

Divisions of the NS

- Central Nervous System (CNS)
 - BRAIN
 - SPINAL CORD
- Peripheral Nervous System (PNS)
 - EVERYTHING ELSE

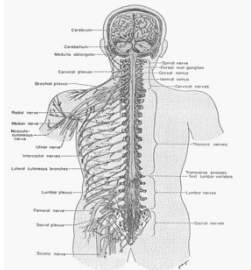
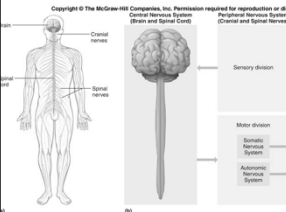


Fig. 2 The human central nervous system, exposed by dissection from the dorsal aspect. Shows the brain, spinal cord and the proximal parts of the spinal nerves. Compare this with the generalized vertebrate plan shown in Figure 1.

Sensory vs. Motor Nerves



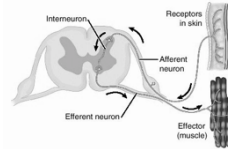
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Central Nervous System (Brain and Spinal Cord) Peripheral Nervous System (Cranial and Spinal Nerves)

Sensory division: Sensory receptors
Motor division: Somatic Nervous System (Skeletal muscle), Autonomic Nervous System (Smooth muscle, Cardiac muscle, Glands)

Fig. 9.2

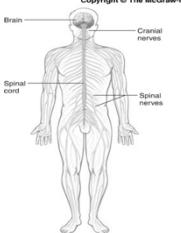
- **SENSORY** nerves:
 - Body → CNS
 - **AFFERENT**
- **MOTOR** nerves:
 - CNS → Body
 - **EFFERENT**

SAME:
Sensory Afferent
Motor Efferent

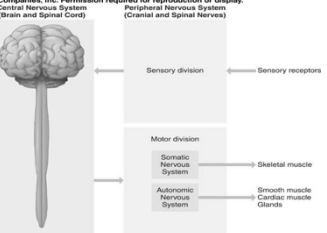


2 Different Types of Motor Nerves

- _____ NS
- consciously controlled effectors



- _____ NS
- involuntary effectors



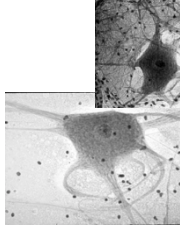
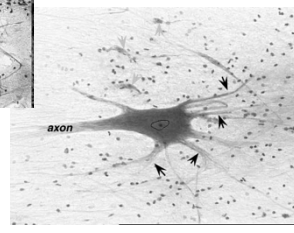
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Central Nervous System (Brain and Spinal Cord) Peripheral Nervous System (Cranial and Spinal Nerves)

Cells of the Nervous System


- NEURONS

vs.

- NEUROGLIAL CELLS

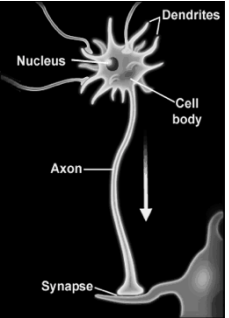



NEUROGLIAL CELLS



- Fill spaces
- **Provide structure**
- **Produce myelin**
- Phagocytize bacteria & cellular debris
- Outnumber neurons
- Can divide (mitosis)

Neuron Anatomy Overview



→ _____

→ _____

→ Synaptic knobs at axon terminals

→ _____

Neuron Anatomy

- _____ **cells**
 - Type of neuroglial cell
 - Support Neurons
 - PNS
 - Wrap around Neuron and form the Myelin sheath
 - Insulates nerve impulse
- **Nodes of _____**
 - Gaps in myelin sheath
 - Uninsulated Nerve = electrical activity
 - FUNCTION: _____
 - potential**

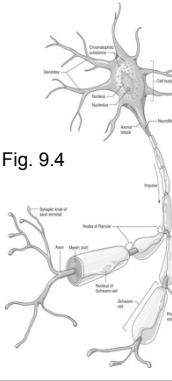


Fig. 9.4

QUESTIONS: Myelin Sheath

- Who Makes it?
- Why have it?
- Where do you find it?
- What is the purpose?

Sensory, Motor, and Interneurons (Direction)

- _____ **neurons**
 - PNS → CNS
- _____ **neurons**
 - CNS → PNS
- _____
 - in between sensory and motor neurons

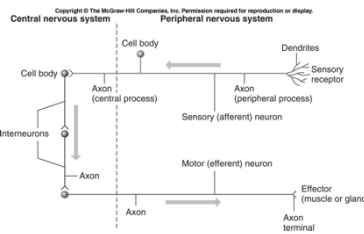


Fig. 9.7

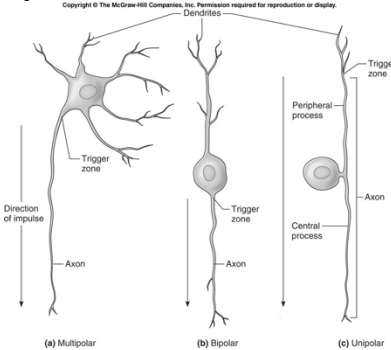
Shapes of Neurons Fig. 9.6

Shapes: (HW)

Multipolar
Function: _____

Bipolar
Function: _____

Unipolar
Function: _____



Neuron vs. a "Nerve"

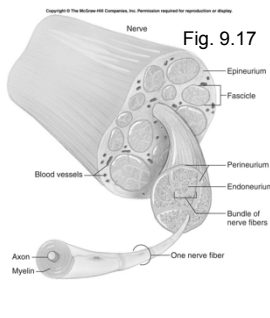


Fig. 9.17

- _____ = a cell
- _____ = bundles of neuron axons, and neuroglial cells bound together
 - outside brain/spinal cord

Neuron Physiology

- Sending neuron impulses = _____
- potential**
 - change in electrical charge in cell membrane
 - depends on electrolytes
 - potassium (K⁺) and sodium (Na⁺)

