

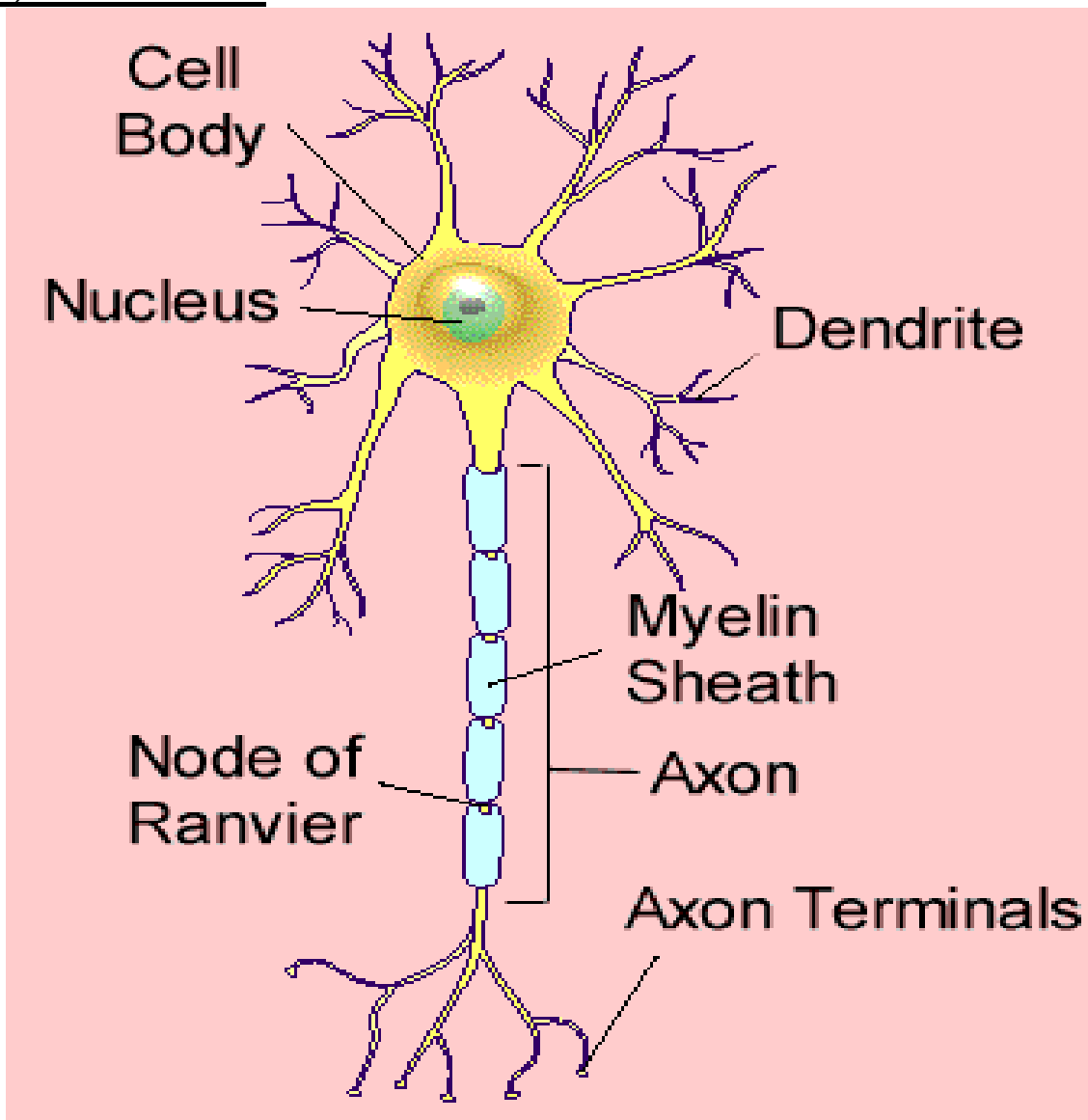
Unit M - Notes #1 Nerve Tissue Cells

- There are two types of cells that make up nervous tissue:

I) Neurons – Cells that transmit nerve impulses

II) Neuroglial Cells – Cells that nourish and support neurons.

I) NEURONS



A) Structures and Functions Of A Neuron:

1. Dendrites

- Receive signals from other neurons and **conduct a nerve impulse (message) towards** the cell body.
- Many dendrites enter a cell body.

2. Cell Body

- Contains the nucleus and cell organelles needed to keep the cell alive.
- Only a single axon leaves a cell body.
- Relays an impulse from dendrite to axon.

3. Axons

- Conduct a nerve impulse away** from the cell body.

4. Myelin Sheath

- Protective lipid coating of **Schwann cells (type of neuroglial cell)** forms insulating layer around longer axons and dendrites.

5. Nodes of Ranvier

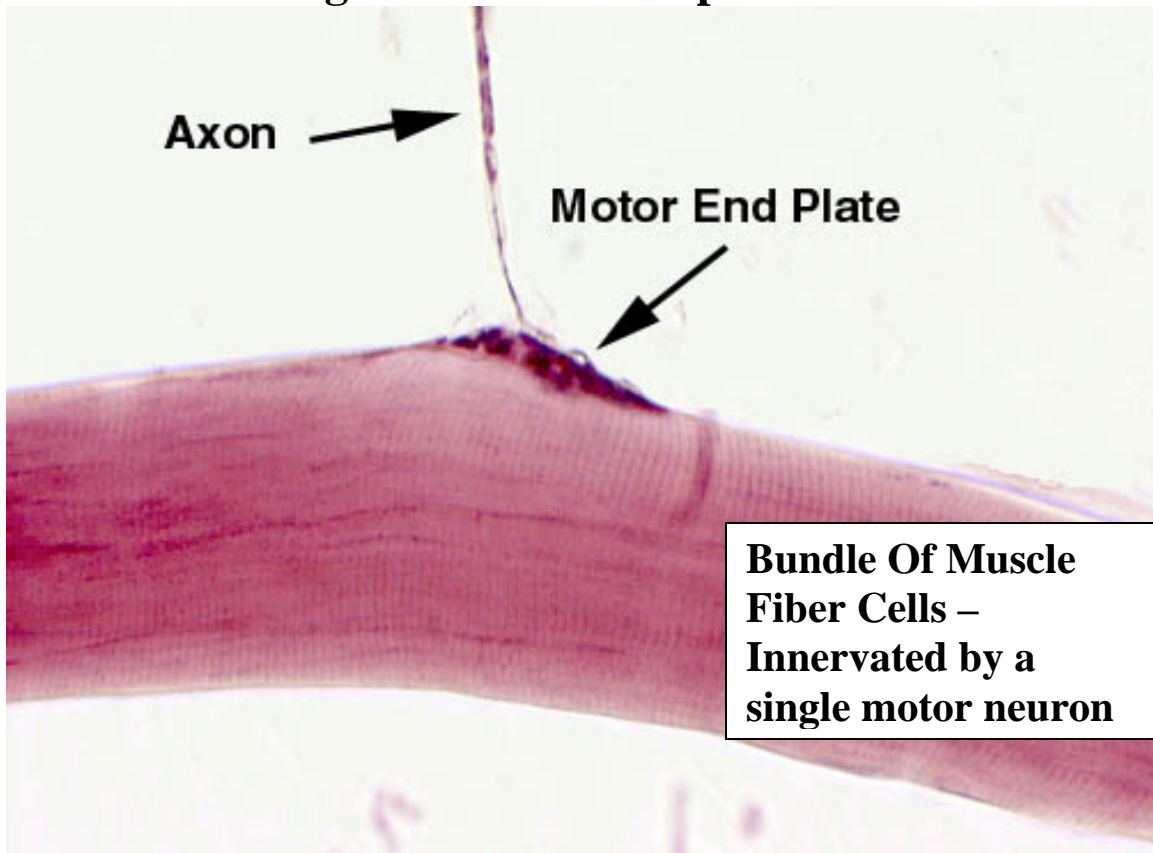
- Interrupted areas of the Myelin Sheath due to gaps between one Schwann cell and the next.
- Speeds up transmission of impulse.

6. Axon Terminals (Synaptic Endings)

- The branches found at the end of the axon.
- Each terminal ends with a small swelling (axon bulb) which houses many synaptic vesicles containing neurotransmitter chemicals.

7. Motor End Plates (found only on motor neurons)

- The ending of a motor nerve found in close proximity to effectors (muscles and organs/glands)
- From here the impulse is chemically transported to the effectors causing an event to take place.



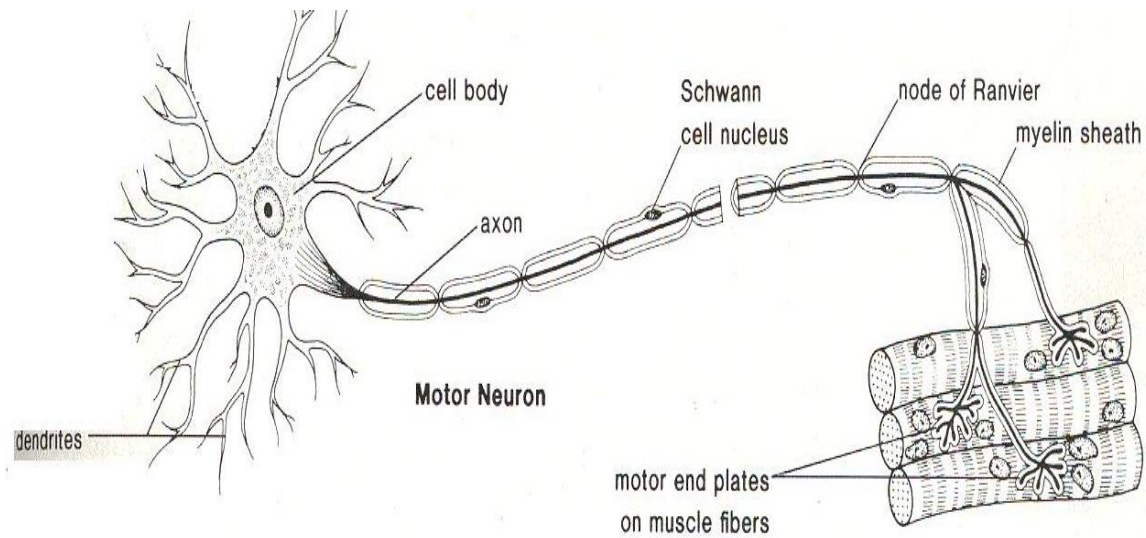
B) Types of Neurons:

1. Motor Neurons

-**Efferent Neuron:** Carries the nerve impulse from the Central Nervous System (**Exiting** the CNS) and heading toward an effector (organ/gland).

-Relays messages from the brain or spinal cord to the muscles and organs.

*Short Dendrites – Long Axon

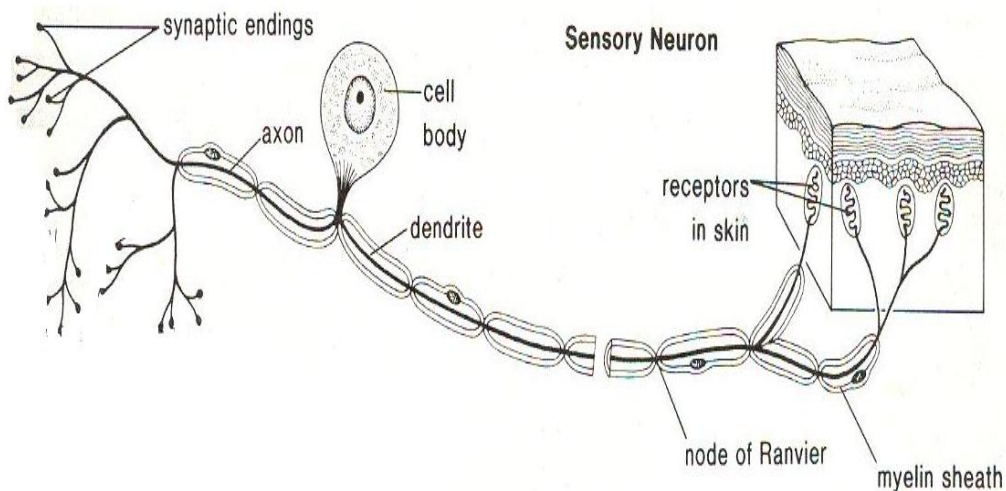


2. Sensory Neurons

-Afferent Neuron: Carrying a nerve impulse from a central organ or receptor, having the impulse Arrive at the CNS.

-Relays messages from receptors to the brain or spinal cord

*** Long Dendrite – Short Axon**



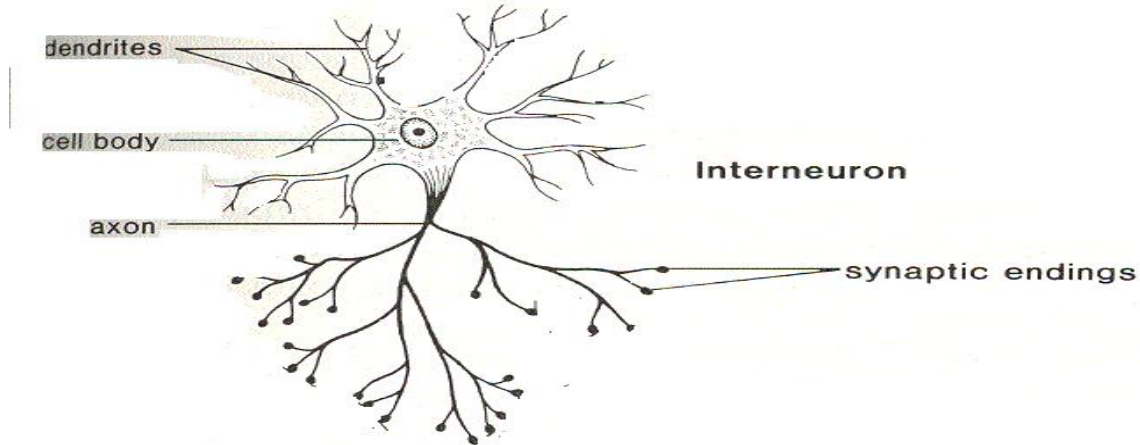
3. Interneurons (Connector Neurons)

- Carry impulses within the CNS.

-Relays message from a sensory neuron → motor neuron.

-Make up the brain and spinal cord.

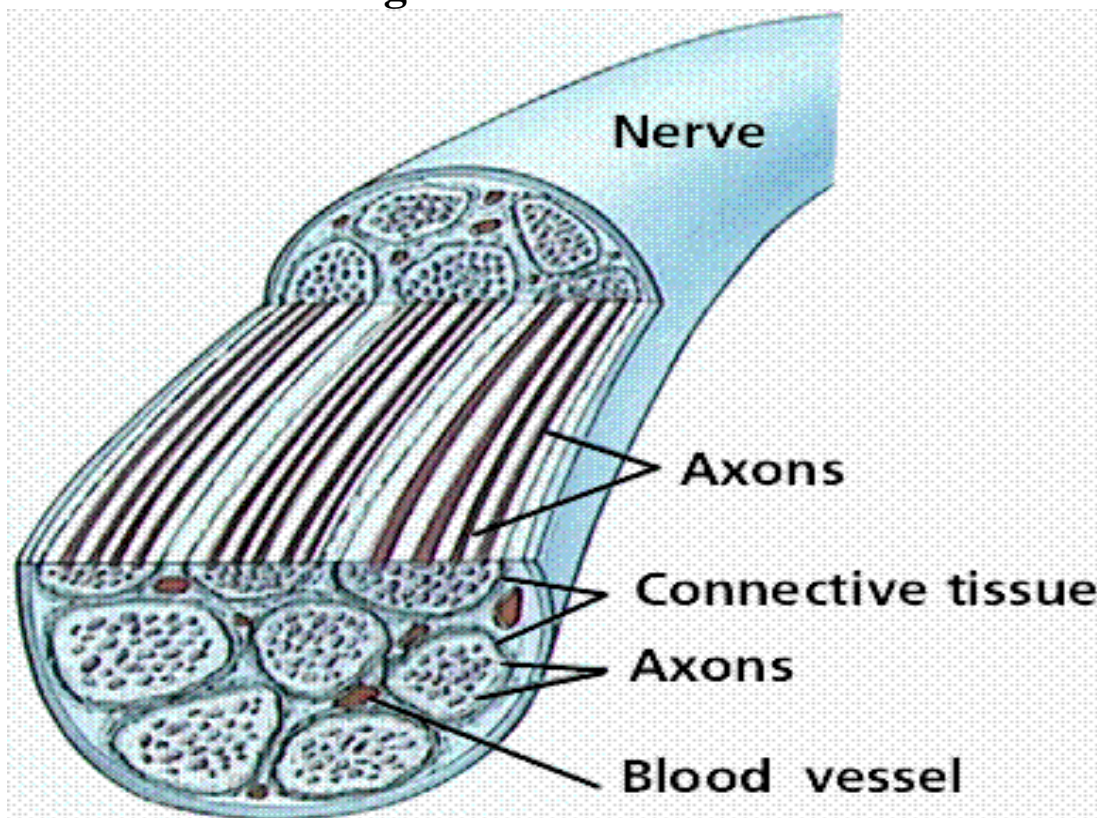
* Short Dendrite – Long or Short Axon



Bases of Comparison	Sensory Neuron	Interneuron	Motor Neuron
Length of Fibers	Long Dendrites and short Axon	Short Dendrites and short or long Axons	Short Dendrites and long Axons
Location	Cell body and Dendrite are outside of the spinal cord; the cell body is located in a dorsal root ganglion.	Entirely within the spinal cord or CNS.	Dendrites and the cell body are located in the spinal cord; the Axon is outside of the spinal cord.

Function	Conduct impulse to the spinal cord.	Interconnect the Sensory neuron with an appropriate Motor Neuron.	Conduct impulse to an effector (muscle or gland)
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A single nerve is composed of long fibers of many Neurons bundled together



II) NEUROGLIAL CELLS

- Provide physical and metabolic support for neurons.
- 90 % of cells in the brain are neuroglial cells.
- There are four different types of neuroglial cells.

