

Chapter 39

Endocrine and Reproductive Systems

Section 39–1 The Endocrine System (pages 997–1002)

This section describes the function of the endocrine system and explains how it maintains homeostasis.

Introduction (page 997)

1. What makes up the endocrine system? _____

2. What do the products of the endocrine system do? _____

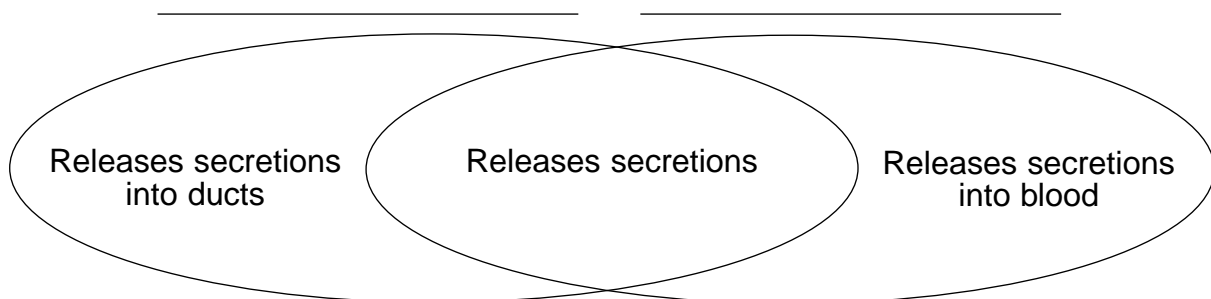
Hormones (page 997)

3. Chemicals that travel through the bloodstream and affect the activities of other cells are called _____.
4. How do hormones affect the activities of other cells? _____

5. Cells that have receptors for a particular hormone are referred to as _____.
6. Is the following sentence true or false? Cells without receptors are not affected by hormones. _____
7. Is the following sentence true or false? Generally, the body's responses to hormones are quicker and shorter lasting than the responses to nerve impulses. _____

Glands (page 998)

8. An organ that produces and releases a substance, or a secretion, is called a(an) _____.
9. Complete the Venn diagram by adding titles.



10. What is the function of the parathyroid glands? _____

Match the endocrine gland with the hormone it produces.

Endocrine Gland	Hormone It Produces
_____ 11. Pineal	a. Glucagon
_____ 12. Thyroid	b. Melatonin
_____ 13. Pancreas	c. Epinephrine
_____ 14. Thymus	d. Thyroxine
_____ 15. Adrenal	e. Thymosin
_____ 16. Ovary	f. Testosterone
_____ 17. Testis	g. Estrogen

18. The hormone that regulates metabolism is _____.

Hormone Action (page 999)

19. List the two general groups into which hormones fall.

a. _____ b. _____

20. Circle the letter of each sentence that is true about steroid hormones.

- a. They are lipids.
- b. They cannot cross cell membranes.
- c. They regulate gene expression.
- d. They can enter the nucleus.

21. Is the following sentence true or false? Steroid hormones are produced from cholesterol. _____

22. Circle the letter of each sentence that is true about nonsteroid hormones.

- a. They are proteins, peptides, or amino acids.
- b. They can cross cell membranes.
- c. They rely on secondary messengers.
- d. They cannot enter the nucleus.

23. Is the following sentence true or false? Secondary messengers may include calcium, cAMP, nucleotides, and fatty acids.

Prostaglandins (page 1000)

24. Hormonelike substances produced by other kinds of cells and tissues are called _____.

25. Why are prostaglandins known as “local hormones”? _____

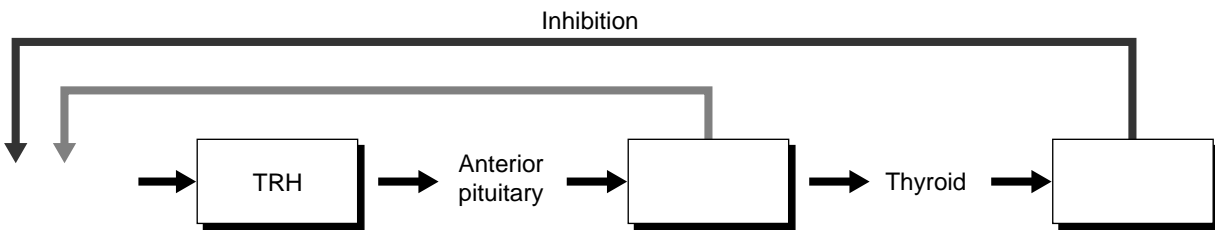
26. Is the following sentence true or false? Some prostaglandins cause smooth muscles to contract. _____

Chapter 39, Endocrine and Reproductive Systems (continued)

Control of the Endocrine System (pages 1000–1001)

27. When does feedback inhibition occur? _____

28. Fill in the missing labels in the diagram to show how the thyroid gland is regulated by feedback controls.



29. Circle the letter of each event that occurs when core body temperature begins to drop.

- a. The hypothalamus produces less TRH.
- b. More TSH is released.
- c. Less thyroxine is released.
- d. Metabolic activity increases.

30. Is the following sentence true or false? As you lose water, the concentration of dissolved materials in the blood falls.

Complementary Hormone Action (page 1002)

31. What is complementary hormone action? _____

32. Is the following sentence true or false? Calcitonin increases the concentration of calcium in the blood. _____

33. If calcium levels drop too low, the parathyroid glands release _____.

34. How does PTH increase calcium levels? _____

35. Why is the regulation of calcium levels so important? _____

Section 39–2 Human Endocrine Glands (pages 1003–1008)

This section describes the functions of the major endocrine glands.

Introduction (page 1003)

1. List the seven major glands of the endocrine system.

- | | |
|----------|----------|
| a. _____ | e. _____ |
| b. _____ | f. _____ |
| c. _____ | g. _____ |
| d. _____ | |

Pituitary Gland (page 1003)

2. Describe the pituitary gland and its location. _____

3. List the two parts of the pituitary gland.

- a. _____ b. _____

4. In general, what is the role of pituitary gland hormones? _____

Hypothalamus (page 1004)

5. Is the following sentence true or false? The hypothalamus controls the secretions of the pituitary gland. _____

6. What influences the activity of the hypothalamus? _____

7. In what way is the posterior pituitary an extension of the hypothalamus? _____

8. Is the following sentence true or false? The hypothalamus has direct control of the anterior pituitary. _____

Match each pituitary hormone with its action.

Hormone	Action
_____ 9. ADH	a. Stimulates ovaries and testes
_____ 10. FSH	b. Stimulates production of eggs and sperm
_____ 11. LH	c. Stimulates release of hormones from adrenal cortex
_____ 12. GH	d. Stimulates protein synthesis and growth in cells
_____ 13. ACTH	e. Stimulates the kidneys to reabsorb water

Chapter 39, Endocrine and Reproductive Systems *(continued)*

14. What are releasing hormones, and what do they do? _____

Thyroid Gland (page 1005)

15. Where is the thyroid gland located? _____

16. Is the following sentence true or false? The thyroid gland regulates reproduction. _____
17. List the two hormones produced by the thyroid.
a. _____ b. _____
18. What does thyroxine do in the body? _____

19. Production of too much thyroxine leads to a condition called _____.
20. Circle the letter of each choice that is a symptom of too much thyroxine.
a. nervousness b. weight loss c. lack of energy d. goiter
21. An enlargement of the thyroid gland is called a(an) _____.
22. Infants who lack enough iodine to produce normal amounts of thyroxine suffer from a condition called _____.
23. How can cretinism usually be prevented? _____

Parathyroid Glands (page 1005)

24. How does parathyroid hormone regulate calcium levels in the blood? _____

Adrenal Glands (page 1006)

25. What is the general role of the adrenal glands? _____

26. The outer part of the adrenal gland is called the _____, and the inner part is called the _____.

27. Complete the compare-and-contrast table.

HORMONES OF THE ADRENAL GLAND

Part of Adrenal Gland	Hormones It Produces	Role of the Hormones
	Corticosteroids	Regulating minerals, metabolism
Adrenal medulla		

28. Is the following sentence true or false? The release of hormones from the adrenal medulla is regulated by the sympathetic nervous system. _____

Pancreas (pages 1007–1008)

29. Is the following sentence true or false? The pancreas is both an endocrine gland and an exocrine gland. _____

30. What is the role of insulin and glucagon? _____

31. When the pancreas produces too little insulin, a condition known as _____ occurs.

32. Is the following sentence true or false? Type I diabetes most commonly develops in people before the age of 15.

33. Circle the letter of each sentence that is true about Type II diabetes.
- a. It most commonly develops before age 40.
 - b. It is not due to lack of insulin.
 - c. It is also called juvenile-onset diabetes.
 - d. It requires daily insulin injections.

Reproductive Glands (page 1008)

34. List the two important functions served by the gonads.

- a. _____ b. _____

35. The female gonads are the _____, and the male gonads are the _____.

Reading Skill Practice

Taking notes can help you identify and remember the most important information in a section. Take notes on Section 39–2 by writing the main headings and under each heading listing the most important points. Do your work on a separate sheet of paper.

Chapter 39, Endocrine and Reproductive Systems (continued)

Section 39–3 The Reproductive System (pages 1009–1015)

This section explains the roles of the male and female reproductive systems. It also describes the four phases of the menstrual cycle.

Sexual Development (pages 1009–1010)

- Circle the letter of each sentence that is true about sexual development before birth.
 - Testes and ovaries begin to develop during the first six weeks.
 - Male and female reproductive organs develop from the same tissues in the embryo.
 - The testes produce androgens, and the ovaries produce estrogen.
 - Hormones determine whether the embryo will develop into a male or a female.
- What is puberty? _____

- How does the hypothalamus begin puberty? _____

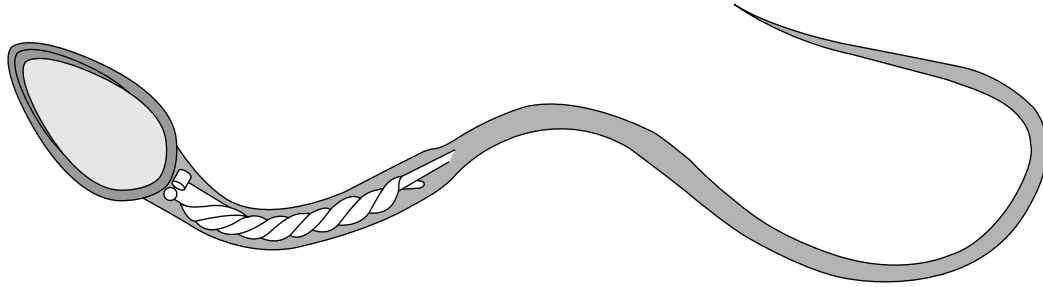
The Male Reproductive System (pages 1010–1011)

- Is the following sentence true or false? The release of FSH and LH stimulates cells in the testes to produce testosterone.

- List three secondary sex characteristics that appear in males at puberty.
 - _____
 - _____
 - _____
- Circle the letter of each term that refers to a structure of the male reproductive system.
 - testes
 - Fallopian tube
 - vas deferens
 - urethra
- The testes are contained in a sac called the _____.
- Why do the testes remain outside the body cavity? _____

- Is the following sentence true or false? Sperm are produced in the vas deferens. _____

10. Label the drawing of a sperm with the following structures: head, nucleus, midpiece, and tail.



11. The structure in which sperm fully mature and are stored is the _____.
12. The tube that leads to the outside of the body through the penis is the _____.
13. A nutrient-rich fluid called seminal fluid, when combined with sperm, forms _____.

The Female Reproductive System (pages 1012–1013)

14. List three secondary sex characteristics that develop in females at puberty.
- a. _____
- b. _____
- c. _____
15. Circle the letter of each choice that is a structure of the female reproductive system.
- a. ovary b. epididymis c. uterus d. vagina
16. Is the following sentence true or false? The ovaries usually produce only one mature ovum each month. _____
17. Clusters of cells surrounding a single egg are called primary _____.
18. The hormone that stimulates a follicle to grow and mature each month is _____.
19. Is the following sentence true or false? Fertilization takes place in the uterus. _____

The Menstrual Cycle (pages 1013–1015)

20. Circle the letter of each sentence that is true about the menstrual cycle.
- a. It lasts an average of 3 to 7 days.
- b. It is controlled by hormones.
- c. It prepares the uterus to receive an egg.
- d. It has four phases.

Chapter 39, Endocrine and Reproductive Systems *(continued)*

Match each phase of the menstrual cycle with the event that occurs then.

- | Menstrual Phase | Event |
|----------------------------|--|
| _____ 21. Follicular phase | a. Egg travels through Fallopian tube. |
| _____ 22. Ovulation | b. Follicle develops. |
| _____ 23. Luteal phase | c. Lining of uterus is shed. |
| _____ 24. Menstruation | d. Egg is released from ovary. |
25. Is the following sentence true or false? The level of estrogen falls during the follicular phase of the menstrual cycle.

26. During the luteal phase, the follicle turns yellow and is now known as the _____.
27. Is the following sentence true or false? The chances that an egg will be fertilized are the greatest during the first two days of the luteal phase. _____
28. What triggers menstruation to occur? _____

29. Is the following sentence true or false? A new cycle begins with the last day of menstruation. _____

Section 39–4 Fertilization and Development (pages 1016–1022)

This section describes fertilization and explains the function of the placenta.

Fertilization (page 1016)

- The process of a sperm joining an egg is called _____.
- Is the following sentence true or false? A fertilized egg is known as a zygote. _____
- After a fertilized egg divides to form two cells, it is called a(an) _____.

Early Development (pages 1017–1019)

Match each term with its definition.

- | Term | Definition |
|-----------------------|---|
| _____ 4. Morula | a. Organ that nourishes the embryo |
| _____ 5. Blastocyst | b. Name of embryo when it is a solid ball of about 50 cells |
| _____ 6. Implantation | c. Name of embryo when it is a hollow ball of cells |
| _____ 7. Gastrulation | d. Membrane that surrounds and protects the embryo |
| _____ 8. Amnion | e. Process in which the blastocyst attaches to the wall of the uterus |
| _____ 9. Placenta | f. Process of cell migration that produces three cell layers |

