

Unit Two Homework Assignment

C15 Autonomic Nervous System

ANS: Sympathetic VS Parasympathetic (5 minutes)

1. What is regulated by the ANS? (Effector tissues?)
2. Is the ANS under voluntary control?
3. What division of the ANS is activated by danger of physical activity? What increases in the body (stimulated)? What decreases in the body (inhibited)?
4. What division of the ANS is associated with rest and digestion? What increases in the body (stimulated)? What decreases in the body (inhibited)?
5. What is autonomic tone? Do both divisions of the ANS synapse on most organs? Significance?
6. What structure is only innervated by the sympathetic nervous system? How does it regulated blood flow (increase or decrease)?
7. How many neurons make the pathway from the CNS to the target tissue?
8. Where is the origin of the SNS motor pathway?
9. What term is used to summarize the fact that one SNS fiber may synapse with up to 20 postganglionic fibers?
10. Where is the origin of the PNS motor pathway?
11. Are the PNS postganglionic fibers long or short? Significance?

Neurotransmitters in the ANS Explained (17 minutes)

1. How are neurons named? Based on what?
2. What is the neurotransmitter released by the preganglionic fibers in both the PNS and SNS? Receptor type?
3. What is the receptor on all postganglionic fibers? (ionotropic or metabotropic?)
4. What are the two receptor types able to bind acetylcholine?
5. Is it possible for SNS and PNS to have only acetylcholine neurotransmitter for both their pre and post ganglionic fibers? Receptor type at target tissue?
6. What is an adrenergic neuron? What type of neurotransmitter is released?
7. Why is the sympathetic nerve called the one exception in the SNS? Significance?
8. Is the sympathetic nerve pathway faster or slower than the normal PNS or SNS? Why?
9. If you are a skydiver, then what pathway are you trying to activate?