

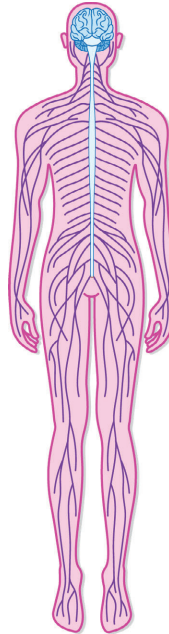
TOPIC: ORGANIZATION OF THE NERVOUS SYSTEM

The Nervous System

- ◆ **Nervous System:** Complex network of neurons that conveys electrochemical information throughout the body.
- ◆ Has 2 divisions: **1) Central Nervous System (_____)** and **2) Peripheral Nervous System (_____)**

Central Nervous System (CNS)

- ◆ Composed of the _____ and spinal cord.
- ◆ Functions as a _____ center for the human body.

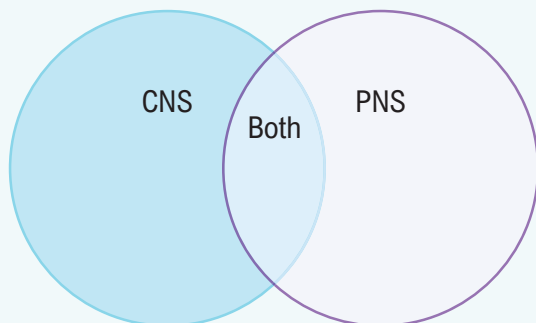


Peripheral Nervous System (PNS)

- ◆ Composed of _____ outside the brain and spinal cord.
- ◆ Connects body to the brain; essential for _____ and movement.

EXAMPLE

Fill in the Venn Diagram below with the statements from the box. If a statement applies to both the central and peripheral nervous systems, place it in the overlapping section of the two circles.



- a) Composed of nerves outside the brain.
- b) Acts as a “control center” for most functions.
- c) Uses electrochemical signals to communicate.
- d) Includes the spinal cord.

PRACTICE

True or False: If false, choose the answer that best corrects the statement.

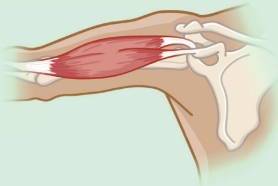
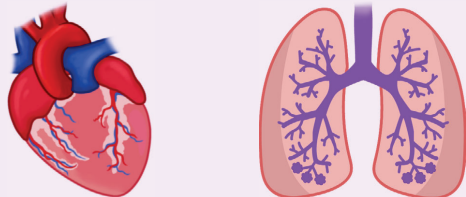
The peripheral nervous system is comprised of nerves outside the brain and the spinal cord.

- a) True.
- b) False; the peripheral nervous system includes nerves, the spinal cord, and the brain.
- c) False; the peripheral nervous system includes the brain and the spinal cord.
- d) False; the peripheral nervous system is a system of organs and muscles that coordinate with the brain.

TOPIC: ORGANIZATION OF THE NERVOUS SYSTEM

Subdivisions of the PNS

◆ The peripheral nervous system can be divided into ____ major subsystems:

____ Nervous System	____ nomic Nervous System
Controls ____ movement.	Controls ____ voluntary movement.
Primarily innervates ____ muscles. 	Primarily innervates ____, glands, and vessels. 

EXAMPLE

For each scenario below, decide which subdivision of the peripheral nervous system is in use. If the somatic nervous system is being used, write an “S,” and if the autonomic nervous system is being used, write an “A”.

- a) Your heart rate increases after walking up a flight of stairs: _____
- b) Your biceps contract to pick up your dog: _____
- c) Your calf muscles contract to jump over a puddle: _____
- d) Salivary glands contract at the smell of fresh cookies: _____
- e) Your pupils dilate when walking into a bright room: _____

PRACTICE

Which of the following statements is true about the autonomic nervous system?



- I) It is a division of the central nervous system.
- II) It primarily innervates organs, glands, and vessels.
- III) It controls involuntary movement.

- a) I & II only.
- b) I & III only.
- c) II & III only.
- d) I, II, & III.

TOPIC: ORGANIZATION OF THE NERVOUS SYSTEM

Subdivisions of the Autonomic Nervous System

◆ The autonomic nervous system is organized into _____ divisions:

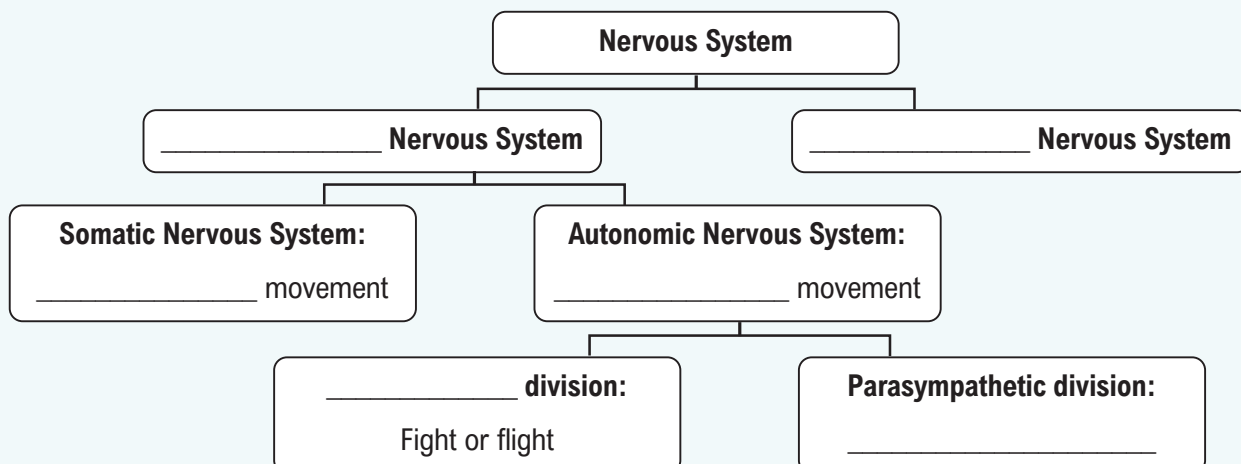
Sympathetic Division	Parasympathetic Division
Activated when we are engaged, threatened, or _____.	Activated when we are relaxed and at _____.
<p>“Fight or _____”</p> 	<p>“Rest and _____”</p> 

◆ These divisions connect to many of the _____ organs, but tend to have _____ effects. For example:

Structure	Sympathetic Division	Parasympathetic Division
Cardiac Muscle	Increases heart rate.	Decreases heart rate.
Bronchioles of the Lungs	_____ bronchioles.	Constricts bronchioles.
Gastrointestinal Tract	_____ creases activity.	_____ creases activity.
Pupils	Dilates pupils.	Constricts pupils.

EXAMPLE

The following flow chart lists the divisions of the nervous system. Fill in the blanks with either the appropriate label, and/or the definition of the system. Some of the boxes have been filled in for you.



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PRACTICE

The _____ system is likely active during a difficult exam while the _____ system is likely active while relaxing.

- a) Central; peripheral.
- b) Sympathetic; parasympathetic.
- c) Autonomic; somatic.
- d) Sympathetic; somatic.

PRACTICE

Parasympathetic activation would _____ heart rate while sympathetic activation would _____ heart rate.

- a) Increase; decrease.
- b) Not affect; increase.
- c) Decrease; not affect.
- d) Decrease; increase.