YAKEEN 2.0 NEET 2024

- Subject - ZOOLOGY
- Chapter – STRUCTURAL ORGANISATION IN ANIMALS

Lecture No.-07

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Today's Targets

1. Muscular Tissue
2. Neural Tissue
3.
4.
5.

Specialised CT

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Fluid CT

- Blood
- Lymph (body fluid)

Blood pH :- 7.4 | amount ~5lt

→ Connective tissue

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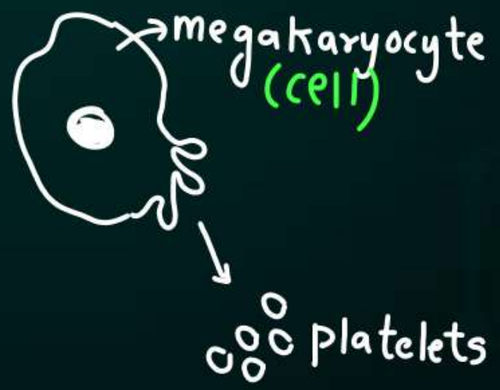
1. Cells (Formed elements) 45%
   1. RBC (Red blood corpuscles)
   2. WBC (White blood corpuscles)
   3. Platelets (cell fragments)

2. Extracellular matrix (Plasma) 55% → Liquid part

* False connective tissue → Blood ??

(i) Cells do not make extracellular matrix

(ii) Blood का extracellular matrix do not contain protein fibres

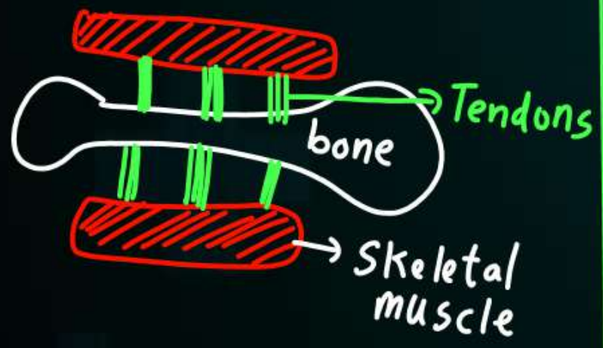


Muscular tissue

Our body has 3 kinds of Muscles :-

Skeletal Muscles

- ✓ These are attached to our bones
- ✓ As bones form our skeletal system, hence these muscles are called skeletal muscles



Smooth muscle (visceral muscle)

→ Are found in internal organs or visceral organs eg stomach, small intestine, Uterus

Cardiac muscle

→ Present in our Heart

→ Part of Heart made up of cardiac muscle is called myocardium

Muscular tissue

Our body has 3 kinds of Muscles :-

Skeletal Muscles

* Voluntary Muscle
Their contraction and relaxation is under control of our will power

* Striated muscle / Striped muscle

Smooth muscle (visceral muscle)

Involuntary muscle

- Contraction and relaxation is not under our control or will power

- Non / Unstriated muscle

Cardiac muscle

Involuntary muscle

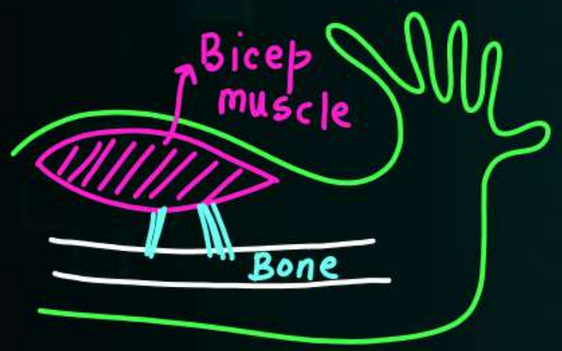
- Faintly striated

Muscular tissue

Our body has 3 kinds of Muscles :-

Skeletal Muscles

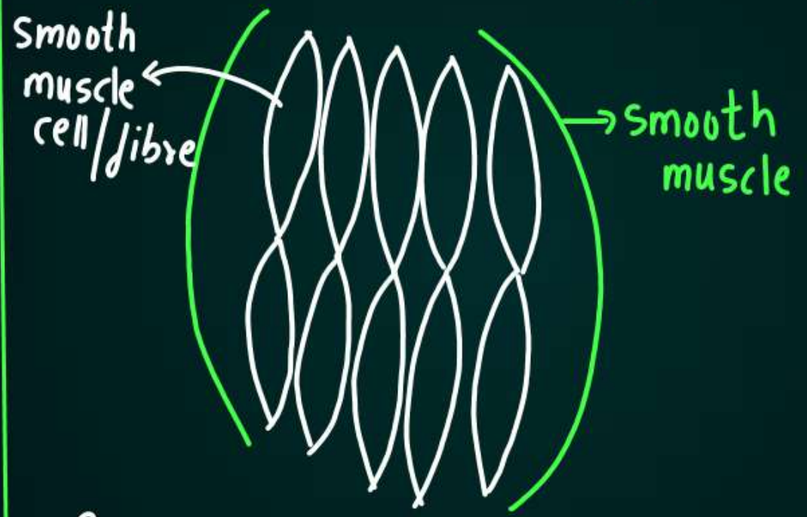
Skeletal muscle eg bicep



Is made up of many skeletal muscle cells

Skeletal muscle cell = Skeletal muscle fibre

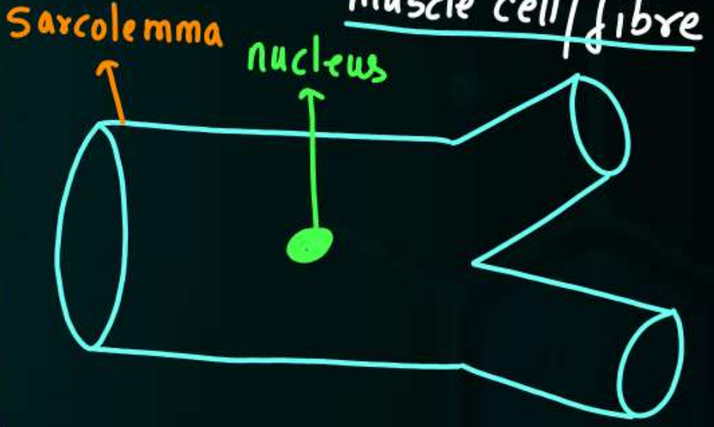
Smooth muscle (visceral muscle)



Smooth muscle contain many smooth muscle cells/fibres

Cardiac muscle

Contains many cardiac muscle fibres/cells



→ cylindrical and branched

→ Uninucleate

→ Specialised plasma membrane or Sarcolemma tnt

Skeletal muscle (bicep)

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contain many skeletal muscle cells / fibres

⊙ Skeletal muscle fibre / cell

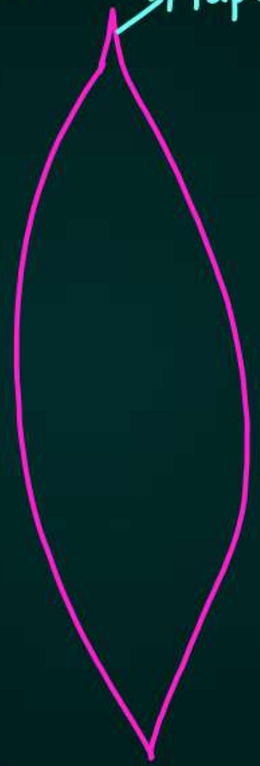
✓ Cylindrical shaped

✓ Multinucleated

! Sarcolemma is specialised plasma membrane of skeletal muscle cell / fibre.

Smooth muscle

Smooth muscle cell / fibre



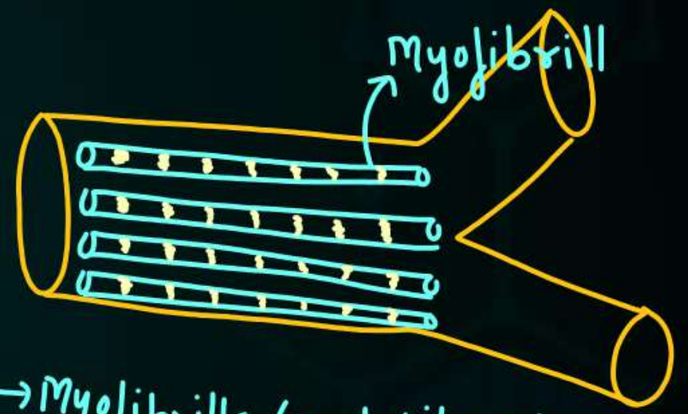
→ Spindle Shaped

—wide in middle with pointed ends (tapering ends)

→ Smooth muscle fibre/cell is fusiform ie it has tapering ends.

Cardiac muscle

Cardiac muscle cell / fibre



→ Myofibrills (rod like structures) present inside cardiac muscle fibre

→ Myofibril contain dark and light bands but very faint Striations.

Skeletal muscle (bicep)

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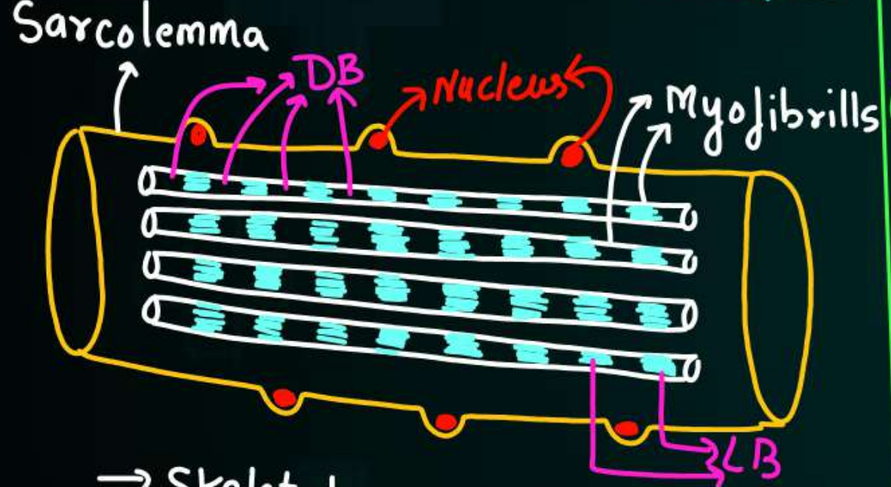
contain many skeletal muscle cells / fibres

⊙ Skeletal muscle fibre / cell



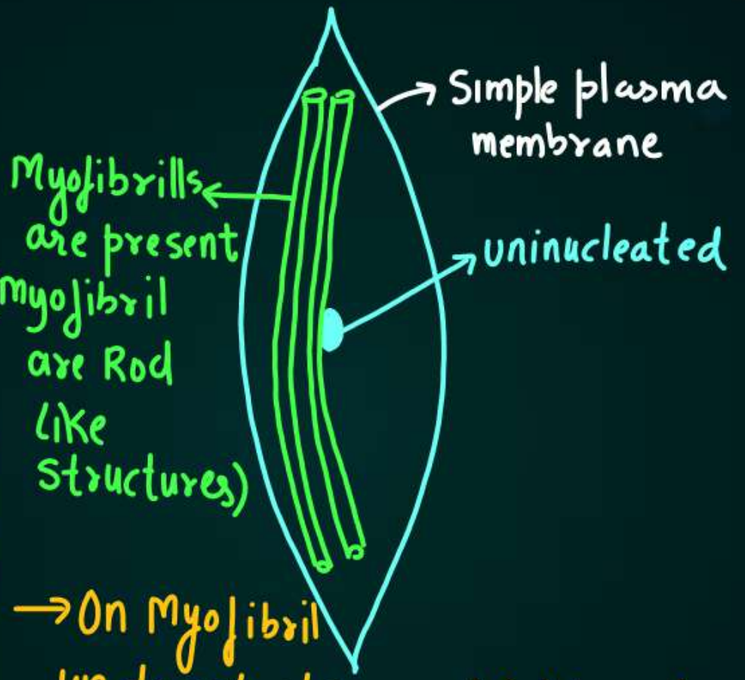
→ Skeletal muscle fibre contain rod like myofibrills

→ Myofibrills are made up of mainly Actin and Myosin protein

→ We observe dark and light bands on myofibrills :- Striations

Smooth Muscle

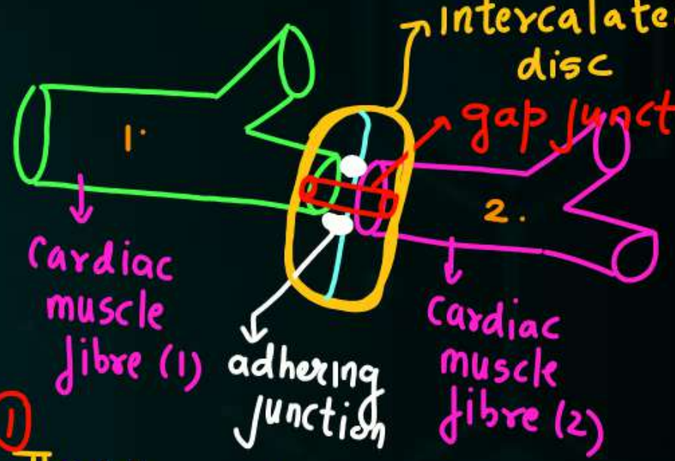
Smooth muscle fibre / cell



→ On Myofibril we do not observe Light and dark bands, hence smooth muscle fibre / cell is non striated

Cardiac muscle

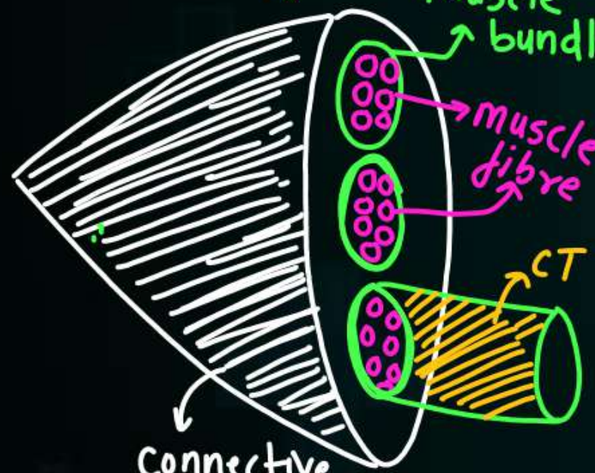
② * Intercalated disc contain gap junctions and adhering junctions



① The place where 2 cardiac muscle fibres come close and join, a disc is formed, by modification of plasma membrane of both cardiac muscle fibres. This disc is called intercalated disc

Skeletal muscle

NCERT – Skeletal muscle is covered by CT.



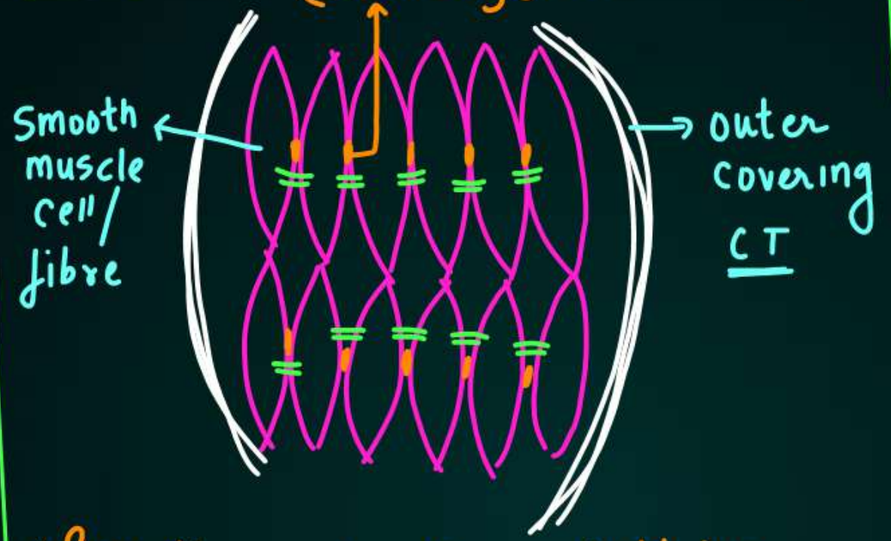
Inside CT are +nt muscle bundles

✓ Each muscle bundle contain many skeletal muscle fibre

Pilomotor muscle (Body hairs)
Smooth muscle

NCERT

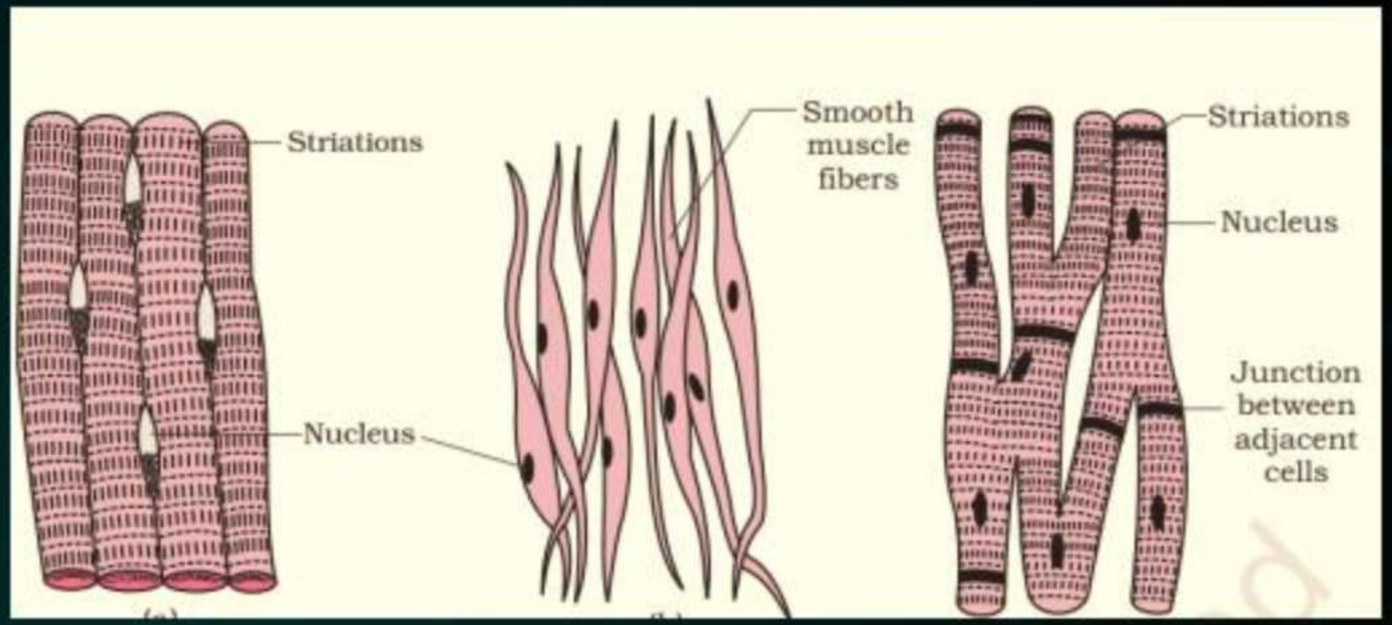
(adhering Junctions Like)



✓ Smooth muscle cells are held by Junctions. Their are also +nt gap Junctions b/w the cells for transport of ions.

eg Stomach, Small intestine, Large intestine, Fallopian tube, Uterus, Urinary bladder, Ureter, blood vessels (arteries, veins), Oesophagus.

Cardiac muscle


Striations
Nucleus
Smooth muscle fibers
Striations
Nucleus
Junction between adjacent cells

Thank You