

## Chapter

## 36

## The Nervous System

## Content Mastery

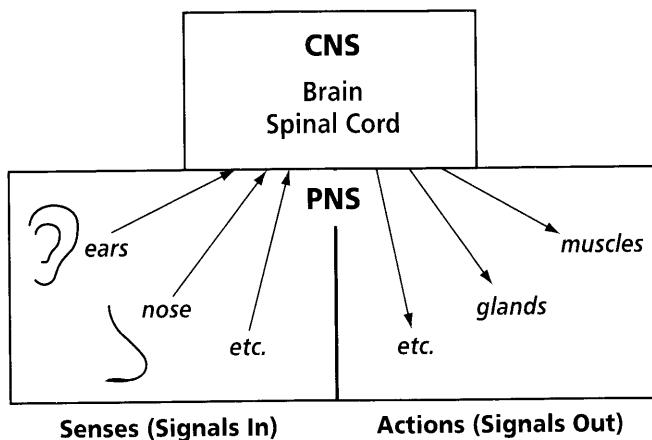
## Get the Big Picture

Read the paragraphs in the boxes and look at the diagram. Then answer the questions that follow.

The **nervous system** gives directions to all the other systems in your body. It also gets information from your senses and keeps track of how well the different parts of your body are working together. The nervous system is made up of two parts: the **central nervous system** (CNS), and the **peripheral nervous system** (PNS). Peripheral means "not central." Your brain and spinal cord make up your CNS and send and receive messages through your PNS.

Your senses allow you to perceive the world by seeing, hearing, feeling, tasting, and smelling. Your sense organs collect information about the world and send it to your brain. The brain decodes the signals and makes them meaningful.

Many drugs act to disrupt the normal functioning of the nervous system. Drugs can change your brain's ability to think and to control the rest of your body.



1. How does your central nervous system receive information?  
\_\_\_\_\_
2. Which part of the nervous system do the nerves in your skin belong to?  
\_\_\_\_\_
3. You may not think that caffeine is a drug, but it is. When you drink a soft drink that contains caffeine, you may feel jittery. Why do you think this is so?  
\_\_\_\_\_

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The Nervous System, *continued*

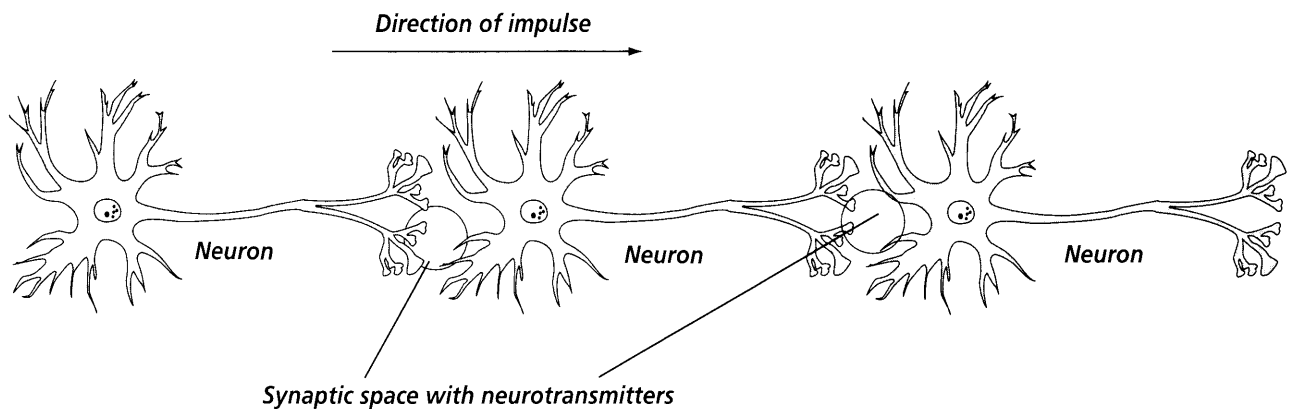
## Content Mastery

## Section 36.1 The Nervous System

## Study the Diagram

Read the paragraph in the box and study the diagram. Then answer the questions that follow.

Electrical signals travel throughout your nervous system, carrying information from one place to another. The nervous system is made up of nerve cells, or **neurons**. The neurons have gaps between them, called **synaptic spaces**, which an electrical signal has to jump across in order to continue. In some electrical machinery, electrical signals jump across a tiny gap as a spark. In your body, an electrical impulse is passed by a chemical signal called a **neurotransmitter**.



1. What would happen to your nervous system if the neurotransmitters in your body were suddenly blocked from passing into the synaptic spaces?

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2. What do you think would happen if a lot of neurotransmitters were suddenly released throughout your nervous system?

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## Chapter

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The Nervous System, *continued*

## Content Mastery

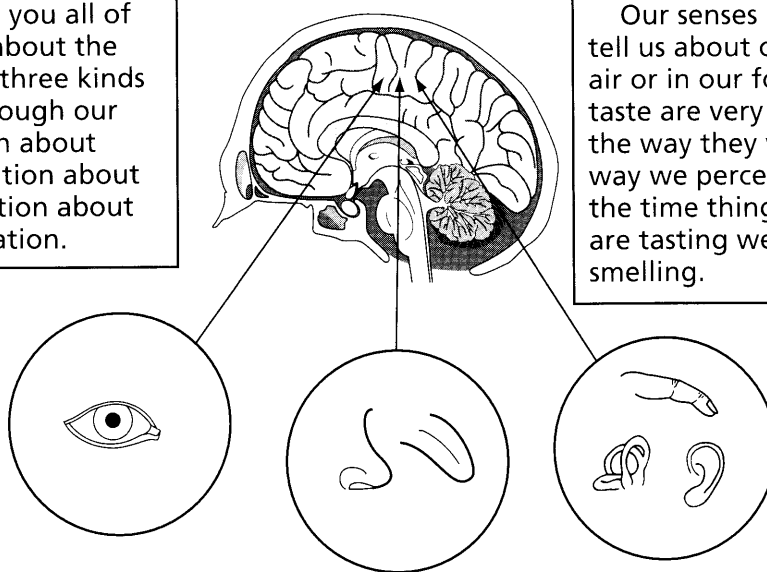
## Section 36.2 The Senses

## Study the Diagram

Read the paragraphs in the boxes and study the diagram. Then answer the questions that follow.

Your senses give you all of your information about the world. We receive three kinds of information through our senses: information about chemicals, information about light, and information about mechanical stimulation.

Our senses of smell and taste tell us about chemicals in the air or in our food. Smell and taste are very similar, both in the way they work and in the way we perceive them. A lot of the time things we think we are tasting we are actually smelling.



Our senses of touch, hearing, and balance are very closely related. The sense of touch comes from pressure directly on the skin. Pressure receptors in the ears sense changes in sound waves and allow us to hear. Organs in the ears called semicircular canals maintain our balance by detecting the movement of fluid that occurs when we move our head.

Our sight is based on the light information received by our eyes. Our eyes have cells adapted for seeing different kinds of light. Rods allow us to see in dim light; cones work best at seeing color, as well as sharp images in bright light.

1. Which sense do you think an acrobat uses the most when walking blindfolded on a tightrope? Which organ is responsible for this sense?  
\_\_\_\_\_  
\_\_\_\_\_
2. Why is it hard to taste food when you have a stuffed-up nose?  
\_\_\_\_\_  
\_\_\_\_\_
3. Cats have many rods and few cones in their eyes. Do you think cats see well in the dark? How well do you think they see colors?  
\_\_\_\_\_  
\_\_\_\_\_

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The Nervous System, *continued*

## Content Mastery

## Review the Vocabulary

addiction  
cerebrum  
neuron (NEW rahn)  
rods

nervous system  
cochlea  
reflex  
withdrawal

cerebellum  
retina  
taste bud  
synapse (SIH naps)

Use the Chapter 36 vocabulary words listed above to complete the puzzle. First, write the correct word on the line after each definition. Then find the same word in the letter grid and circle it. Words may be written on horizontal, vertical, or diagonal lines.

- Psychological or physiological drug dependence \_\_\_\_\_
- Layer of the eye containing rods and cones \_\_\_\_\_
- Body's control center \_\_\_\_\_
- Taste receptor on tongue \_\_\_\_\_
- Portion of brain that maintains balance and muscle coordination \_\_\_\_\_
- Psychological or physiological illness resulting from cessation of drug use \_\_\_\_\_
- Largest portion of the brain \_\_\_\_\_
- Place where neurons meet \_\_\_\_\_
- Fluid-filled structure of the ear in which sound vibrations are converted into nerve impulses \_\_\_\_\_
- Light receptors in the retina responsible for vision in low light \_\_\_\_\_
- Basic structural and functional unit in the nervous system \_\_\_\_\_
- Rapid, automatic response to a stimulus \_\_\_\_\_

f	r	a	x	e	d	h	l	u	c	e	n
c	e	r	e	b	e	l	l	u	m	t	e
e	w	i	t	h	d	r	a	w	a	l	r
r	n	l	d	j	h	e	d	m	l	c	v
e	e	g	f	i	o	f	d	r	k	o	o
b	u	t	e	e	e	l	i	h	n	c	u
r	r	u	i	e	e	e	c	t	g	h	s
u	o	e	m	n	e	x	t	q	l	l	s
m	n	s	h	d	a	s	i	a	j	e	y
m	a	c	w	v	e	r	o	d	s	a	s
r	g	s	y	h	e	b	n	s	d	s	t
t	a	s	t	e	b	u	d	f	a	e	e
w	f	s	a	s	y	n	a	p	s	e	m
a	d	e	b	n	l	g	i	w	n	e	q