

Autonomic Nervous System and Visceral Reflexes
Study Guide - Chapter 15

1. What are the two divisions of the ANS? General function of each division?
2. What target tissues are regulated by the ANS?
3. What is the “boss” of the ANS? What other system is controlled by this “boss”? Significance?
4. How is the “neuron pathways” for an ANS pathway different than the somatic nerve pathway? (think about the number of nerves to complete each pathway)
5. Where is the location for for the preganglionic neuron for each division of the ANS?
6. What is the pathway for the Autonomic (Visceral) Reflex Arc?
7. What is the significance of autonomic nervous system tone? Explain this using the heart as an example.
8. What is the structural pathway for the SNS? Identify the different ganglion and note the relative lengths of the pre and post ganglionic nerves. Is the post ganglionic fibers divergent? Significance?
9. What is the structural pathway for the PNS? Is the post ganglionic fibers divergent? Significance?
10. What are the three major collateral ganglia of the SNS? (Lecture and lab objective)
11. What is the structure and function of the adrenal gland? Why is it described as a sympathetic post ganglionic structure?
12. What is the sympathoadrenal system? What type of molecule is secreted and to where is it secreted? How does this compare to the sympathetic post ganglionic fiber neurotransmitter?
13. What phrase about structure describes the parasympathetic nervous system?
14. What phrase about structure describes the sympathetic nervous system?
15. What are the neurotransmitters of the ANS?

16. What neurotransmitter is used at the ganglia of the ANS?
17. What neurotransmitter is used by the post ganglionic fibers?
18. Why are ANS fibers described as either adrenergic and cholinergic? Relate this to these fiber's receptors.
19. What is the difference between ionotropic and metabotropic receptors? Which one is always stimulatory? Which one may have a variety of different outcomes?
20. What is the function and structure of acetylcholine receptors?
21. What is the function and structure of norepinephrine receptors?
22. What is the enteric nervous system? How is it different from the PNS and SNS? How is the enteric nervous system regulated?
23. What is the significance of dual innervation by the ANS? Use the heart as your reference organ.
24. The ANS is not completely autonomic. It maybe influenced by the cerebral cortex, hypothalamus, and the limbic system Explain how this may play out when waiting to get on a dangerous roller choaster.
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 both 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?