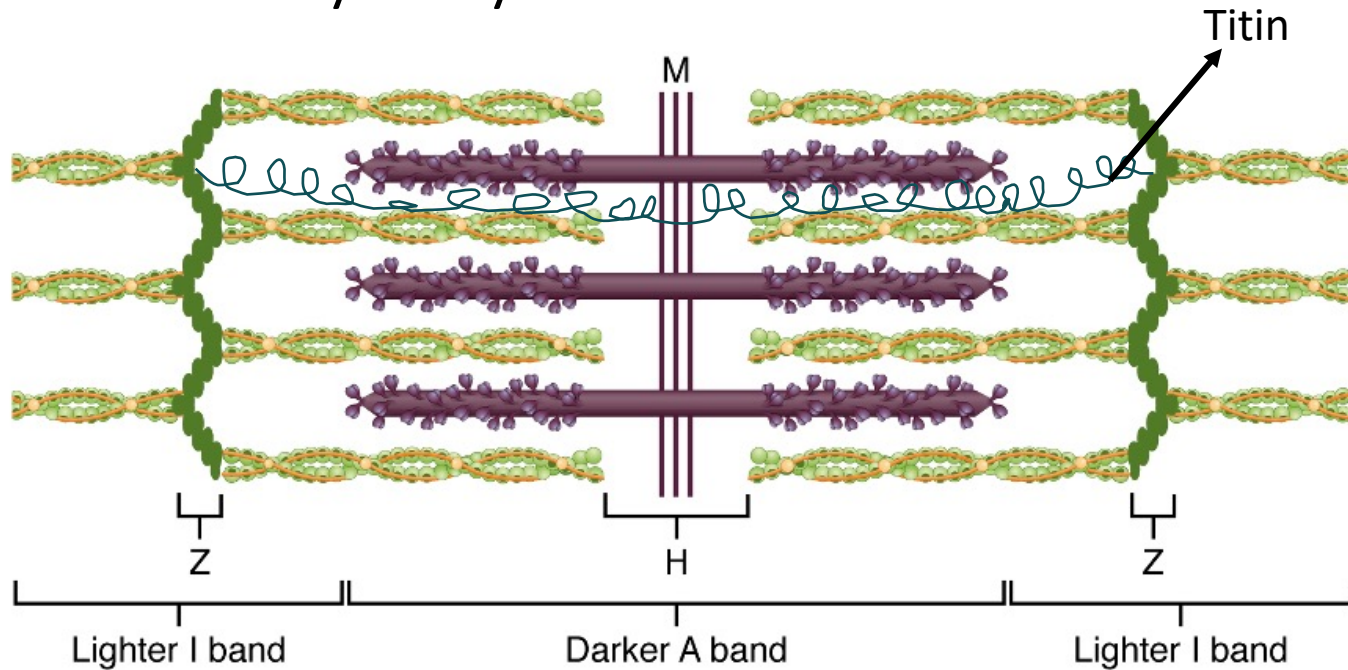
B. Regulatory Proteins

- Tropomyosin – covers myosin-binding sites
- Troponin – holds tropomyosin in place



C. Structural Proteins

- Titin, myomesin, nebulin, and dystrophin
 - Contribute to alignment, stability, elasticity and extensibility of myofibrils



The Neuromuscular Junction (NMJ)

- Synapse (communication)
 - Between a somatic motor neuron + skeletal muscle fiber
- Somatic Motor neuron
 - Axon terminal
 - Synaptic end bulb
 - Synaptic vesicles
 - Neurotransmitter
 - Acetylcholine
- Synaptic cleft
 - Space in NMJ
- Skeletal muscle fiber
 - Motor end plate
 - region of the sarcolemma opposite the synaptic end bulbs

