Assignment 6 part II: The Autonomic nervous System, Chapter 14

Due: 11:59pm on Monday, March 4, 2013

Note: To understand how points are awarded, read your instructor's Grading Policy.

Art-labeling Activity: Figure 14.1

Part A

Drag the appropriate labels to their respective targets.

ANSWER:

Correct

Chapter 14 Chapter Test Question 2

Part A

For which of the following activities is the parasympathetic nervous system generally responsible?

ANSWER:

- sweating and dilating pupils
- fight-or-flight responses
- vigorous physical activity
- resting and digesting

Correct

The parasympathetic division, sometimes called the "rest and digest" system, keeps body energy use as low as possible, even as it directs vital "housekeeping" activities like digesting food and eliminating feces and urine.

Chapter 14 Reading Quiz Question 3

Part A

Which of the following is NOT associated with the parasympathetic division of the autonomic nervous system (ANS)?

ANSWER:

- emergency action
- resting
- digesting
- energy conservation

Correct

The activity of the sympathetic division, often called the "fight-or-flight" system, is evident when we are excited, exercising, or find ourselves in emergency situations.

Art-labeling Activity: Figure 14.7

Part A

Drag the appropriate labels to their respective targets.

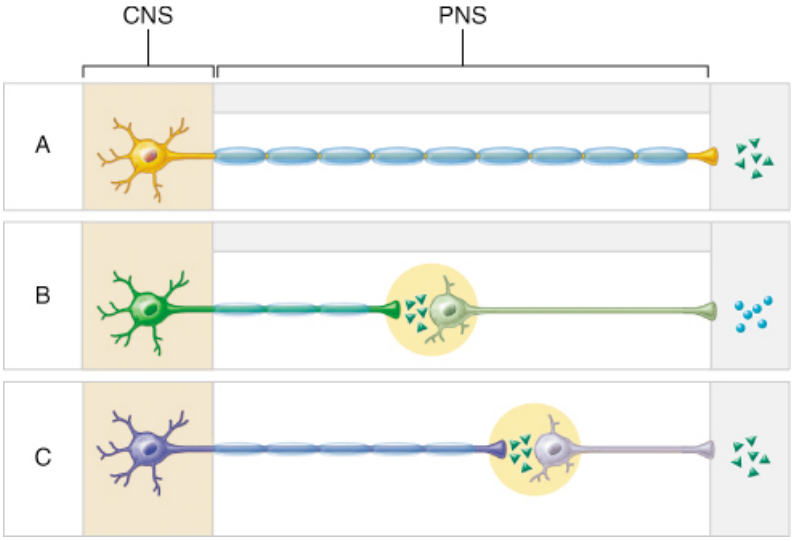
ANSWER:

Correct

Art Question Chapter 14 Question 7

Part A

Which pathways comprise the autonomic nervous system?



ANSWER:

- A only
- B only
- C only
- A and C
- B and C

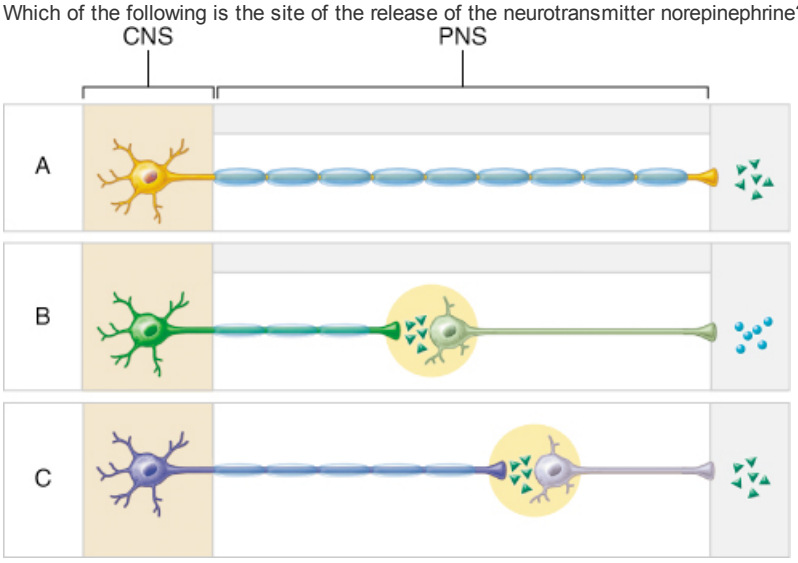
Correct

The outflow of the ANS is characterized by a two neuron chain spanning from CNS to effector organ. Both B and C show such an arrangement consisting of both pre- and postganglionic neurons.

Art Question Chapter 14 Question 10

Part A

Which of the following is the site of the release of the neurotransmitter norepinephrine?



ANSWER:

- within the ganglia of the sympathetic division
- terminus of a sympathetic postganglionic neuron
- terminus of a parasympathetic postganglionic neuron
- terminus of a somatic motor neuron
- within the ganglia of the parasympathetic division

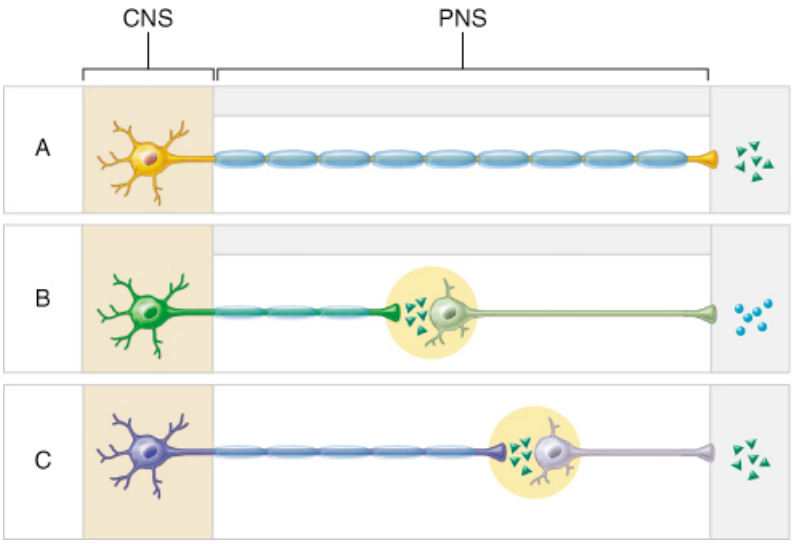
Correct

Release of norepinephrine at synapses within effector organs is characteristic of the sympathetic division (B).

Art Question Chapter 14 Question 11

Part A

Which of the following statements is **true?**



ANSWER:

- The effects of neurotransmitters released by sympathetic postganglionic neurons are always stimulatory.
- The effects of neurotransmitters released from either sympathetic or parasympathetic postganglionic neurons may be stimulatory or inhibitory.
- The effects of neurotransmitters released by somatic motor neurons may be either stimulatory or inhibitory.
- The effects of neurotransmitters released by parasympathetic postganglionic neurons are always inhibitory.

Correct

The effects may be stimulatory or inhibitory depending on the neurotransmitter released and the particular receptors within effector organs.

Chapter 14 Reading Quiz Question 2

Part A

Which division of the nervous system has short preganglionic neurons?

ANSWER:

- somatic motor
- somatic sensory
- parasympathetic
- sympathetic

Correct

The sympathetic division has short preganglionic fibers and long postganglionic fibers. The parasympathetic division has long preganglionic fibers and short postganglionic fibers. The somatic division has a single lower motor fiber (no preganglionic or postganglionic fibers).

Chapter 14 Reading Quiz Question 5

Part A

What differentiates an autonomic reflex from a somatic reflex?

ANSWER:

- an integration center
- a single sensory neuron in the sensory pathway
- presence of a sensory receptor
- a two-neuron motor pathway

Correct

Visceral reflex arcs have essentially the same components as somatic reflex arcs - receptor, sensory neuron, integration center, motor neuron, and effector. A key difference is that a visceral reflex arc has two neurons in its (autonomic) motor component, whereas the somatic reflex arc has a single (somatic) motor neuron.

Chapter 14 Chapter Test Question 8

Part A

Which of the following best demonstrates an example of cooperation of the parasympathetic and sympathetic nervous systems?

ANSWER:

- Sympathetic stimulation causes vasodilation of blood vessels in the clitoris, leading to erection; parasympathetic stimulation then causes reflex contractions of the vagina.
- Sympathetic stimulation causes vasodilation of blood vessels in the penis, leading to erection; parasympathetic stimulation then causes ejaculation.
- Parasympathetic stimulation causes vasodilation of blood vessels in the penis, leading to erection; sympathetic stimulation then causes ejaculation.
- Parasympathetic stimulation causes copious sweating; sympathetic stimulation causes epidermal pores to dilate.

Correct

The best example of cooperative autonomic effects is seen in controls of the external genitalia. Parasympathetic stimulation causes vasodilation of blood vessels in the external genitalia, and is responsible for erection of the male penis or female clitoris during sexual excitement. Sympathetic stimulation then causes the ejaculation of semen by the penis or reflex contractions of the vagina during an orgasm.

Chapter 14 Reading Quiz Question 7

Part A

Which of the following is responsible for the overall integration of the autonomic nervous system (ANS)?

ANSWER:

- reticular formation
- frontal lobe of the cerebral cortex
- brain stem
- hypothalamus (selected)

Correct

The hypothalamus stands at the top of the control hierarchy as the integrator of ANS activity.

Chapter 14 Reading Quiz Question 6

Part A

Which autonomic neurons release norepinephrine as a neurotransmitter?

ANSWER:

- sympathetic preganglionic neurons
- parasympathetic postganglionic neurons
- parasympathetic preganglionic neurons
- sympathetic postganglionic neurons (selected)

Correct

Most sympathetic postganglionic neurons release the neurotransmitter norepinephrine. All autonomic preganglionic neurons as well as parasympathetic postganglionic neurons release the neurotransmitter acetylcholine (ACh).

Chapter 14 Chapter Test Question 11

Part A

Which of the following is NOT an antagonistic effect of the sympathetic nervous system?

ANSWER:

- increased heart rate
- increased cognitive functioning (selected)
- inhibited digestion and elimination
- dilated airways

Correct

Cognitive function is not controlled by the autonomic nervous system.

Chapter 14 Homeostatic Imbalance Question 1

Part A

Symptoms of autonomic neuropathy could include any EXCEPT which of the following?

ANSWER:

- diarrhea
- constipation
- abnormal stretch reflex responses
- hyposecretion by sudoriferous glands

Correct

The stretch reflex is controlled by afferent sensory stretch receptors and somatic efferent motor neurons.

Chapter 14 Chapter Test Question 12

Part A

The sympathetic division is also called the "thoracolumbar division" of the autonomic nervous system.

ANSWER:

- True
- False

Correct

The sympathetic division is also called the "thoracolumbar division" of the autonomic nervous system because the thoracic and upper lumbar spinal segments (T1 through L2) contain the cell bodies of all preganglionic sympathetic neurons.

Chapter 14 Clinical Application Question 3

Part A

Which of the following outcome criteria show that a patient is effectively coping with a stressful problem?

ANSWER:

- Regular heart rate, warm and dry skin, dilated pupils, unlabored breathing
- Regular heart beat, unlabored breathing, warm and dry skin, constricted or normal pupils
- Increased heart rate, labored breathing, cold and sweaty skin, dilated pupils
- Increased heart rate, labored breathing, warm and dry skin, constricted or normal pupils
- Regular heart rate, regular blood pressure, cold and sweaty skin, dilated pupils

Correct

Chapter 14 Multiple Choice Question 9

Part A

The "resting and digesting" division of the autonomic nervous system is the _____.

ANSWER:

- parasympathetic division
- sympathetic division
- somatic division
- peripheral nervous system

Correct

Chapter 14 Multiple Choice Question 11

Part A

Which of these effectors is *not* directly controlled by the autonomic nervous system?

ANSWER:

- cardiac muscle
- smooth muscle
- skeletal muscle
- most glands

Correct

Chapter 14 True/False Question 12

Part A

Acetylcholine is the substance released by the axonal endings of the somatic efferent fibers and by the parasympathetic nerve fiber endings.

ANSWER:

- True
- False

Correct

Chapter 14 True/False Question 11

Part A

The adrenal medulla is considered a "misplaced" sympathetic ganglion by some.

ANSWER:

- True
- False

Correct

Chapter 14 Chapter Test Question 1

Part A

Which of the following is a way in which the somatic and autonomic nervous systems are *similar*?

ANSWER:

- Both systems share common effectors.
- Both systems share common efferent pathways.
- Both systems have ganglia in their motor pathways.
- Both systems elicit the same target organ responses to their neurotransmitters.
- None of the above.

Correct

Chapter 14 Multiple Choice Question 16

Part A

Autonomic ganglia contain _____.

ANSWER:

- synapses between postganglionic fibers and their effectors
- an outer connective tissue capsule around the cell bodies of preganglionic motor neurons
- both somatic afferent and efferent neurons
- the cell bodies of motor neurons

Correct

Chapter 14 True/False Question 16

Part A

The ANS stimulates smooth muscles, skeletal muscles and glands, whereas the somatic nervous system innervates skeletal muscles only.

ANSWER:

- True
- False

Correct

Chapter 14 Chapter Test Question 6

Part A

The two types of receptors that bind acetylcholine are _____ and _____ receptors.

ANSWER:

- caffeinic; muscarinic
- alpha; beta
- nicotinic; caffeinic
- nicotinic; muscarinic

Correct

The two types of cholinergic (ACh-binding) receptors are named for drugs that bind to them and mimic acetylcholine's effects. Nicotinic receptors respond to nicotine. Muscarinic receptors, the other set of ACh receptors, can be activated by the mushroom poison muscarine. All ACh receptors are either nicotinic or muscarinic.

Chapter 14 Multiple Choice Question 23

Part A

Which of the following appears to exert the most direct influence over autonomic function?

ANSWER:

- reticular formation
- hypothalamus
- midbrain
- medulla oblongata

Correct

Chapter 14 True/False Question 8

Part A

Thermoregulatory responses to increased heat are mediated by the sympathetic nervous division.

ANSWER:

- True
- False

Correct

Chapter 14 True/False Question 17

Part A

Norepinephrine-releasing fibers are called cholinergic fibers.

ANSWER:

- True
- False

Correct

Score Summary:

Your score on this assignment is 90.4%.
You received 24.42 out of a possible total of 27 points.