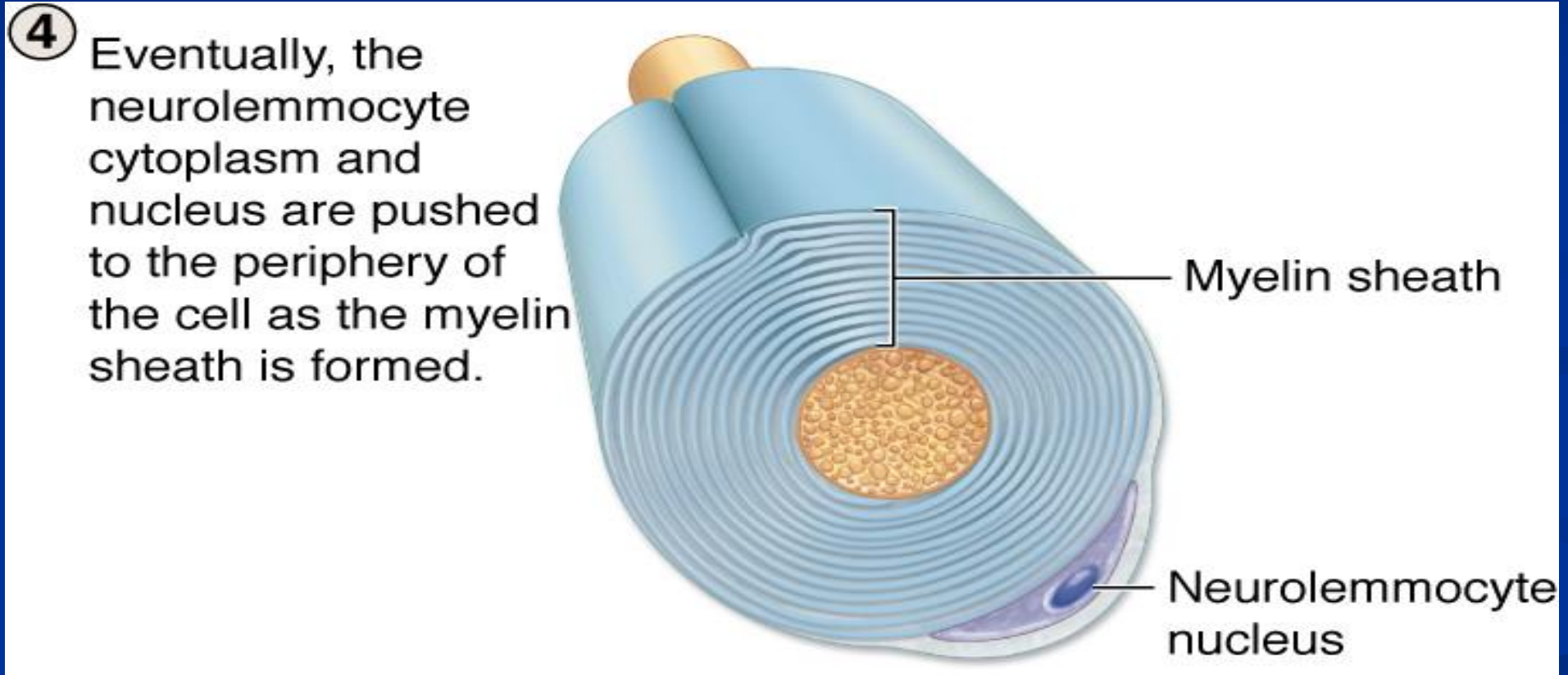


Medical Biology

- **The peripheral nervous system**
- The main components of the peripheral nervous system are the nerves, ganglia and nerve endings.
- **Nerves:-** are bundles of nerve fibers surrounded by a series of connective tissue sheaths.
- **Nerve fibers:-**

- There are 2 types of nerve fibers:
- **Myelinated nerve fibers:**

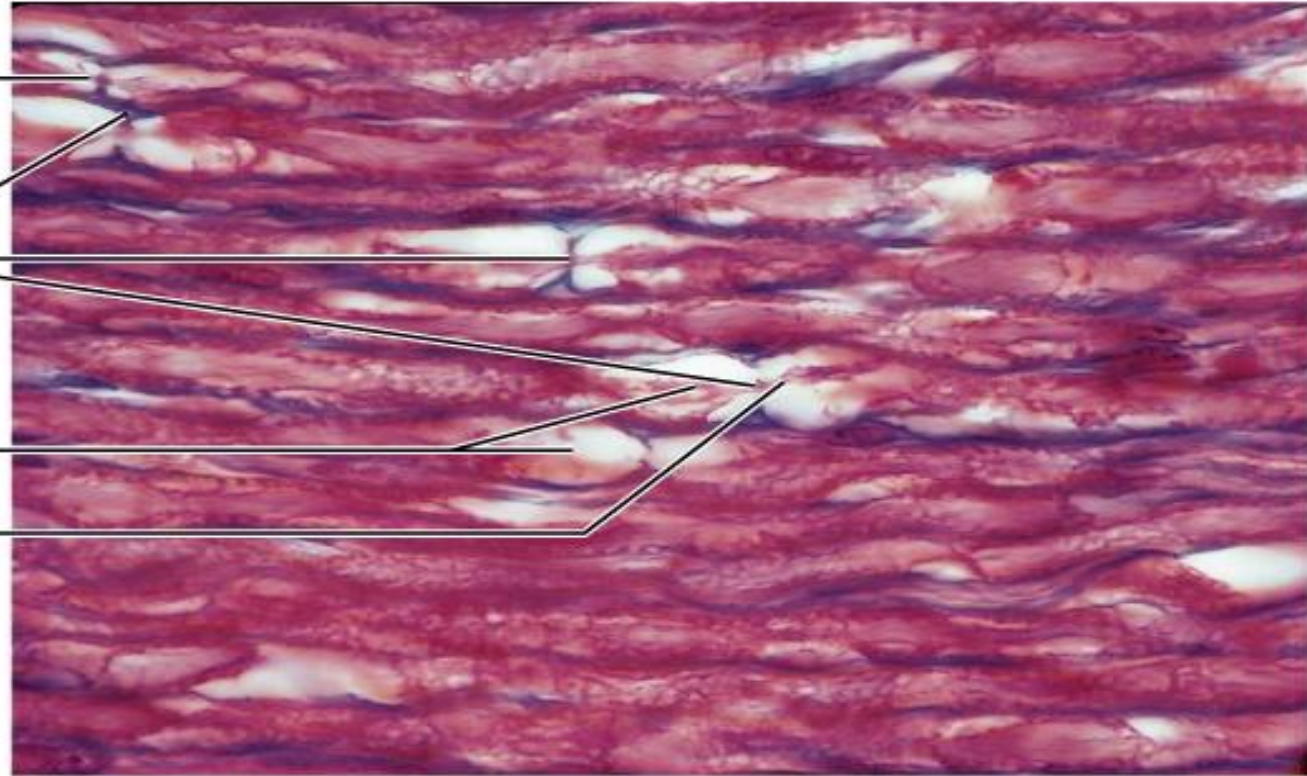


Axon

Nodes of
Ranvier

Myelin sheath

Axon



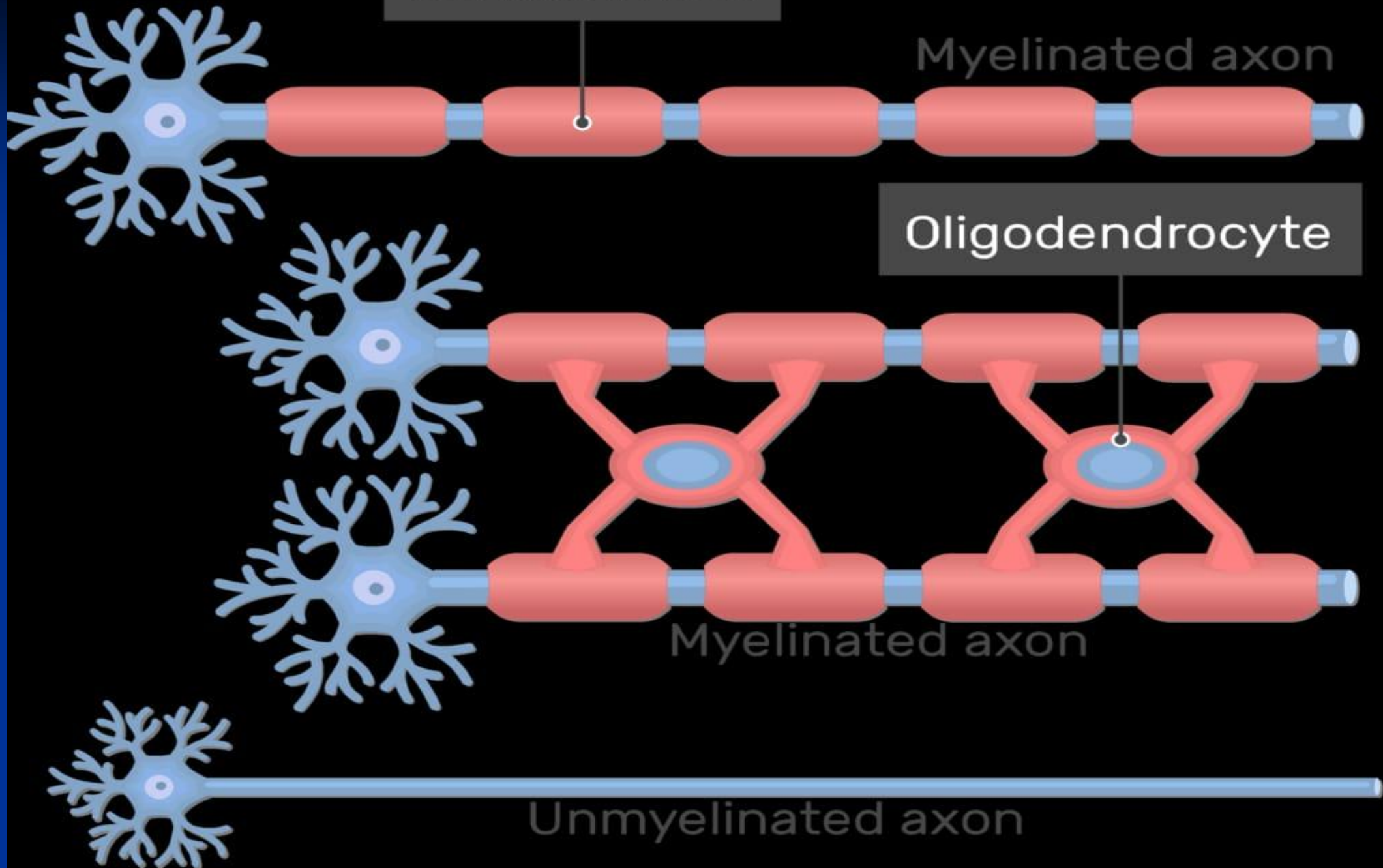
Schwann cell

Myelinated axon

Oligodendrocyte

Myelinated axon

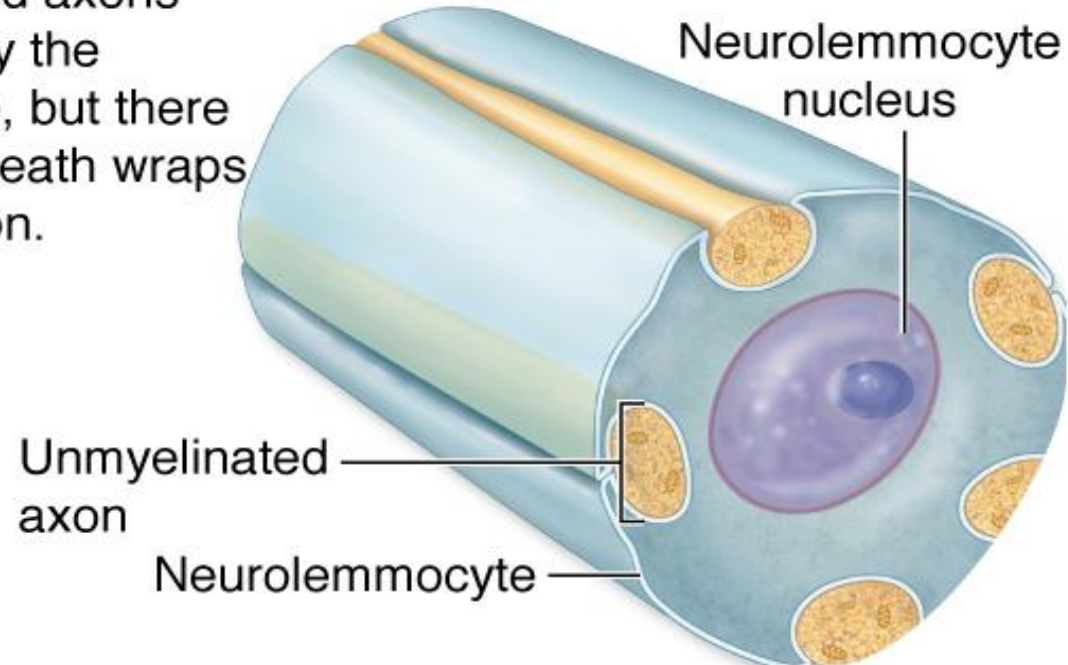
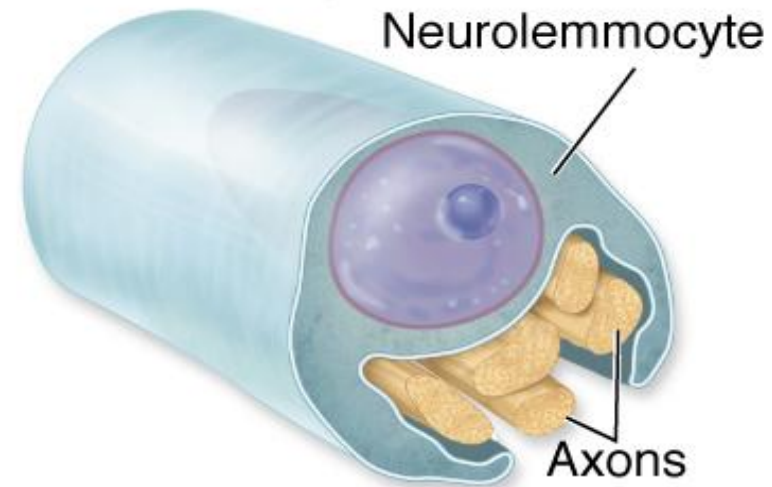
Unmyelinated axon



■ unmyelinated nerve fibers:

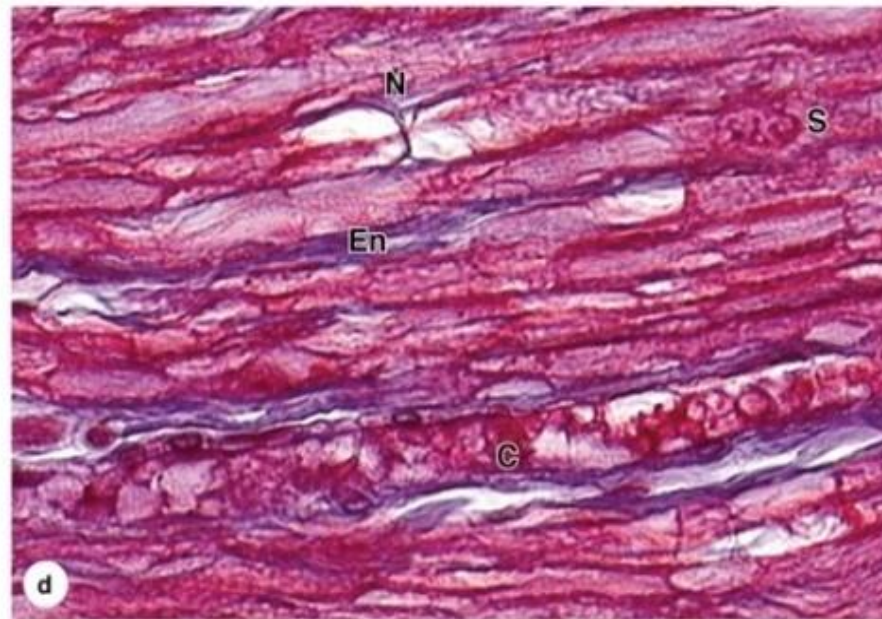
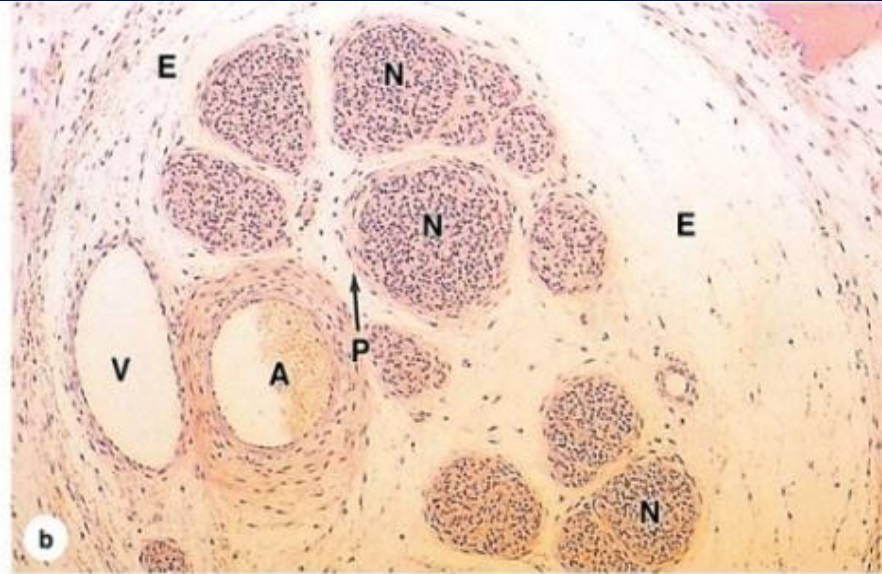
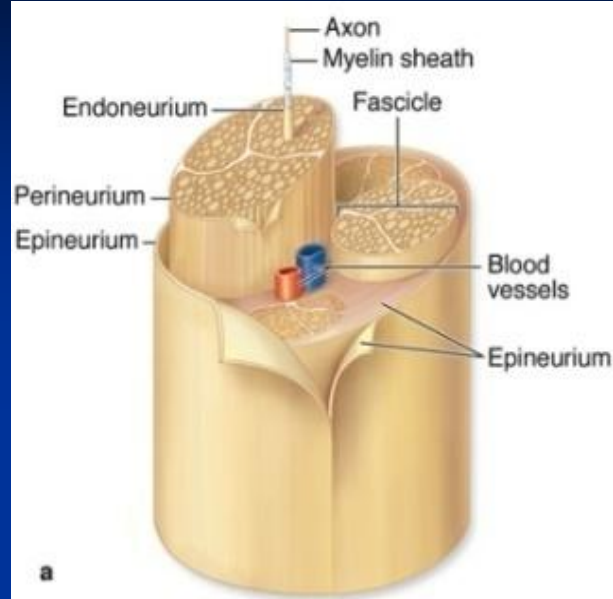
Unmyelinated axons

- ① Neurolemmocyte starts to envelop multiple axons.
- ② The unmyelinated axons are enveloped by the neurolemmocyte, but there are *no* myelin sheath wraps around each axon.



	Myelinated axons		Non-myelinated axons
1.	Transmission of nerve impulse is faster	1.	Transmission of nerve impulse is slower
2.	Myelinated axon has a myelin sheath.	2.	Myelin sheath is absent
3.	Node of Ranvier is present between adjacent myelin sheaths.	3.	Node of Ranvier is absent
4.	Found in the brain, the spinal cord, the cranial and spinal nerves	4.	Found in autonomous and somatic neural systems
5.	Schwann cells are observed inside the myelin sheath	5.	Schwann cells are not observed inside the myelin sheath

■ Peripheral nerves:



■ Ganglia:

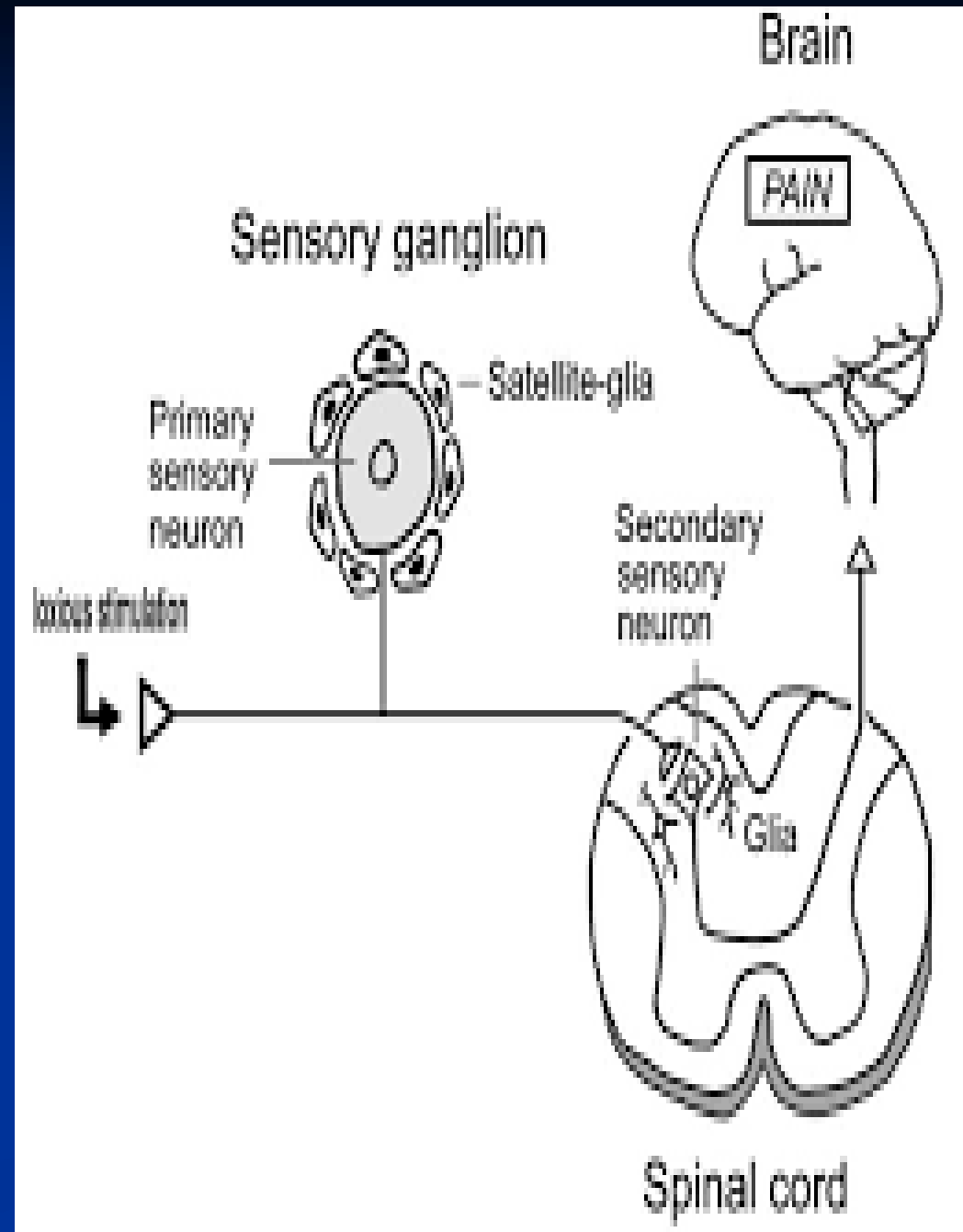
- Ganglia are aggregations of cell bodies of neurons with glial cells located outside the CNS. They serve as relay stations in the PNS to transmit nerve impulses, one nerve enters and other exits from each ganglion. There are 2 types of ganglia: **sensory and autonomic**.

- 1. sensory ganglia: receive afferent impulses that go to the CNS.

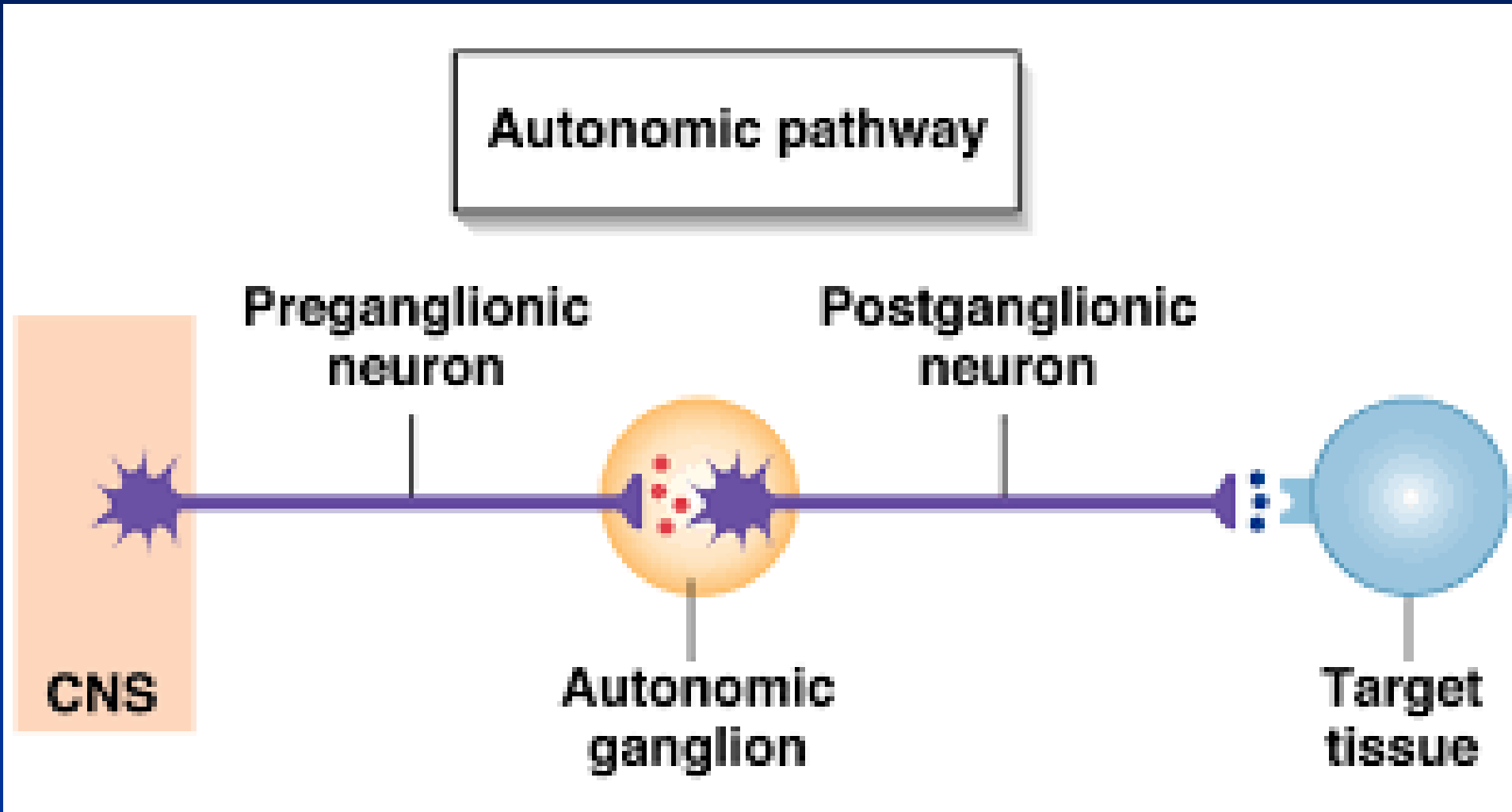
- a. cranial ganglia:

- b. spinal ganglia:

The neurons of these ganglia are unipolar (pseudounipolar).



■ 2. autonomic ganglia:



Clinical notes:

1. Demyelinating Diseases
2. Guillain-Barre syndrome (GBS)



Guillain-Barré syndrome

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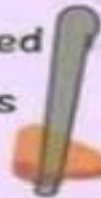
Antibodies directed
against nerve cells



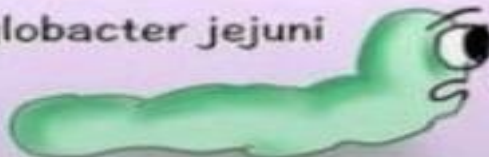
Acute inflammatory
demyelinating polyneuropathy

Severe respiratory
muscle weakness
Need ventilatory support

Absence or depressed
deep tendon reflexes



Associated with
Campylobacter jejuni



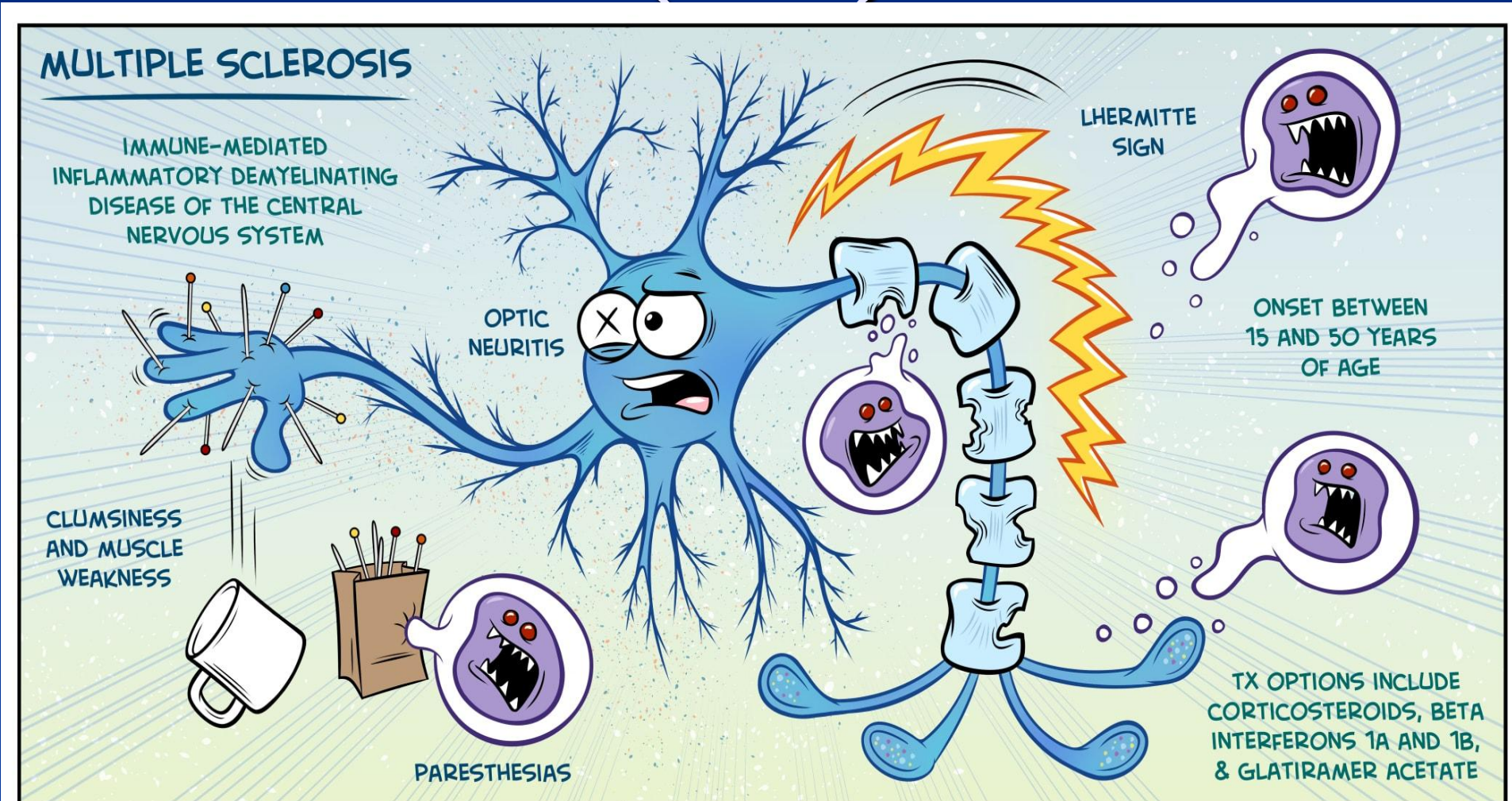
Symmetrical muscle
weakness usually begins
in legs and ascends

Paresthesia of
hands & feet

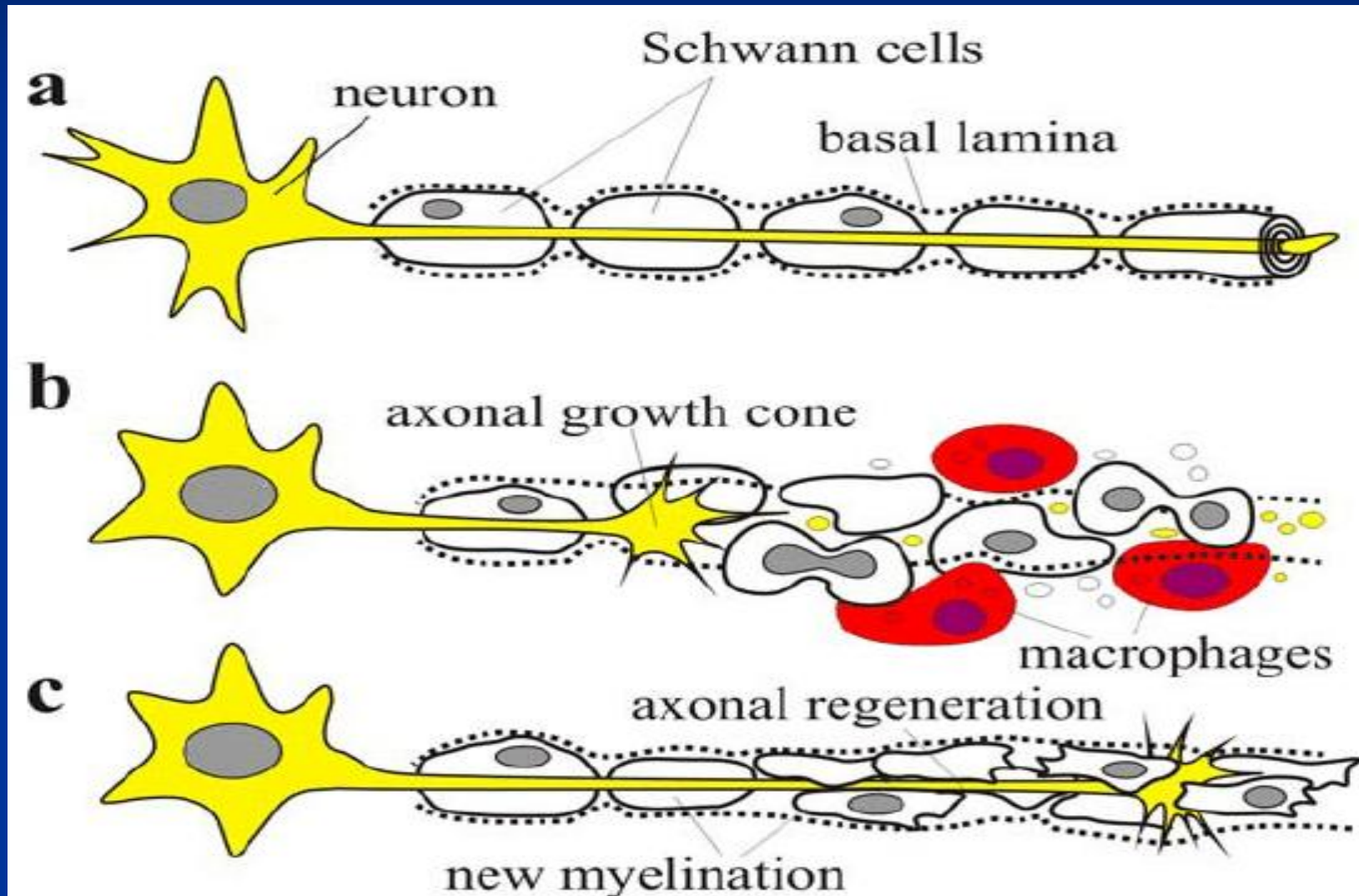
MED  NAZ



3. Multiple sclerosis (MS)



4. Injured fibers in peripheral nerves



Thank you