



# Structure of neurons

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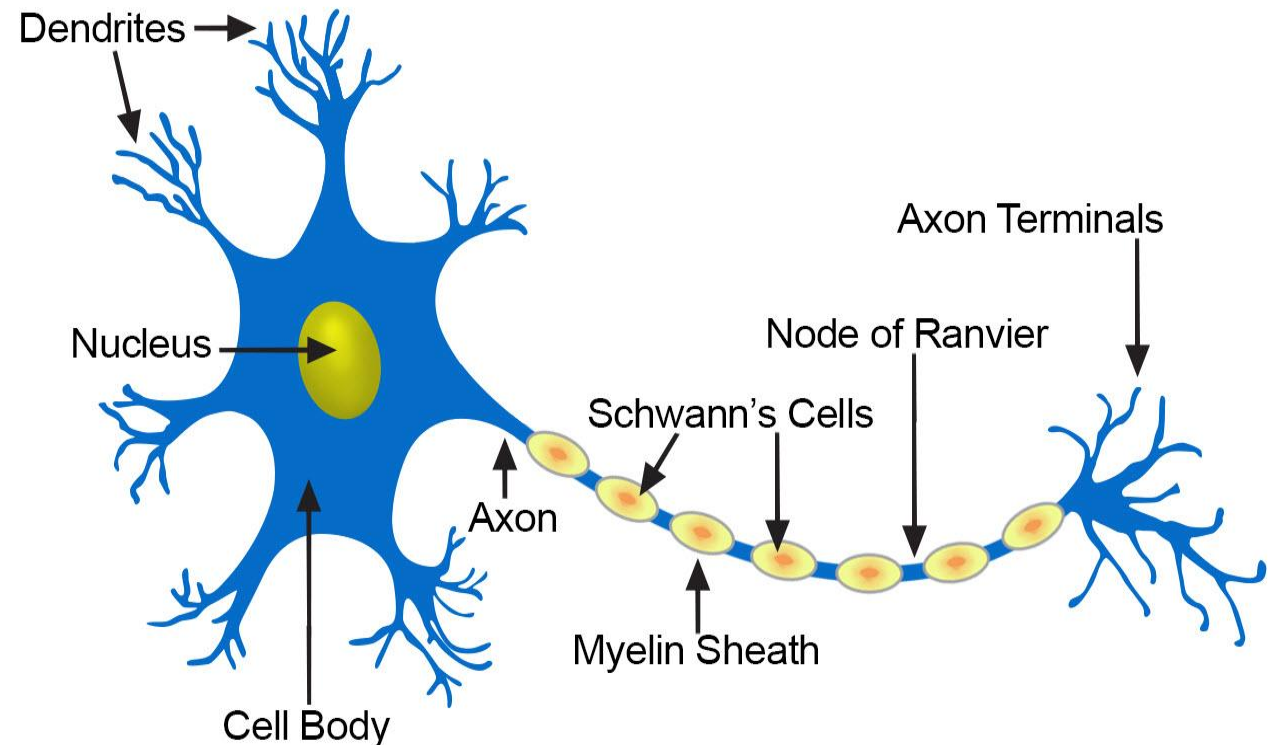
Prepared by: Besir Zeneli

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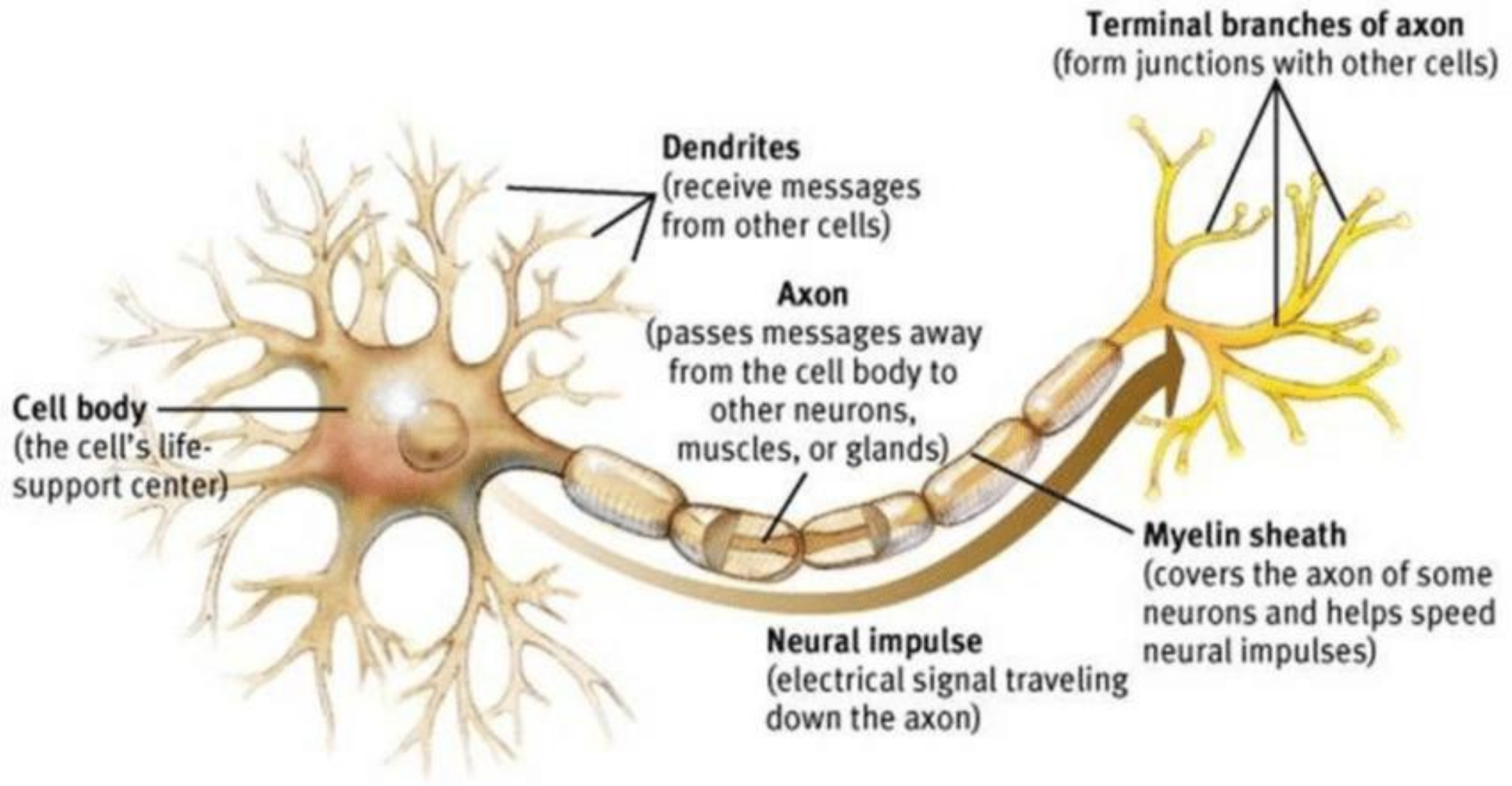
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- **Cell body:** The cell body is the rounded main part of the neuron. It contains the nucleus, which controls the cell's activities.
- **Nucleus:** The nucleus is the control center of the neuron. It contains the cell's DNA, which determines the structure and function of the neuron.
- **Dendrites:** Dendrites are short, branching fibers that receive signals from other neurons. They transmit these signals to the cell body.
- **Axon:** The axon is a long, thin fiber that carries signals away from the cell body to other neurons, muscles, or glands.
- **Myelin sheath:** The myelin sheath is a fatty substance that insulates the axon and helps to speed up the transmission of signals.
- **Schwann cells:** Schwann cells are glial cells that produce the myelin sheath.
- **Node of Ranvier:** The nodes of Ranvier are gaps in the myelin sheath that allow signals to jump along the axon, further speeding up transmission.

Structure of a Typical Neuron



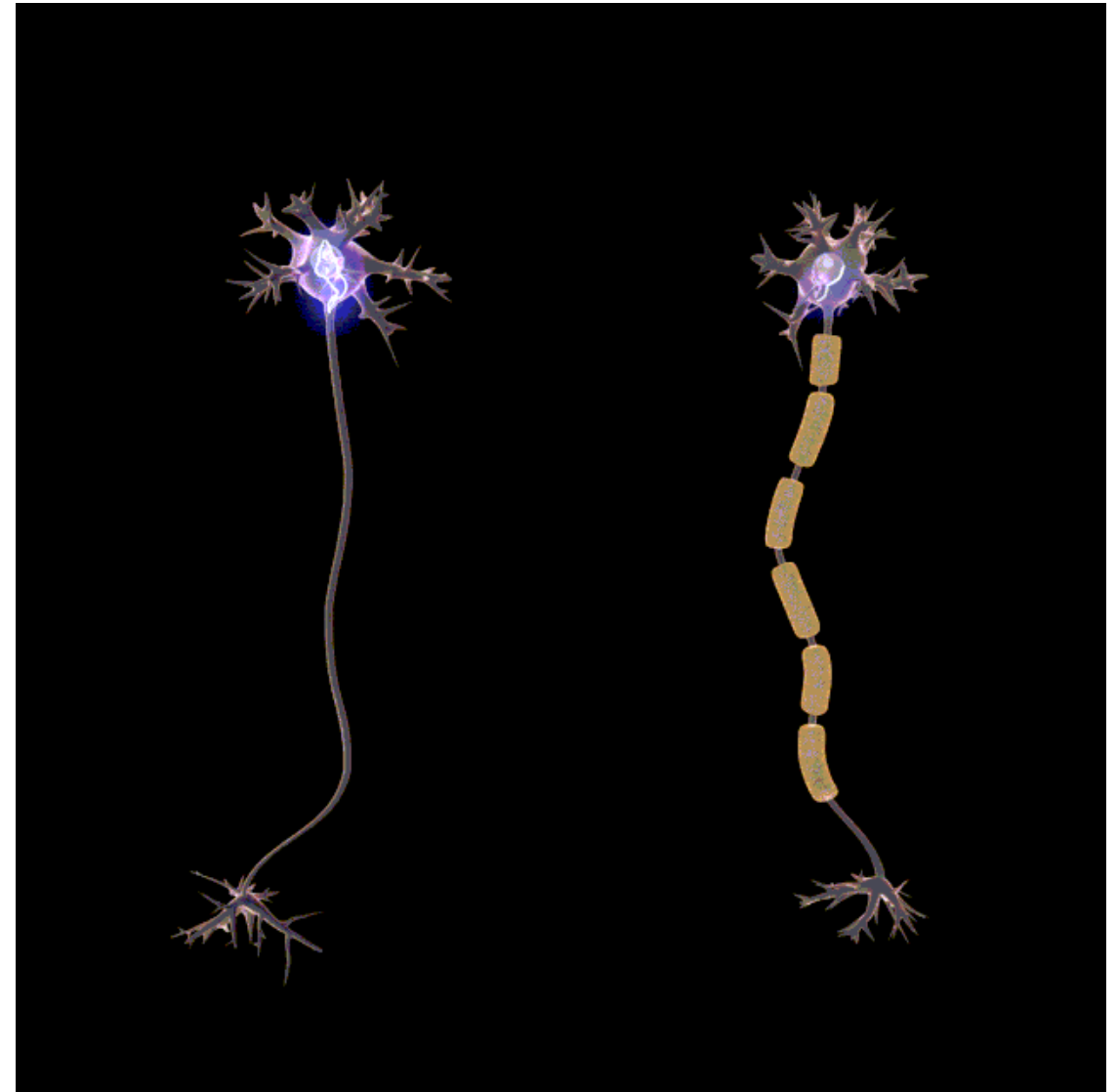




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# Myelin sheath's function

- The myelin sheath acts as an **electrical insulator**, facilitating the rapid transmission of nerve impulses along the axon.
- Additionally, it enhances the efficiency of signal transmission by allowing the electrical impulses to "jump" from one node of Ranvier to another in a process called **saltatory conduction**, which speeds up the transmission of nerve impulses along the axon.
- Overall, the myelin sheath plays a crucial role in ensuring the proper functioning of the nervous system by aiding in the rapid and efficient transmission of nerve impulses.



# Changes in myelin sheath

- **Myelin loss:** Studies have shown that some myelin sheaths degenerate with age, which can slow down the transmission of nerve signals. **This can contribute to age-related cognitive decline and other problems.**
- **Changes in myelin structure:** The structure of the myelin sheath can also change with age. These changes can make it more difficult for nerve signals to travel efficiently.
- **Reduced ability to repair myelin damage:** The cells that produce myelin, called oligodendrocytes and Schwann cells, become less efficient at repairing damage to the myelin sheath as we age. This can lead to a progressive decline in nerve function.

