

The Spinal Cord, Spinal Nerves and Somatic Reflexes
Chapter Thirteen Study Guide
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1. What is the anatomy of the spinal cord (Fig 13.1 & 13.2)?
2. >Define the following structures: horns, roots, rootlets, spinal nerve.
3. >How is the meninges of the spinal cord arranged?
4. >What special structures are formed by the pia mater? Function?
5. >What is between the spinal cord and bony vertebrae? What is this space called?
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. Significance?
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? (Fig 13.12)?
11. >How are these terms used to describe the action potentials movement in the spinal cord? (decussation, ipsilateral, contralateral)
12. >In ascending tracts, how many neurons are between the stimulus and the destination in the cerebral cortex? What names are given to these neurons?
13. >In the sensory pathway, the 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 nick-name?
14. >In descending tracts, how many neurons are 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? Origin? Two types? Destinations?
16. >What is a lower motor neuron? Location(s)? What are they commonly called?
17. > Why is it called a “mixed nerve”? (Fig 13.5)
18. How is the connective tissue arranged around a spinal nerve? (Fig 13.5 & 13.6)?
19. What happens to a spinal nerve when it exits from the intervertebral foramen? What is a rami? (Fig 13.6)?

20. >What is a nerve plexus? Where are they located? Significance? (Fig 13.8)
21. >What is a muscle spindle? What is its function? Sensation called?
22. What muscles are the extensors and flexors at the elbow and knee joints?
23. >What is the nature of reflexes? (Fig 13.13)
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. withdrawal reflex)?
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 reflex?
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?