

Study Guide - Chapter 15
Autonomic Nervous System and Visceral Reflexes
Tortora & Derrickson

1. What are the target tissues of the ANS? (3)
2. What are the two divisions of the ANS? General function of each division?
3. What is the “boss” of the ANS? What other system is controlled by this “boss”? Significance?
4. How is the “pathway of neurons” for an ANS pathway different than the somatic nerve pathway? (think about the number of nerves to complete each pathway)
5. Where is the origin of the preganglionic neuron's soma for each division of the ANS?
6. What is the pathway of the Autonomic (Visceral) Reflex Arc / Study Figure 15.1
7. What is autonomic tone?
8. SNS pathways / Study Figure 15.2 / Identify the different ganglion and note the relative lengths of the pre and post ganglionic nerves. Is the post ganglionic fibers divergent?
9. PNS Neural Pathways / Study Figure 15.3 / Follow the preganglionic and post ganglionic pathways. Is the post ganglionic fibers divergent? Explain.
10. What are the three major collateral ganglia of the SNS? (You need to know these for lab)
11. What is the sympathoadrenal system? What is secreted? Response? What is the structure and function of the adrenal gland?
12. What structural phrase describes the parasympathetic nervous system?
13. What structural phrase describes the sympathetic nervous system?
14. What are the neurotransmitters of the ANS? Fig 15.7
15. What neurotransmitter is used at the ANS ganglia?
16. What neurotransmitter is used by the post ganglionic fibers?

17. What is the meaning of adrenergic and cholinergic related to nerve fibers and receptors?
18. What is the difference between ionotropic and metabotropic receptors?
19. What is the function and structure of acetylcholine receptors?
20. What is the function and structure of norepinephrine receptors?
21. What is the difference between ionotropic and metabotropic receptors? Which one is always stimulatory? Which one may have a variety of different outcomes?
22. What is the enteric nervous system? How is it different than the PNS and SNS? How is it similar? Regulation?
23. What is meaning of ANS dual innervation? Example
24. The ANS is not completely autonomic. It is influenced by the cerebral cortex, hypothalamus, and limbic system Explain:
25. Why is the ANS considered part of the “reptilian brain”?
26. What is the difference between cholinergic and adrenergic fibers?
27. What neurotransmitter uses muscarinic and nicotinic receptors? Which receptor is ionotropic and metabotropic?
28. What organ secretes molecules into the blood in response to the fright, fight, or flight response?