

The Spinal Cord, Spinal Nerves and Somatic Reflexes

Chapter Thirteen Study Guide

1. What is the anatomy of the spinal cord (lecture and lab objective)? (Fig 3.1)
2. Define the following structures: anterior horn, posterior horn, lateral horn, anterior root, posterior root, rootlets, dorsal root ganglia, spinal nerve, commissure, central canal. (Fig 13.2)
3. What is the meninges membrane? What are the three layers? Where is fluid located within the meninges? (13.2a)
4. What special structures are formed by the pia mater (3)? Function?
5. What tissue is between the spinal cord and bony vertebrae? What is this space called? Clinical significance?
6. In the spinal cord, how is the white and grey matter organized? What structures of the neuron are found in the white and grey areas (Fig 13.3)?
7. What do these terms mean: ipsilateral, contralateral, decussation.
8. What functional neurons are found in the grey matter?
9. What terms describe the direction of the action potentials in the spinal cord (Fig 13.4)?
10. What are spinal tracts? How are they arranged in the spinal cord?
11. How are these terms used to describe the action potentials movement in the spinal cord? (decussation, ipsilateral, contralateral)
12. How many neurons are between the stimulus and the destination in the cerebral cortex for ascending tracts? What names are given to these neurons?
13. The sensory pathway action potential will transit through nuclei at the top of the brainstem. What is the name of this structure? What is its significance? What is the structure's nickname?
14. How many neurons are there between the origin of the somatic motor pathway and the skeletal muscle? What is the name given to the location of the origin? Significance?
15. What is an upper motor neuron? What are the two types? Final destination for AP?
16. What is a lower motor neuron? What are the two types? Final destination for AP?
17. Why is a spinal nerve called a “mixed nerve”?
18. How is the connective tissue arranged around a spinal nerve? (Fig 13.8)?

19. What happens to a spinal nerve when it exits from the intervertebral foramen? What is a rami? (Fig 13.11 & Fig 13.12)?
20. What is a nerve plexus? Where are they located? Significance? (Fig 13.3)
21. What are the for properties of a a somatic reflex? (Fig 13.20)
22. What is a muscle spindle? What is its function? Sensation called? (Fig 13.21)
23. What muscles are the extensors and flexors at the elbow and knee joints?
24. What is the difference between an ANS reflex and a somatic reflex?
25. What is a monosynaptic reflex arc?
26. What is a polysynaptic reflex arc?
27. What is the path traveled by a somatic reflex arc (i.e. withdrawl refex)?
28. What is the stretch reflex? How do we use this type of reflex? Examples? (Fig 13.14)
29. What is an flexor reflex? (Fig 13.16)
30. What is an flexor - crossed extensor reflexe?
31. What is the Golgi tendon reflex? Significance? (Fig 13.15)
32. What is the difference between a ganglia and a nuclei? Location?
33. What is the difference between a direct nerve pathways and an indirect nerve pathways?
34. What is the significance of the vestibulospinal pathway and the tectospinal pathway? Motor or sensory? Direct or indirect pathway?
35. The spinalthalamic and spinalcerebellar tracts both carry proprioception sensations. What is the difference between these tracts?
36. What type of information is carried by the corticospinal tract?