

Chapter Thirteen Study Guide / Tortora & Derrickson  
Spinal Cord, Spinal Nerves and Somatic Reflexes (S2017)

1. What is the gross anatomy of the spinal cord (Fig 13.1 & 13.2)?
2. In the spinal cord, how is the white and grey matter organized? What do these areas represent (Fig 13.3)?
3. What type of neurons are found in the grey matter?
4. How do sensory and motor impulses travel in the spinal cord (Fig 13.4)?
5. What are spinal tracts? How are they arranged in the spinal cord (Fig 13.12)?
6. How are these terms related to the spinal cord? (decussation, ipsilateral, contralateral)
7. In ascending tracts, how many neurons form the path between the stimuli and the destination of the signal in the cerebral cortex? What names are given to these neurons?
8. In a sensory pathway, the action potential through a group of nuclei in the brain. What is the significance of these nuclei and what are their nick name?
9. In descending tracts, how many neurons form the path between the origin of the motor signal and a skeletal muscle? Names? Locations?
10. What is the structure of a spinal nerve? How is connective tissue associated with the spinal nerve? (Fig 13.5 & 13.6)?
11. What does it mean if a nerve is called a mixed nerve?
12. What happens to a spinal nerve when it exits the spinal canal? Rami? (Fig 13.6)?
13. What is a nerve plexus? Where are they located? Significance?
14. What is the nature of reflexes? What is the difference between an ANS reflex and a somatic reflex?
15. What is the path traveled by a somatic reflex arc?
16. What is the “fundamental” role of a muscle spindle?
17. What is stretch reflex? How do we use this type of reflex? Give examples
18. What is a monosynaptic reflex arc?
19. What is a polysynaptic reflex arc?
20. What is an extensor reflex? What muscles are extensors? (elbow and knee joints)
21. What is a flexor reflex? What muscles are flexors? (elbow and knee joints)

22. How do flexor and crossed extension reflexes work?
23. What is the Golgi tendon reflex?
24. What is the difference between a ganglia and a nuclei? Locations?