PHARM.D • YEAR 1

Human Anatomy & Physiology

CHAPTER 15

Skeletal Muscles

PPT CHAPTER COVER



DOCTOR OF PHARMACY

SKELETAL MUSCLE HISTOLOGY

Histology of Skeletal Muscle

- Voluntary, striated muscle made of long, cylindrical fibers.

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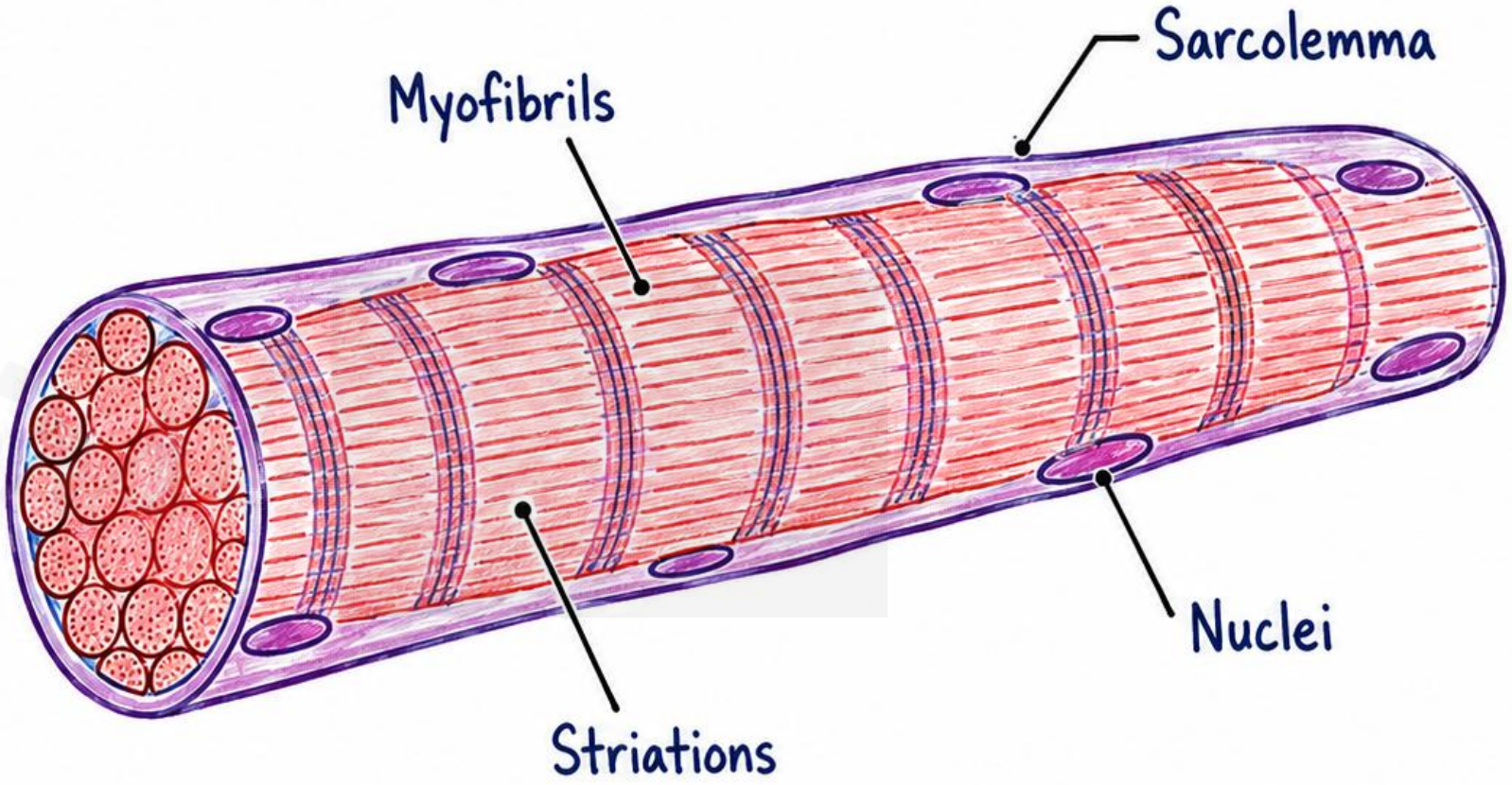
Microscopic Structure of Skeletal Muscle Fiber

- Parallel myofibrils produce cross-striations.

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Muscle Fiber (Cell)

- Multinucleated, single cell enclosed by sarcolemma.



Skeletal muscle fiber is a long, multinucleated cell containing parallel myofibrils that create cross-striations.

SARCOLEMMA AND SARCOPLASM

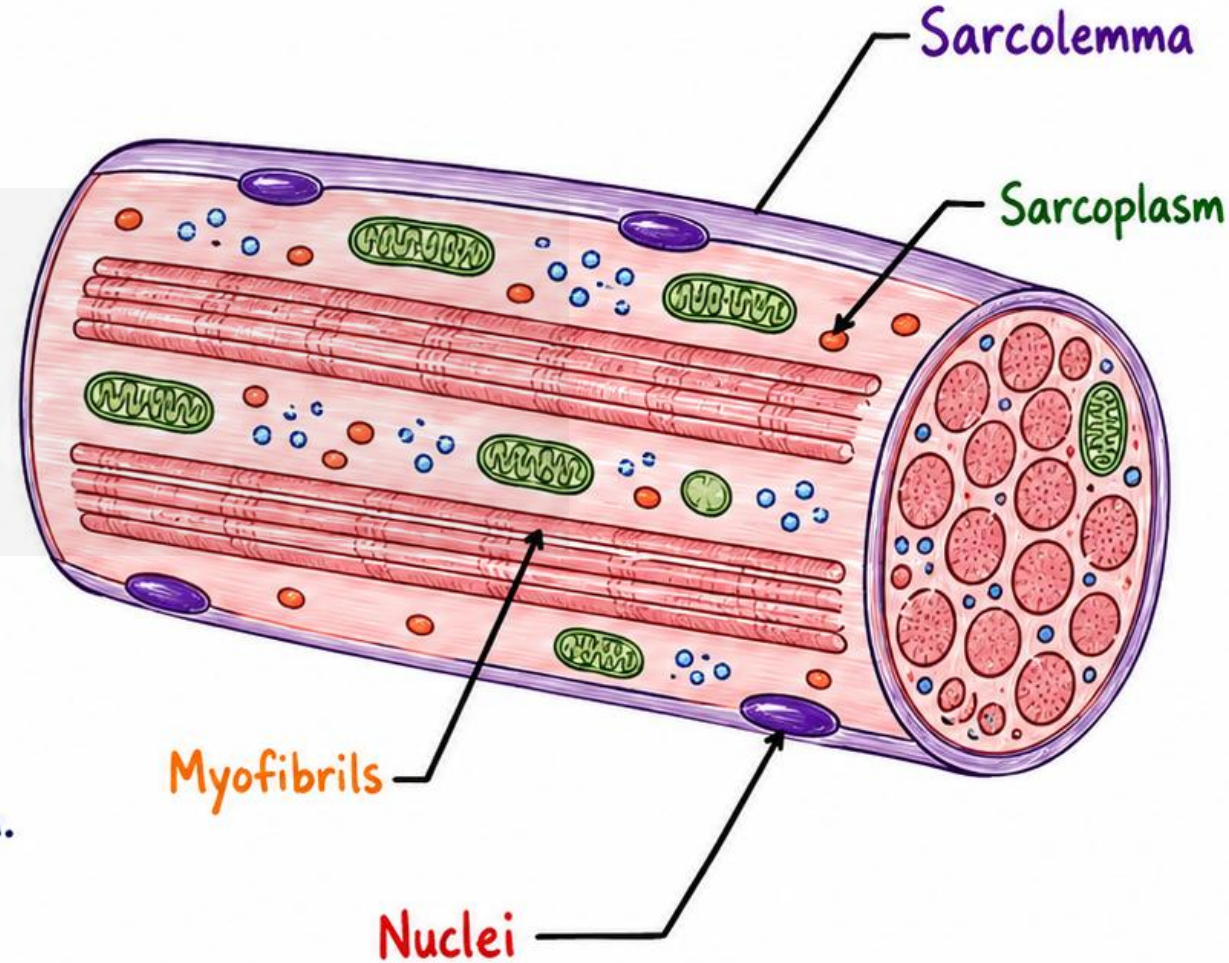
SARCOLEMMA → Plasma membrane of the muscle fiber.

SARCOPLASM → Cytoplasm containing:

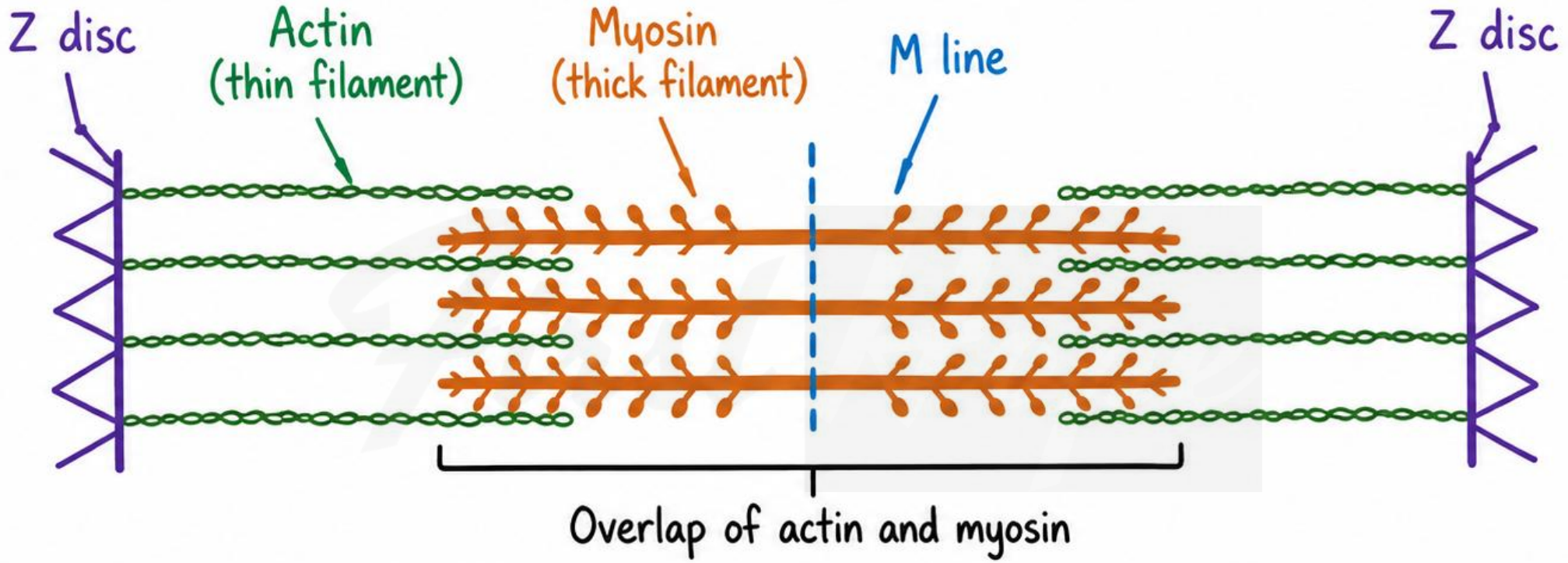
- Mitochondria (abundant for ATP production)
- Myoglobin (oxygen-binding protein)
- Glycogen granules (energy storage)
- Myofibrils (contractile elements)

MYOFIBRILS → Rod-like structures filling most of the sarcoplasm.

NUCLEI → Multiple, oval, peripherally located just under the sarcolemma.



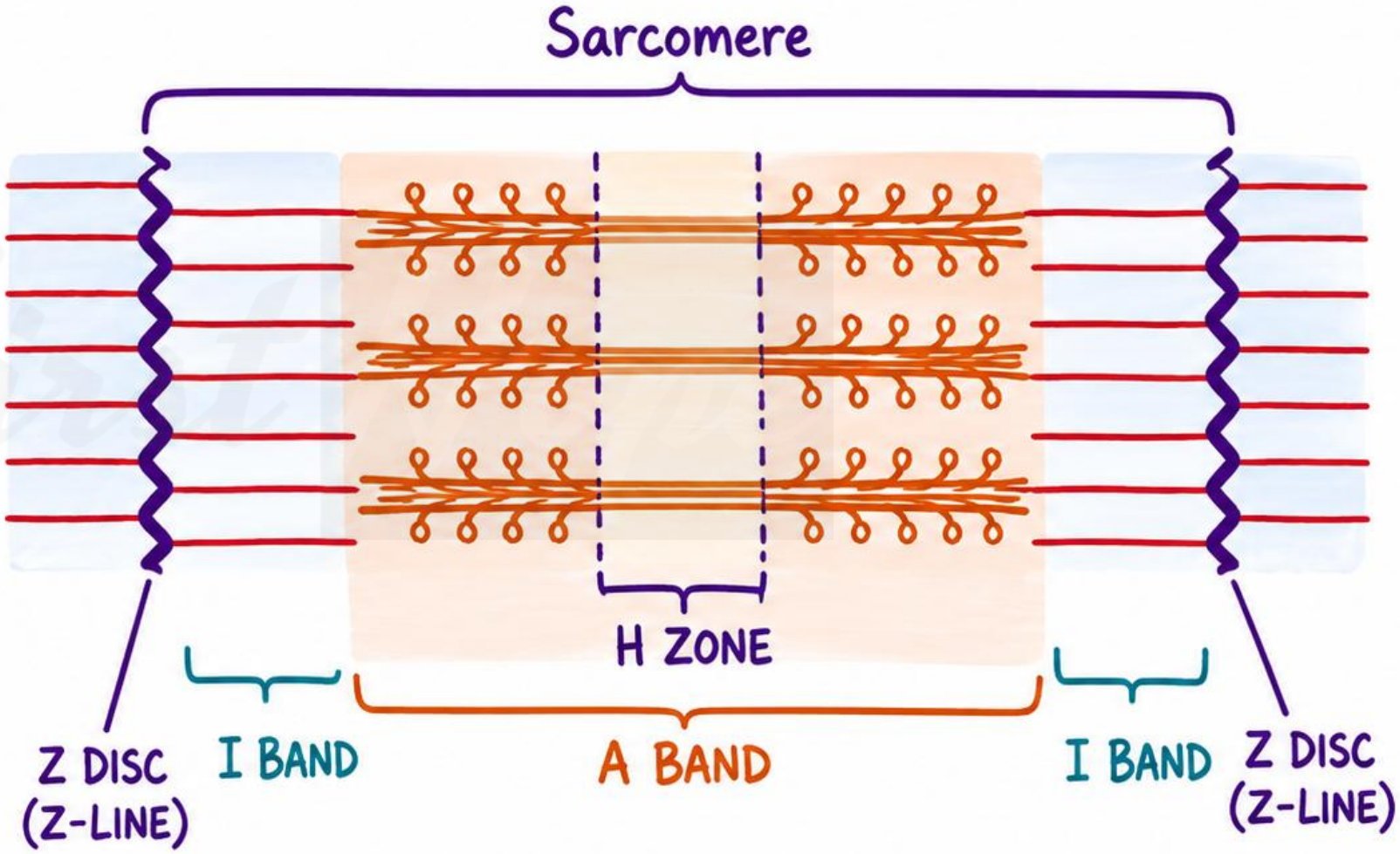
SARCOMERE STRUCTURE



- A sarcomere extends from one Z disc to the next.
- Thin actin filaments anchor at each Z disc; thick myosin filaments lie centrally.
- Their overlap creates the banding pattern.

A BAND, I BAND, H ZONE AND Z DISC

- A BAND: Dark band corresponding to the length of thick filaments (myosin).
- I BAND: Light band containing thin filaments (actin) only.
- H ZONE: Central lighter region within A band; contains only myosin.



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