# What is the Autonomic Nervous System?

Worksheet

The autonomic nervous system is the involuntary branch of the peripheral nervous system that regulates internal organs through two opposing divisions: the sympathetic (fight-or-flight) and parasympathetic (rest-and-digest) systems.

## Questions

1. Which division of the ANS is responsible for the 'fight-or-flight' response?

A) Somatic nervous system
B) Sympathetic division
C) Parasympathetic division
D) Central nervous system

2. Which of the following is a parasympathetic effect?

A) Increased heart rate
B) Pupil dilation
C) Stimulated digestion
D) Adrenaline release

3. The autonomic nervous system is part of which larger system?

A) Central nervous system
B) Peripheral nervous system
C) Endocrine system
D) Skeletal system

4. Which best describes the ANS's overall function?

A) Controls voluntary muscle movement
B) Regulates involuntary organ functions
C) Processes conscious thought
D) Transmits sensory pain signals only

5. A student is suddenly startled by a loud bang in the hallway. Which ANS division activates and what happens to the body?

6. After a large meal, a person feels relaxed and their stomach begins actively digesting food. Which division is dominant?

7. A patient is given a beta-blocker, which blocks sympathetic receptors on the heart. What immediate effect would you expect?

8. Define: What is the autonomic nervous system?

9. Define: What are the two main divisions of the ANS?

10. Define: Is the ANS voluntary or involuntary?

# Answer Key

1. B) Sympathetic division - The sympathetic division prepares the body for rapid action during stress or danger.

2. C) Stimulated digestion - The parasympathetic division promotes 'rest-and-digest' functions, including stimulating digestion.

3. B) Peripheral nervous system - The ANS is a motor branch of the peripheral nervous system, distinct from the somatic (voluntary) branch.

4. B) Regulates involuntary organ functions - The ANS automatically regulates organs like the heart, lungs, and gut without conscious control.

5. The sudden threat triggers the sympathetic division Heart rate and blood pressure rise Pupils dilate and blood flow shifts toward skeletal muscles Digestion is temporarily suppressed to prioritize a fast physical response

6. A calm, safe state favors the parasympathetic division Heart rate slows and breathing deepens Salivary and digestive glands are stimulated Blood flow increases to the digestive tract to support nutrient absorption

7. Beta-blockers block sympathetic (adrenaline) signaling on the heart Without sympathetic stimulation, heart rate and force of contraction decrease Parasympathetic influence becomes relatively more dominant Result: a lower resting heart rate and blood pressure

8. The involuntary branch of the peripheral nervous system that controls internal organs like the heart, lungs, and digestive tract.

9. The sympathetic division (fight-or-flight) and the parasympathetic division (rest-and-digest).

10. Involuntary - it works automatically without conscious control.