

THE NERVOUS SYSTEM ELEMENTS: NEURONS

- I. Nerve cell structure
 - A. Dendrites
 - B. Cell body
 - C. Axons (myelin or no myelin)
 - 1. axon terminals
 - 2. vesicles
 - 3. neurotransmitters
 - a. acetylcholine (ACh)
 - b. norepinephrine (NE)
 - c. serotonin
 - d. dopamine
 - D. Cell Membrane
 - E. Synapse
 - 1. terminal (presynaptic)
 - 2. space (synaptic cleft)
 - 3. dendritic spine (postsynaptic)
- II. Nerve Cell Communication
 - A. Resting Potential (-70mV)
 - 1. electrical state
 - 2. biochemical state--ions
 - B. Graded Potential & the Threshold of Excitation (-65mV)
 - 1. release of neurotransmitter at synapse
 - 2. membrane changes & ions move
 - 3. Two types of effects
 - a. excitatory
 - b. inhibitory
 - 3. Cell body initiates axon membrane change
 - C. Action Potential
 - 1. axon hillock
 - 2. all-or-none principle
 - 3. release of neurotransmitter
 - D. Stopping Neurotransmitter Message
 - 1. Reuptake
 - 2. Deactivating Enzymes—AChE-acetylcholinesterase
- III. Drug Effects
 - A. Agonists
 - B. Antagonists
 - C. Example--Cocaine (power, energy, euphoria)
 - 1. blocks DA(dopamine) reuptake
 - 2. DA circuits associated with pleasure
 - 3. Withdrawal (irritability, sluggishness, craving for drug)
 - 4. Treatment--DA agonists with less side effects minimize withdrawal & therap

GENERAL DIVISIONS OF NERVOUS SYSTEM

- I. Peripheral Nervous System
 - A. Somatic--skeletal muscles
 - B. Autonomic--smooth muscles
 - 1. parasympathetic
 - 2. sympathetic
- II. Central Nervous System
 - A. Spinal Cord
 - B. Brain
- III. Spinal Cord features
 - A. Afferent
 - B. Efferent
 - C. Association
 - D. Transcutaneous stimulators and chronic pain
- IV. Some Major Features of Brain
 - A. Forebrain
 - 1. Cerebral cortex --major lobes (contralateral)
 - a. temporal - hearing
 - b. frontal - motor, thinking, integrating emotions
 - c. parietal - somatosensory
 - d. occipital - vision
 - 2. Hypothalamus-motives
 - B. Hindbrain
 - 1. Cerebellum
 - 2. Pons-sleep and wake
 - 3. Medulla—breathing and heart rate

SENSATION: VISION

- I. DEFINITIONS
 - A. SENSATION
 - B. PERCEPTION
- II. WHAT HAPPENS? --GENERAL PROCESS:
STIMULUS -> RECEPTOR -> RECEPTOR CELL -> TRANSDUCTION-> PNS -> CNS
-> EFFERENTS TO RECEPTOR
- III. VISION
 - A. ELECTROMAGNETIC ENERGY: LIGHT, 380- 750 NM
 - B. RECEPTOR -- EYE & ITS STRUCTURE
 - 1. SCLEROTIC COAT
 - 2. CHOROID COAT
 - 3. RETINA (TRANSDUCTION)
 - C. PHOTORECEPTORS
 - 1. RODS
 - 2. CONES
 - 3. COMPARISONS
 - a. STRUCTURAL
 - b. PHOTOPIGMENTS
 - c. FUNCTION
 - (1) INTENSITY
 - (2) WAVELENGTH
 - 4. TRANSDUCTION
 - D. PNS & RETINA
 - 1. PHOTORECEPTORS
 - 2. BIPOLAR NEURONS
 - 3. GANGLION CELLS (AXONS FOR optic NERVE)
 - 4. OPTIC CHIASM - - CROSS OVER
 - E. CNS
 - 1. THALAMUS (LATERAL GENICULATE BODY)
 - 2. OCCIPITAL LOBE --PRIMARY VISUAL CORTEX
- V. CONCLUSION: FEW ELEMENTS COMBINED IN COMPLEX FASHION
LEADS TO INFINITE VARIETY OF MENTAL EXPERIENCES

YOU DON'T ALWAYS SEE WHAT YOU THINK YOU SEE

- I. DO WE ORGANIZE?
 - A. QUESTION, EXAMPLES, ANSWER
 - B. RETICULAR ACTIVATING SYSTEM (RAS)
- II. ORGANIZATION OF PERCEPTION
 - A. GESTALT PSYCHOLOGISTS
 - B. PRINCIPLES OF PERCEPTUAL ORGANIZATION
 - 1. FIGURE - GROUND
 - 2. PROXIMITY
- III. DEPTH PERCEPTION
 - A. MONOCULAR CUES (E.G., LINEAR PERSPECTIVE)
 - B. BINOCULAR CUES
 - 1. STEREOSCOPIC VISION
 - 2. RETINAL DISPARITY
- IV. PERCEPTION OF MOVEMENT
 - A. SENSATIONS TO BE INTERPRETED
 - B. TYPES OF MOVEMENT
 - 1. REAL
 - 2. ILLUSORY (E.G., PHI PHENOMENON)
- V. PERCEPTUAL CONSTANCY
- VI. CONCLUDE: PERCEPTION INFLUENCED BY EXPERIENCE, MOTIVATION, EXPECTATIONS & THUS CULTURE