

A&P 15

Autonomic

Nervous System

Essay

Author: OpenStax College

Published 2014

Create, Share, and Discover Online Quizzes.

QuizOver.com is an intuitive and powerful online quiz creator. [learn more](#)

Join QuizOver.com



How to Analyze Stocks

By Yasser Ibrahim

1 month ago
12 Responses

© iStock: Thomson Moter



Pre Employment English

By Katharina jennifer N

5 months ago
19 Responses

© iStock: Albin



Lean Startup Quiz

By Yasser Ibrahim

2 months ago
16 Responses

© iStock: Gekwotwe Ochiu

Powered by QuizOver.com

The Leading Online Quiz & Exam Creator

Create, Share and Discover Quizzes & Exams

<http://www.quizover.com>

Disclaimer

All services and content of QuizOver.com are provided under QuizOver.com terms of use on an "as is" basis, without warranty of any kind, either expressed or implied, including, without limitation, warranties that the provided services and content are free of defects, merchantable, fit for a particular purpose or non-infringing.

The entire risk as to the quality and performance of the provided services and content is with you.

In no event shall QuizOver.com be liable for any damages whatsoever arising out of or in connection with the use or performance of the services.

Should any provided services and content prove defective in any respect, you (not the initial developer, author or any other contributor) assume the cost of any necessary servicing, repair or correction.

This disclaimer of warranty constitutes an essential part of these "terms of use".

No use of any services and content of QuizOver.com is authorized hereunder except under this disclaimer.

The detailed and up to date "terms of use" of QuizOver.com can be found under:

<http://www.QuizOver.com/public/termsOfUse.xhtml>

eBook Content License

OpenStax College. Anatomy & Physiology, OpenStax-CNX Web site.
<http://cnx.org/content/col11496/1.6/>, Jun 11, 2014

Creative Commons License

Attribution-NonCommercial-NoDerivs 3.0 Unported (CC BY-NC-ND 3.0)

<http://creativecommons.org/licenses/by-nc-nd/3.0/>

You are free to:

Share: copy and redistribute the material in any medium or format

The licensor cannot revoke these freedoms as long as you follow the license terms.

Under the following terms:

Attribution: You must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.

NonCommercial: You may not use the material for commercial purposes.

NoDerivatives: If you remix, transform, or build upon the material, you may not distribute the modified material.

No additional restrictions: You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.

4. Chapter: A&P 15 Autonomic Nervous System Essay

1. A&P 15 Autonomic Nervous System Essay Questions

4.1.1. Watch this video (<http://openstaxcollege.org//fightflight>) to lear...

Author: OpenStax College

Watch this video (<http://openstaxcollege.org//fightflight>) to learn more about adrenaline and the fight-or-flight response.

When someone is said to have a rush of adrenaline, the image of bungee jumpers or skydivers usually comes to mind.

But adrenaline, also known as epinephrine, is an important chemical in coordinating the body's fight-or-flight response.

In this video, you look inside the physiology of the fight-or-flight response, as envisioned for a firefighter.

His body's reaction is the result of the sympathetic division of the autonomic nervous system causing system-wide changes as it prepares for extreme responses.

What two changes does adrenaline bring about to help the skeletal muscle response?

- The heart rate increases to send more blood to the muscles, and the liver releases stored glucose to fuel the muscles.

Check the answer of this question online at QuizOver.com:

Question: [Watch this video http://openstaxcollege](http://openstaxcollege.org//fightflight) OpenStax College Anatomy

4.1.2. Watch this video (<http://openstaxcollege.org//nervsystem1>) to lear...

Author: OpenStax College

Watch this video (<http://openstaxcollege.org//nervsystem1>) to learn more about the nervous system.

As described in this video, the nervous system has a way to deal with threats and stress that is separate from the conscious control of the somatic nervous system.

The system comes from a time when threats were about survival, but in the modern age, these responses become part of stress and anxiety.

This video describes how the autonomic system is only part of the response to threats, or stressors.

What other organ system gets involved, and what part of the brain coordinates the two systems for the entire response, including epinephrine (adrenaline) and cortisol?

- The endocrine system is also responsible for responses to stress in our lives. The hypothalamus coordinates the autonomic response through projections into the spinal cord and through influence over the pituitary gland, the effective center of the endocrine system.

Check the answer of this question online at QuizOver.com:

Question: [Watch this video http://openstaxcollege OpenStax College Anatomy](http://openstaxcollege.org//nervsystem1)

4.1.3. Read this article (<http://openstaxcollege.org/l/strokespell>) to lea...

Author: OpenStax College

Read this article (<http://openstaxcollege.org/l/strokespell>) to learn about a teenager who experiences a series of spells that suggest a stroke.

He undergoes endless tests and seeks input from multiple doctors.

In the end, one expert, one question, and a simple blood pressure cuff answers the question.

Why would the heart have to beat faster when the teenager changes his body position from lying down to sitting, and then to standing?

- The effect of gravity on circulation means that it is harder to get blood up from the legs as the body takes on a vertical orientation.

Check the answer of this question online at QuizOver.com:

Question: [Read this article http://openstaxcollege](http://openstaxcollege.org/l/strokespell) OpenStax College Anatomy

4.1.4. Watch this video (<http://openstaxcollege.org/l/pupillary>) to learn ...

Author: OpenStax College

Watch this video (<http://openstaxcollege.org/l/pupillary>) to learn about the pupillary reflexes.

The pupillary light reflex involves sensory input through the optic nerve and motor response through the oculomotor nerve to the ciliary ganglion, which projects to the circular fibers of the iris.

As shown in this short animation, pupils will constrict to limit the amount of light falling on the retina under bright lighting conditions.

What constitutes the afferent and efferent branches of the competing reflex (dilation)?

- The optic nerve still carries the afferent input, but the output is from the thoracic spinal cord, through the superior cervical ganglion, to the radial fibers of the iris.

Check the answer of this question online at QuizOver.com:

Question: [Watch this video http://openstaxcollege.org/l/pupillary](http://openstaxcollege.org/l/pupillary) OpenStax College Anatomy

4.1.5. Watch this video (<http://openstaxcollege.org/l/emotions>) to learn a...

Author: OpenStax College

Watch this video (<http://openstaxcollege.org/l/emotions>) to learn about physical responses to emotion.

The autonomic system, which is important for regulating the homeostasis of the organ systems, is also responsible for our physiological responses to emotions such as fear.

The video summarizes the extent of the body's reactions and describes several effects of the autonomic system in response to fear.

On the basis of what you have already studied about autonomic function, which effect would you expect to be associated with parasympathetic, rather than sympathetic, activity?

- The release of urine in extreme fear. The sympathetic system normally constricts sphincters such as that of the urethra.

Check the answer of this question online at [QuizOver.com](http://www.quizover.com):

Question: [Watch this video http://openstaxcollege.org/l/emotions](http://openstaxcollege.org/l/emotions) OpenStax College Anatomy

4.1.6. Watch this video (<http://openstaxcollege.org/l/3Dmovies>) to learn a...

Author: OpenStax College

Watch this video (<http://openstaxcollege.org/l/3Dmovies>) to learn about the side effects of 3-D movies.

As discussed in this video, movies that are shot in 3-D can cause motion sickness, which elicits the autonomic symptoms of nausea and sweating.

The disconnection between the perceived motion on the screen and the lack of any change in equilibrium stimulates these symptoms.

Why do you think sitting close to the screen or right in the middle of the theater makes motion sickness during a 3-D movie worse?

- When the visual field is completely taken up by the movie, the brain is confused by the lack of vestibular stimuli to match the visual stimuli.
Sitting to the side, or so that the edges of the screen can be seen, will help by providing a stable visual cue along with the magic of the cinematic experience.

Check the answer of this question online at QuizOver.com:

Question: [Watch this video http://openstaxcollege](http://openstaxcollege.org/l/3Dmovies) OpenStax College Anatomy

4.1.7. In the context of a lioness hunting on the savannah, why would the ...

Author: OpenStax College

In the context of a lioness hunting on the savannah, why would the sympathetic system not activate the digestive system?

- Whereas energy is needed for running away from the threat, blood needs to be sent to the skeletal muscles for oxygen supply.
The additional fuel, in the form of carbohydrates, probably wouldn't improve the ability to escape the threat as much as the diversion of oxygen-rich blood would hinder it.

Check the answer of this question online at QuizOver.com:

Question: [In the context of a lioness hunting on OpenStax College Anatomy Quest](#)

4.1.8. A target effector, such as the heart, receives input from the sympa...

Author: OpenStax College

A target effector, such as the heart, receives input from the sympathetic and parasympathetic systems.

What is the actual difference between the sympathetic and parasympathetic divisions at the level of those connections (i.e., at the synapse)?

- The postganglionic sympathetic fiber releases norepinephrine, whereas the postganglionic parasympathetic fiber releases acetylcholine.
Specific locations in the heart have adrenergic receptors and muscarinic receptors.
Which receptors are bound is the signal that determines how the heart responds.

Check the answer of this question online at QuizOver.com:

Question: [A target effector such as the heart receives OpenStax College Anatomy](#)

4.1.9. Damage to internal organs will present as pain associated with a pa...

Author: OpenStax College

Damage to internal organs will present as pain associated with a particular surface area of the body.

Why would something like irritation to the diaphragm, which is between the thoracic and abdominal cavities, feel like pain in the shoulder or neck?

- The nerves that carry sensory information from the diaphragm enter the spinal cord in the cervical region where somatic sensory fibers from the shoulder and neck would enter. The brain superimposes this experience onto the sensory homunculus where the somatic nerves are connected.

Check the answer of this question online at QuizOver.com:

Question: [Damage to internal organs will present as OpenStax College Anatomy](#)

4.1.10. Medical practice is paying more attention to the autonomic system i...

Author: OpenStax College

Medical practice is paying more attention to the autonomic system in considering disease states.

Why would autonomic tone be important in considering cardiovascular disease?

- Within the cardiovascular system, different aspects demonstrate variation in autonomic tone. Heart rate is under parasympathetic tone, and blood pressure is under sympathetic tone. Pharmaceuticals that treat cardiovascular disorders may be more effective if they work with the normal state of the autonomic system. Alternatively, some disorders may be exacerbated by autonomic deficits and common therapies might not be as effective.

Check the answer of this question online at QuizOver.com:

Question: [Medical practice is paying more attention OpenStax College Anatomy](#)

4.1.11. Horner's syndrome is a condition that presents with changes in one ...

Author: OpenStax College

Horner's syndrome is a condition that presents with changes in one eye, such as pupillary constriction and drooping of eyelids, as well as decreased sweating in the face.

Why could a tumor in the thoracic cavity have an effect on these autonomic functions?

- Pupillary dilation and sweating, two functions lost in Horner's syndrome, are caused by the sympathetic system.
A tumor in the thoracic cavity may interrupt the output of the thoracic ganglia that project to the head and face.

Check the answer of this question online at [QuizOver.com](http://www.quizover.com):

Question: [Horner's syndrome is a condition that OpenStax College Anatomy Quest](#)

4.1.12. The cardiovascular center is responsible for regulating the heart a...

Author: OpenStax College

The cardiovascular center is responsible for regulating the heart and blood vessels through homeostatic mechanisms.

What tone does each component of the cardiovascular system have? What connections does the cardiovascular center invoke to keep these two systems in their resting tone?

- The heart-based on the resting heart rate-is under parasympathetic tone, and the blood vessels-based on the lack of parasympathetic input-are under sympathetic tone.
The vagus nerve contributes to the lowered resting heart rate, whereas the vasomotor nerves maintain the slight constriction of systemic blood vessels.

Check the answer of this question online at QuizOver.com:

Question: [The cardiovascular center is responsible OpenStax College Anatomy](#)

4.1.13. Why does smoking increase the risk of heart disease? Provide two re...

Author: OpenStax College

Why does smoking increase the risk of heart disease? Provide two reasons based on autonomic function.

- Blood vessels, and therefore blood pressure, are primarily influenced by only the sympathetic system. There is no parasympathetic influence on blood pressure, so nicotine activation of autonomic ganglia will preferentially increase blood pressure.
Also, cardiac muscle tissue is only modulated by autonomic inputs, so the conflicting information from both sympathetic and parasympathetic postganglionic fibers will cause arrhythmias.
Both hypertension and arrhythmias are cardiac risk factors.

Check the answer of this question online at [QuizOver.com](http://www.quizover.com):

Question: [Why does smoking increase the risk of OpenStax College Anatomy Quest](#)

4.1.14. Why might topical, cosmetic application of atropine or scopolamine ...

Author: OpenStax College

Why might topical, cosmetic application of atropine or scopolamine from the belladonna plant not cause fatal poisoning, as would occur with ingestion of the plant?

- Drops of these substances into the eyes, as was once done cosmetically, blocks the muscarinic receptors in the smooth muscle of the iris.
The concentration of this direct application is probably below the concentration that would cause poisoning if it got into the bloodstream.
The possibility of that concentration being wrong and causing poisoning is too great, however, for atropine to be used as a cosmetic.

Check the answer of this question online at QuizOver.com:
Question: [Why might topical cosmetic application of OpenStax College Anatomy](#)