

## Study Guide: The Nervous System

- know the functions of the NS
  - o awareness, coordination, memory, response
- general structures of the generic nerve cell
- afferent nerves and efferent nerves
  - o sensory and motor effects
  - o what direction each go and return
- Organization of the NS
  - o CNS
    - Brain/ Spinal Cord
  - o PNS
    - Cranial Nerves
    - Spinal Nerves
  - o ANS
    - Sympathetic
    - Parasympathetic
- General Structure of Brain
  - o Three Vesicles
    - Know the Development of the Brain
      - Starting with Primary Vesicles
      - Secondary Vesicles
      - Brain Regions at Birth
  - o Forebrain, Midbrain, Hindbrain
  - o Tel, Die, Mes, Met, My
    - Know all structures within these regions
- Ventricles
  - o How many?
  - o Where are they located
  - o CSF circulation
- White and Grey Matter
  - o Unmyelinated/Myelinated
  - o Dorsal Roots
  - o Ventral Roots
- Know your structures of Spinal Cord
  - o Conus medullaris
  - o Filum Terminale – just to name a few
- Neuron: basic functional unit of the NS
- Structural types of neurons
  - o Anaxonic, bipolar, unipolar, multipolar
  - o Sensory, Motor, Interneurons
- CNS: Neuroglia: cells that support neurons
  - o Know characteristics of each type
- PNS: Neuroglia: cells that support neurons
- Speed of Transmission

- Fast/Slow what is necessary to go fast/slow?
- Meninges
  - Know the three layers in order from superficial to deep and revers
- Falx Cerebri, falx cerebelli, tentorium cerebelli
- Diaphragma sellae
- Dural sinuses formed cavity for venous blood
- Know the characteristics of the Blood Brain Barrier
  - Control of chemical exchange
- Cranial Nerves 12 pairs
  - OOOTTAFFVGVAH
- Know spinal nerves
  - Dorsal root ganglion
  - Where do spinal nerves leave spinal column?
    - Intervertebral foramen
- CT layers associated with spinal nerves
- Cervical plexus, brachial plexus, lumbosacral plexus
- Dermatomes
- Autonomic NS
  - Sympathetic: fight/flight
  - Parasympathetic: rest/digest
- Sympathetic Division
  - Pre ganglionic fiber (CNS) is found throughout body
  - Post ganglionic fiber synapse onto target organ
  - Postgang & pregang. Are equal length
  - Preganglionic synapse = acetylcholine (Ach)
  - Postganglionic synapse = norepinephrine
- Parasympathetic Division
  - Postgang fibers go to target organs
  - Postgang fibers are short
  - Both post/pregang. Fibers use acetylcholine
- NS = to short term affects w/ immediate recovery
- Endocrine = to long term affects w/ slow recovery

### General Senses/ Receptors

- Pain receptors: fast/slow/referred
- thermoreceptors: temperature
- Different types of mechanoreceptors: know what each does
- Limbic system is functional NOT anatomical

### Nose and Nasal Cavity

- external nose
- nasal cavity
- roof/nasal septum

### Tongue

- know specific structures and function of nerves of the tongue

- difference between papilla and taste buds

#### Eye

- Understand what belongs in each tunic
  - o Fibrous tunic
  - o Vascular tunic
  - o Neural tunic

#### Eye Cavities

- know the way the tear flows from lateral to medial
- do you know the muscles of the eye and what nerves innervate ?

#### Ear

- outer ear
  - o auricle
  - o auditory canal
  - o middle ear
  - o Auditory ossicles 1, 2, & 3?
    - What nerve innervates?
- o Inner ear

Just remember to review your notes a little each night, up to the night of the test. Try to find a place that has no distractions to study. There is a lot of information to go through so the less the distraction the better. Stay confident in what you have learned. Quiz each other!! This way you can learn from each other, what one does not know the other might. I have found this to work quite well in my own study habits. Keep your eyes on the goals you have set forth!

“The price of success is hard work, dedication to the job at hand, and the determination that whether we win or lose, we have applied the best of ourselves to the task at hand.”

[Vince Lombardi](#)