

Nervous System Study Guide

1. What is the main function of the nervous system? **To carry impulses throughout your body; cause a motor response to a sensed stimulus**
2. What are the two divisions of the nervous system? **Central Nervous System & Peripheral Nervous System**
3. What are the two divisions of the PNS? **Afferent & Efferent**
4. What kind of neurons does the afferent division contain? **Sensory (A before E; Sensory before Motor)**
5. What kind of neurons does the efferent division contain? **Motor**
6. What are the two divisions of the efferent division? **Autonomic & Somatic**
7. What are the two divisions of the autonomic nervous system? What response is this known as? **Sympathetic & Parasympathetic - Fight or Flight response**
8. What is the difference between neurons and neuroglia? **Neurons are the actual functioning nerve cell, neuroglia are supporting cells**
9. Which part of the neuron receives the impulse? **Dendrite**
10. Which part of the neuron transmits the impulse? **Axon**
11. What are the four structural types of neurons? **Anaxonic, Bipolar, Pseudounipolar, Multipolar**
12. Which neuroglial cell myelinates CNS axons? **Oligodendrocytes**
13. Which neuroglial cell myelinates PNS axons? **Schwann**
14. Name the four neuroglial cells of the CNS. **Ependymal, Microglial, Oligodendrocytes, Astrocytes**
15. Name the two neuroglial cells of the PNS. **Schwann, Satellite**
16. What are the two kinds of synapses? How are they different? **Electrical (direct contact) & Chemical (releases a neurotransmitter)**
17. What does a neuromodulator do? **Alters the neurotransmitter release**
18. Name and define the two types of summation. **Spatial (more than one synapse at the same time) & Temporal (synapses on repeat, one at a time)**
19. Name and define the two types of propagation. Explain node jumping. **Continuous & Saltatory**
20. What is Wallerian Degeneration? **occurs in the PNS; neuron axon degenerates (disappears due to damage) and the Schwann cells that myelinate it will bind/cement together, holding a place for the new axon**
21. What makes it difficult for the CNS to repair itself after injury? **Too many astrocytes - they cause and produce scar tissue which prevents axon regrowth**
22. Identify the longitudinal fissure, central sulcus, and lateral sulcus. **Longitudinal - right & left cerebrums. Central - separates frontal & parietal lobes. Lateral - separates temporal & parietal**
23. Identify the frontal lobe & its function. **Voluntary skeletal muscle movement**
24. Identify the parietal lobe & its function. **Perceives touch, pain, taste, temperature.**
25. Identify the temporal lobe & its function. **Perceives sound & smell**
26. Identify the occipital lobe & its function. **Visual perception**
27. Identify the cerebellum & its function. **Processing center**
28. Identify the pineal gland & its function. **Internal gland - releases melatonin to create the sleep/wake cycle**
29. Identify the pituitary gland & its function. **External gland - releases hormones that affect growth and blood pressure.**
30. Identify the medulla oblongata & its functions. **Connects the brain and spinal cord; communication between brain & spinal cord. Regulates heart rate and respiratory rate.**
31. Name the three ventricles. Locate the Lateral Ventricle. What flows through these ventricles? **Lateral, third, and fourth ventricles. Cerebrospinal fluid flows through these.**
32. What is responsible for controlling emotions? **Hypothalamus**

33. Locate the olfactory bulbs.
34. Locate the optic chiasm.
35. What is the difference between gray & white matter? **White matter consists of axons that are myelinated, gray matter axons are NOT myelinated.**
36. Name the three meninges of the brain & spinal cord in order from innermost layer to outermost. **Pia Mater, Arachnoid Mater, Dura Mater**
37. What is meningitis? **Inflammation in the meninges caused by an infection.**
38. Locate the posterior median sulcus, anterior median fissure, gray commissure, posterior/dorsal horn, anterior/ventral horn, white matter, dorsal root ganglia, dorsal root, ventral root, spinal nerve.
39. What is an enlargement? Name & locate the two enlargements. **An enlarged bundle of spinal nerve trunks, providing a lot of sensory & motor neurons. Cervical & Lumbar enlargements**
40. What is the function of the phrenic nerve? **Innervates diaphragm - controls the diaphragm's contraction and relaxation**
41. Name and define the two types of reflexes. **Monosynaptic - sensory neuron directly synapses with motor neuron. Polysynaptic - interneuron involved between sensory & motor neurons**
42. Know the five steps of the reflex arc. **1. Stimulus arrives 2. Sensory neuron activated 3. CNS processes info 4. Motor neuron activated 5. Response**
43. What is the difference between the plantar reflex and the babinski reflex? **Plantar reflex is a curling of the toes that occurs in adults. Babinski reflex is a fanning of the toes that occurs in infants or adults with CNS damage**
44. What do nociceptors sense? **Pain**
45. What do thermoreceptors sense? **Change in temperature**
46. What do mechanoreceptors sense? **Physical distortion**
47. What do chemoreceptors sense? **Chemicals - pH, CO₂, O₂**
48. What is olfaction? **Sense of smell**
49. What is gustation? **Sense of taste**
50. Name the five special senses. **Olfaction, gustation, equilibrium, hearing, & vision**
51. What is an odorant? **A chemical that will stimulate the olfactory receptors in the nasal cavity**
52. What are the six tastes we as human have? **Sweet, salty, sour, bitter, umami, & water**
53. What kind of taste is umami? **Savory (chicken broth, beef broth)**