

Nervous System Chapter 12

I. Functions

II. Organization

A. Central nervous system (CNS)

B. Peripheral nervous system (PNS)

1. Afferent (sensory) division

a. somatic

b. visceral afferent fibers

2. Efferent (motor) division

a. Somatic nervous system

b. Autonomic nervous system

1) Enteric nervous system

III. Cells

A. Neurons

1. Cell body

2. Processes

a. dendrites

b. axon

1) nerve fiber

2) axon hillock

3) telodendrion, terminal branches

IV. Pathway Overview

A. Sensation (afferent) neuron

1. action potential

B. Integration or Association Neurons

a. cerebral cortex

C. Response neurons

V. Neuroglia = glial cells

A. Astrocytes

B. Microglia

C. Ependymal cells

1. blood brain barrier (bbb)

D. Oligodendrocytes

1. myelin sheaths

E. Satellite cells

F. Schwann cells

a. Nodes of Ranvier

b. myelin

a) white matter

-tract

-nerve

b) grey matter

-nucleus

-ganglion

- VI. Neurophysiology
 - A. Resting membrane potential
 - 1. Polarized
 - 2. Membrane potential = Volt
 - a. resting potential
 - B. The Impulse or Signal Initiation
 - a. Depolarization
 - b. Repolarization
 - C. Refractory period
 - D. Impulse Transmission / Propagation
 - 1. wave of depolarization
 - 2. wave of repolarization
 - 3. action potential
 - E. Continuous conduction
 - F. Saltatory conduction
 - a. nodes of Ranvier
- VII. Properties
 - A. Threshold
 - B. Accommodation
- VIII. Classification of Neurons
 - A. Structural
 - 1. Multipolar
 - 2. Bipolar
 - 3. Unipolar
 - 1) distal process
 - 2) central process
 - B. Functional
 - 1. Sensory (afferent) neurons
 - 2. Motor (efferent) neurons
 - 3. Interneurons (association) neurons
- IX. Synapse
 - A. Synaptic cleft
 - B. Presynaptic neuron
 - C. Synaptic knob
 - D. Postsynaptic neuron
 - E. Functioning
 - F. Notes:
 - 1. One-way
 - 2. Chemical 'attack' point
- X. Classification of Neurotransmitters
 - A. Structure
 - 1. Acetylcholine
 - 2. Biogenic amines
 - 3. Amino acids
 - 4. Peptides = neuropeptides
 - 5. Novel Messengers
 - B. Function
 - 1. Effects
 - a. Excitatory
 - b. Inhibitory
 - 2. Mechanism of Action
 - a. Direct
 - b. Indirect
 - 1) second messenger