



HANSRAJ MODEL SCHOOL

PUNJABI BAGH, NEW DELHI

CLASS -

IX

SUBJECT -

BIOLOGY

TOPIC -

**L-6, TISSUES
(MODULE-5)**

CONTENT

☐ MUSCULAR TISSUE

- FEATURES
- TYPES
- STRUCTURE
- LOCATION
- FUNCTIONS



☐ NERVOUS TISSUE

- FUNCTION
- LOCATION
- STRUCTURE OF NEURON



MUSCULAR TISSUE

- Muscular tissue helps in movement of various body parts.
- Muscular tissue consists of elongated cells also called muscle fibres.
- Muscles contain special proteins called contractile proteins which contract and relax to

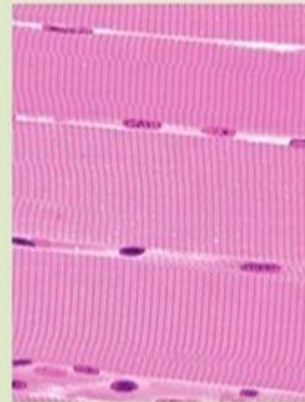
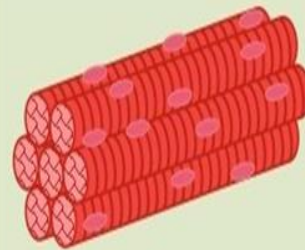
TYPES OF MUSCULAR TISSUE

SKELETAL MUSCLE

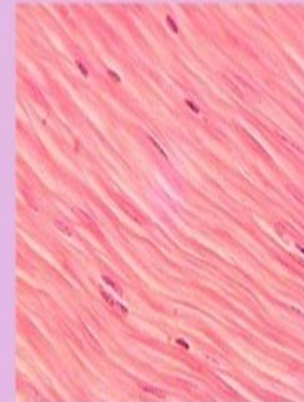
SMOOTH MUSCLE

CARDIAC MUSCLE

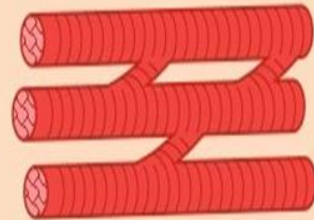
Skeletal Muscle



Smooth Muscle

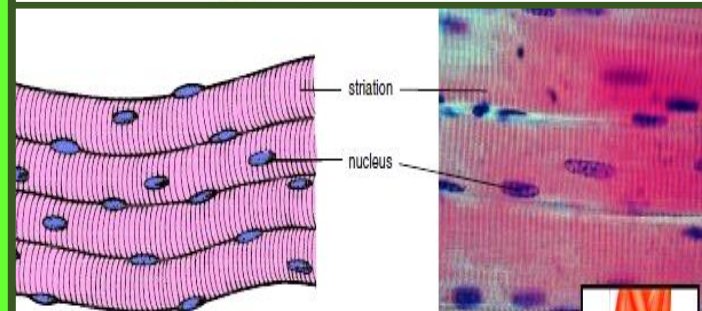


Cardiac Muscle



SKELETAL MUSCLE/ STRIATED MUSCLE/ STRIPED MUSCLE

- Skeletal muscle is also called as striped or striated muscle.
- These muscles are called as skeletal muscles as they are mostly attached to bones and help in body movement.
- It is a voluntary muscle as we can move these muscles by conscious will.
- STRUCTURE:
 - Cells are long, cylindrical, unbranched and multinucleate.
 - Under the microscope this muscles show alternate light and dark bands are striations when stained appropriately. As a result they are also called as striated muscles.
- LOCATION: Found in the muscles of limbs, face, neck etc.
- FUNCTION: Skeletal muscle helps in locomotion.



Skeletal Muscle

Fiber appearance: Striated

Location:
Usually attached to skeleton

Control: Voluntary



SMOOTH MUSCLE/UNSTRIATED MUSCLE

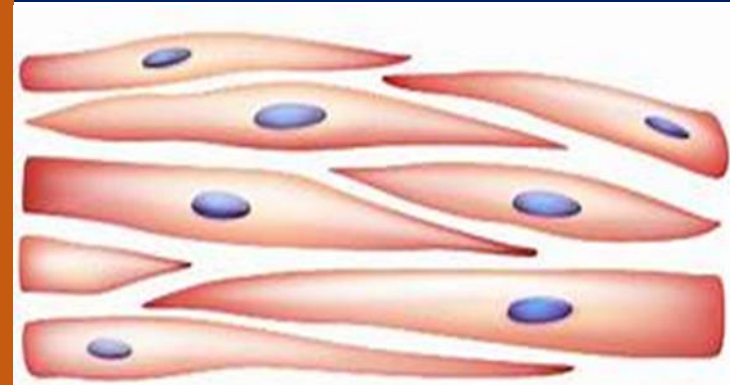
- Smooth muscle is also called as unstriated muscle as they do not contain alternate light and dark bands.
- It is an involuntary muscle as we cannot control its movement by our conscious will.

FUNCTIONS: They are involuntary muscles as they control involuntary movements in our body such as movement of food in the alimentary, contraction and relaxation of blood vessels etc.

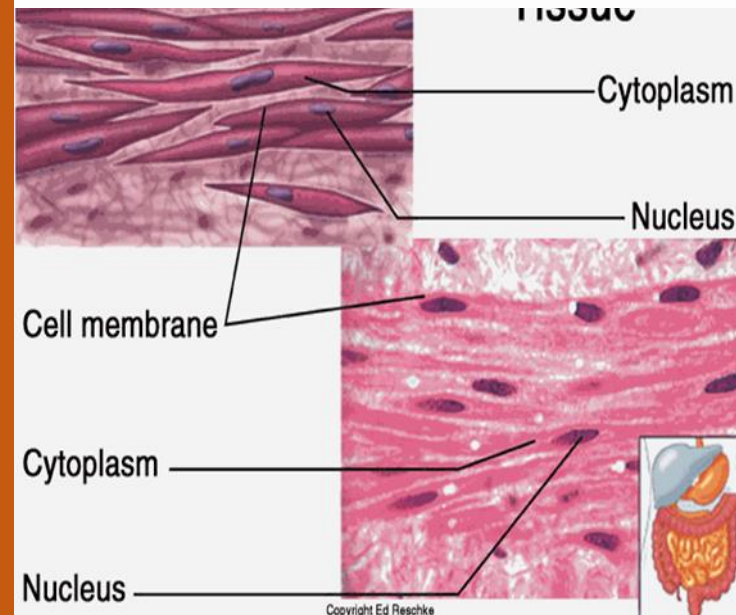
STRUCTURE: Cells are long with pointed ends i.e. spindle-shaped.

- Cells have a single nucleus i.e. they are uninucleate.

LOCATION: smooth muscles are found in the walls of iris of the eyes, ureters and bronchi of the lungs.



Smooth muscle



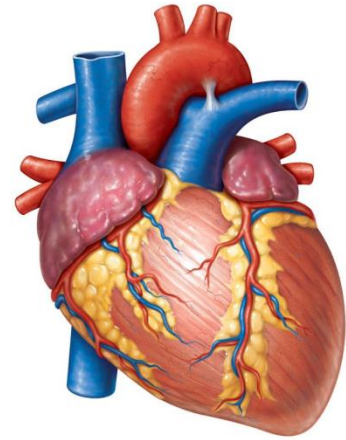
CARDIAC MUSCLE

❑ CARDIAC MUSCLES ARE INVOLUNTARY MUSCLES

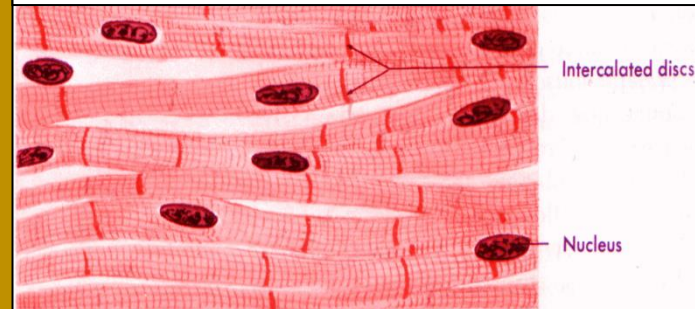
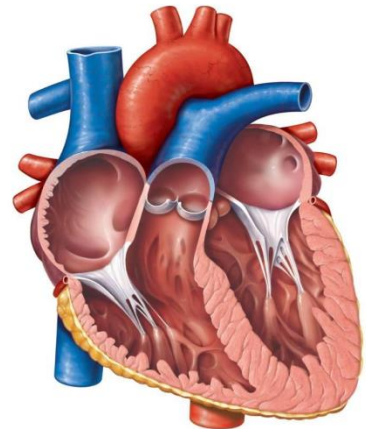
LOCATION : Cardiac muscles are present only in the heart.

STRUCTURE: Heart muscle cells are cylindrical, striated, branched and uninucleate.

FUNCTION: The muscles of heart show rhythmic contraction and relaxation throughout life.



(b)



Cardiac or striated involuntary muscle tissue.

NERVOUS TISSUE

- Cells of the nervous tissue are highly specialised for being stimulated and then transmitting the stimulus very rapidly from one place to another within the body.
- The cells of this tissue are called nerve cells or neurons.
- Many nerve fibres bound together by connective tissue make up a nerve.

LOCATION : The brain, spinal cord and nerves are all composed of the nervous tissue.

STRUCTURE OF A NEURON- THE UNIT OF NERVOUS TISSUE

- A neuron consists of a cell body with a nucleus and cytoplasm, from which long thin hair-like parts called dendrites, arise.
- Usually each neuron has a single long process, called the axon.
- An individual nerve cell may be up to a metre long.

FUNCTION: The signal that passes along the nerve fibre is called a nerve impulse.

Nerve impulses allow us to move our muscles when we want to.

The functional combination of nerve and muscle tissue enables animals to move rapidly in response to stimuli.

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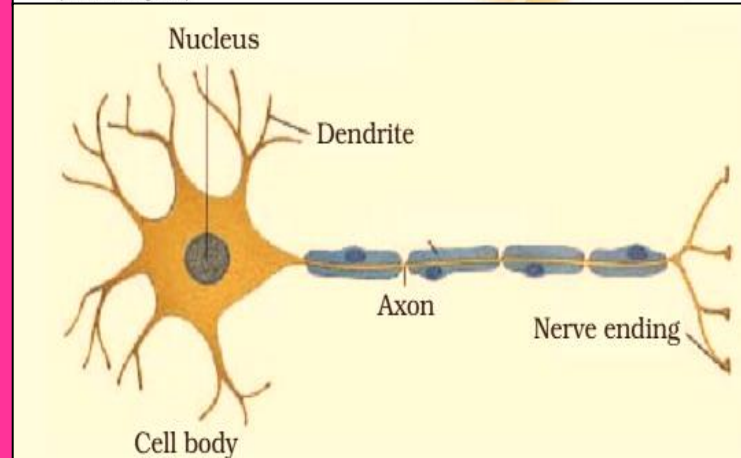
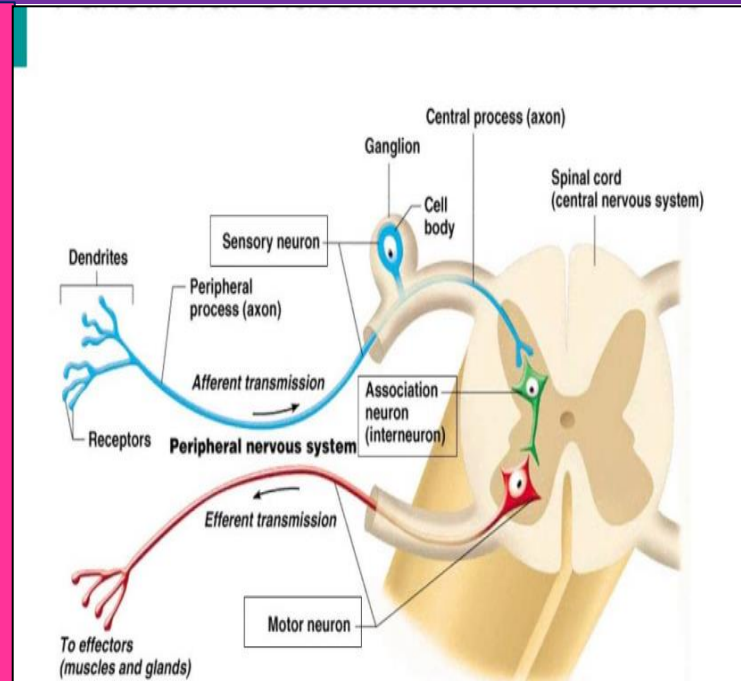


Fig. 6.12: Neuron-unit of nervous tissue