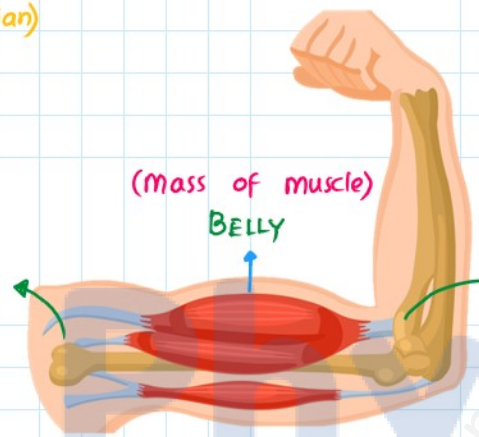
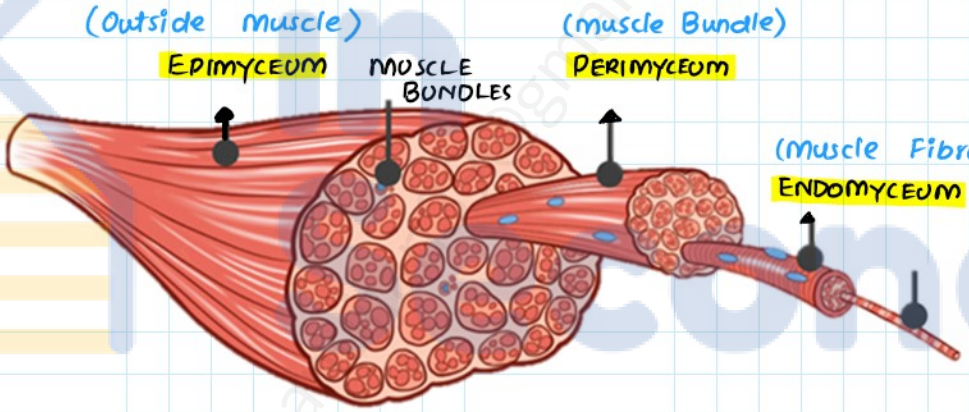
Structure of a Skeletal Muscle

Which are attached with bones.

- SKELETAL MUSCLE (Discrete Organ)





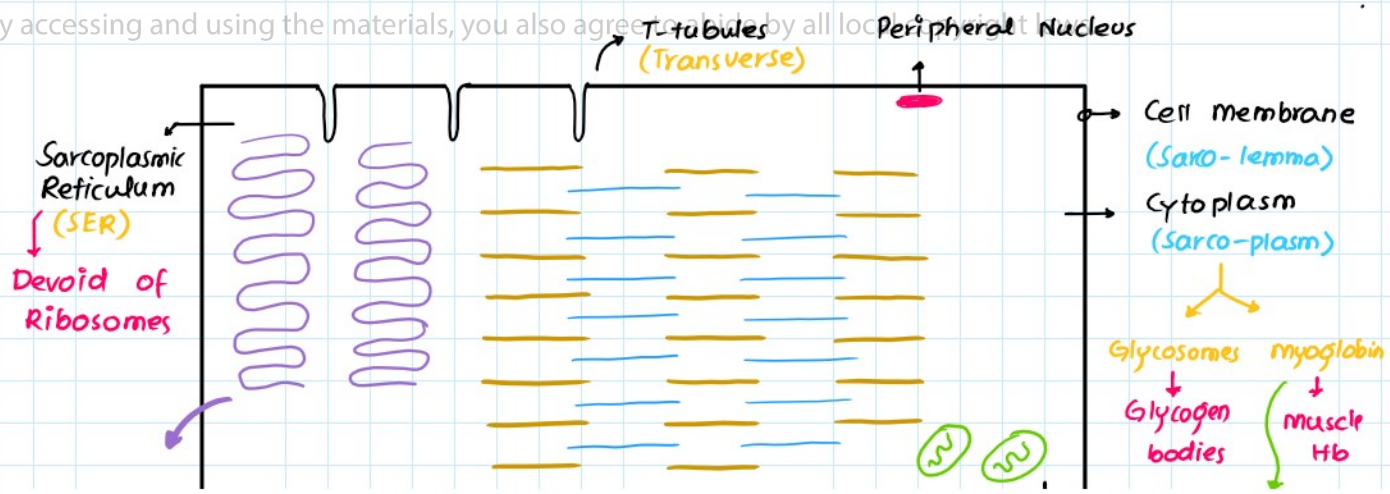
MUSCLE FIBRE → MYOFIBRILS → MYOFILAMENTS

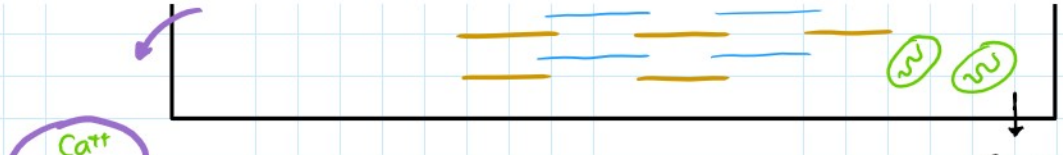
(10–100 μm) (1–2 μm)

- 10X greater than average body cell

MYOFILAMENTS → THICK (16 nm), THIN (7–8 nm)

- 15 nm BTB





Glycogen bodies

muscle Hb

O_2 - binding protein

Ca^{++}

Pores (Passive)

Pumps (Active)

Sarcosomes (mitochondrias of muscle)

(can Polarize light)

Anisotropic

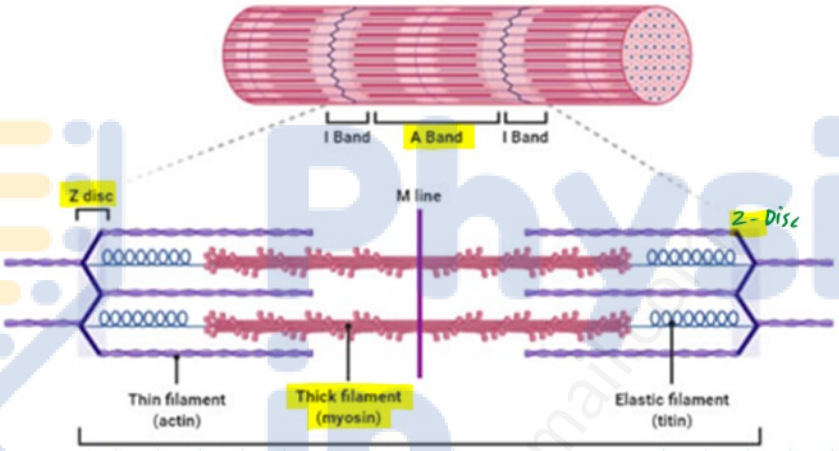
(A) - BAND

- Thick filament
- Thin filament

Isotropic (can't Polarize)

(I) - BAND

- Thin filament

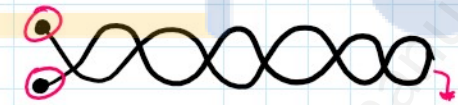


SARCOMERE (Basic Contractile unit)

THICK FILAMENT (16nm)

→ Myosin Protein

→ Mechano - Enzyme



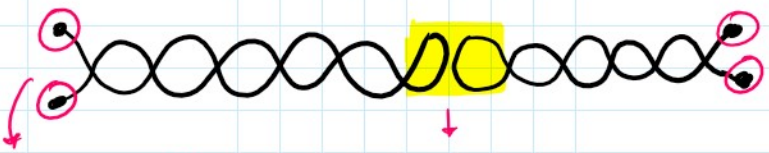
Cross Bridges

Head

Tail

→ ATP Hydrolytic Activity

- Each myosin molecule → 6 Polypeptides
- Each Thick filament → 300 molecules



Cross Bridges Head

Central Part (Tails of Myosin)

THIN FILAMENT (7-8 nm)

G-Actin (Monomer) → Actin (2)

F-Actin (Polymer) → Tropomyosin (2) → Covers attach. site

→ Troponin

→ Troponin

Attachment site

Troponin (C) → Calcium ion

Troponin I / A

- Attaches with Actin

→ Inhibitory Sub-unit

Troponin (T)

- Attaches with Tropomyosin

- Tropomyosin (40 - 60 molecules)