

Spinal Cord, Spinal Nerves and Somatic Reflexes
Chapter Thirteen Study Guide
Tortora & Derrickson

1. What is the 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 functional neuron is found in the grey matter?
4. What is the direction of the action potentials in sensory and motor impulses 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 are 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 passes through a group of nuclei at the top of the brainstem. What is the significance and name of this structure? It's nick-name?
9. In descending tracts, how many neurons are between the origin of the motor signal and a skeletal muscle? Names? Locations?
10. What is the structure of a spinal nerve?
11. How is the connective tissue associated with the spinal nerve? (Fig 13.5 & 13.6)?
12. What does it mean to call a spinal nerve a mixed nerve?
13. What happens to a spinal nerve when it exits from the intervertebral foramen? What is a rami? (Fig 13.6)?
14. What is a nerve plexus? Where are they located? Significance?
15. What is the nature of reflexes?
16. What is the difference between an ANS reflex and a somatic reflex?
17. What is the path traveled by a somatic reflex arc?
18. What is the “fundamental” role of a muscle spindle?
19. What is stretch reflex? How do we use this type of reflex? Give examples
20. What is a monosynaptic reflex arc?

21. What is a polysynaptic reflex arc?
22. What is an extensor reflex? What muscles are extensors? (elbow and knee joints)
23. What is a flexor reflex? What muscles are flexors? (elbow and knee joints)
24. How is the action of flexor and crossed extension reflexes coordinated?
25. What is the Golgi tendon reflex?
26. What is the difference between a ganglia and a nuclei? Locations?