

The Endocrine System

1. Homeostasis is achieved through the actions of two major regulatory systems, the nervous system and the _____ system.
2. A _____ is a regulatory chemical that is secreted into the blood by an endocrine gland.
3. The glands of the endocrine system secrete hormones into the bloodstream or other body fluids and so are said to have _____ glands.
4. All hormones can be characterized as _____ (fat-soluble) or water soluble.
5. Some intercellular regulatory molecules that exert only very local effects are called _____ regulators.
6. The water-soluble hormones cannot pass through the plasma membrane; they must rely on _____ messengers within their target cells to mediate their action.
7. The _____ lobe of the pituitary gland appears fibrous because it contains axons originating from neurons in the hypothalamus.
8. Match each of the following.

_____ A. Stimulates uterine contraction.	1. adrenocorticotrophic hormone
_____ B. Helps regulate sperm production.	2. follicle-stimulating hormone
_____ C. Stimulates production of testosterone.	3. luteinizing hormone
_____ D. Stimulates secretion of adrenal cortical hormone.	4. oxytocin
_____ E. Regulates level hormone of blood calcium.	5. parathyroid
9. The anterior pituitary gland is controlled by both the hormones secreted by the hypothalamus, and the hormones secreted by itself through a _____ feedback mechanism.
10. Besides aldosterone, _____ hormone is the other hormone which is an absolute requirement for the survival of humans.
11. The islets of Langerhans located in the _____ secrete both insulin and glucagon.
12. Molting hormone, or ecdysone, and juvenile hormone regulate _____ and molting in insects.
13. Hormones that affect changes in their target cells by entering the nucleus and initiating transcription of certain genes are called
 - A. steroid hormones
 - B. paracrine hormones
 - C. lipophilic hormones
 - D. prostaglandins
 - E. second messenger hormones

14. The hormone _____ sets the body's basal metabolic rate.
- A. estrogen
 - B. insulin
 - C. norepinephrine
 - D. cortisol
 - E. thyroxin
15. The hormones epinephrine and norepinephrine, which constitute the “alarm” response of the body to stress, are secreted by the
- A. pancreas
 - B. thyroid gland
 - C. adrenal medulla
 - D. pineal gland
 - E. anterior pituitary gland
16. The signals of the endocrine system are transmitted to the appropriate target organ via the
- A. lymph
 - B. neurons
 - C. peripheral nervous system
 - D. mesenteric blood vessels
 - E. blood
17. Only certain organs called the target organs respond to the presence of a specific hormone because
- A. only those organs are attached to the endocrine gland
 - B. only those organ cells have the appropriate receptors
 - C. only those organs allow the hormone to enter their cells
 - D. they are the first organs along the hormone’s circulatory path
 - E. if enough time is allowed, all organs respond to the hormone
18. Which of the following functions as both an exocrine and an endocrine gland?
- A. adrenal cortex
 - B. parathyroid
 - C. thyroid
 - D. pancreas
 - E. pituitary
19. Which of the following organs can be stimulated to produce hormones primarily by the concentration of certain molecules and ions in the blood, rather than neural control?
- A. adrenal medulla
 - B. posterior pituitary gland
 - C. pineal gland
 - D. anterior pituitary gland
 - E. pancreas and adrenal cortex

20. Which one of the following does not represent a category of hormones?
- A. second messengers
 - B. polypeptides
 - C. glycoproteins
 - D. amines
 - E. steroids
21. Which one of the following hormones is a glycoprotein?
- A. insulin
 - B. progesterone
 - C. follicle-stimulating hormone
 - D. norepinephrine
 - E. aldosterone
22. The molecule that can act as both a neurotransmitter and a hormone is
- A. estrogen
 - B. progesterone
 - C. thyroxine
 - D. norepinephrine
 - E. insulin
23. Which of the following are paracrine regulators?
- A. prostaglandins, cytokines
 - B. nitric oxide, growth factors
 - C. thyroxine, estrogen, testosterone
 - D. a and b only
 - E. a, b, and c
24. Which of the following participates in regulating almost every organ belonging to the immune system, reproductive system, digestive system, respiratory system, circulatory system, and the urinary system?
- A. insulin
 - B. steroids
 - C. prostaglandins
 - D. growth factors
 - E. norepinephrine
25. An example of a hormone that exerts its action within the target cell only by interacting with cell-surface receptors is
- A. insulin
 - B. cortisol
 - C. testosterone
 - D. estrogen
 - E. progesterone

26. New: Which hormone is not produced by the anterior pituitary gland?
- A. Prolactin
 - B. Lutenizing Hormone
 - C. Calcitonin
 - D. Growth Hormone
27. The action of a lipophilic hormones involve all of the following except
- A. hormone molecules pass through the target cell's plasma membrane and bind to intracellular receptor proteins
 - B. the hormone-receptor complex then binds to specific regions of DNA, thereby activating genes and producing action in the target cells
 - C. the second messengers activate previously inactive enzymes
 - D. a and b
 - E. a, b, and c
28. Consumption of alcohol stimulates urination by
- A. stimulating ADH secretion
 - B. inhibiting ADH secretion
 - C. stimulating vasopressin
 - D. stimulating oxytocin
 - E. a, c, and d
29. The hormone stimulating the milk-ejection reflex is called
- A. antidiuretic hormone
 - B. oxytocin
 - C. vasopressin
 - D. parathyroid hormone
 - E. aldosterone
30. Unlike other hormones, the hormones of the posterior pituitary gland are transported to the hypothalamus by
- A. the limbic system
 - B. blood vessels
 - C. neuron axons
 - D. the lymphatic system
 - E. the hypopituitary shunt
31. All of the following are secreted by the anterior pituitary gland except
- A. oxytocin
 - B. prolactin
 - C. thyroid-stimulating hormone
 - D. melanocyte-stimulating hormone
 - E. adrenocorticotrophic hormone

32. Of all the hormones secreted by the anterior pituitary gland, the hormone with no known function in mammals is
- A. somatotropin
 - B. prolactin
 - C. luteinizing hormone
 - D. thyroid stimulating hormone
 - E. melanocyte-stimulating hormone
33. Which of the following glands produce hormones that are controlled by negative feedback?
- A. gonads
 - B. pancreas
 - C. anterior pituitary
 - D. posterior pituitary
 - E. pineal
34. In mammals, milk secretion is stimulated by
- A. aldosterone
 - B. melanocyte-stimulating hormone
 - C. prolactin
 - D. luteinizing hormone
 - E. growth hormone
35. Gonadotropins are
- A. prolactins
 - B. follicle-stimulating hormones
 - C. luteinizing hormones
 - D. a and b
 - E. b and c
36. Nonpolar hormones pass through the plasma membranes of intestinal epithelial cells without being digested and therefore can be taken orally as pills. Because of this fact, which of the following are available as oral pills for human consumption?
- A. insulin, growth hormone
 - B. thyroid hormone, steroid hormones
 - C. calcitonin
 - D. a and b
 - E. a, b, and c
37. Parathyroid hormone does not cause
- A. kidneys to resorb Ca^{++} from the urine
 - B. the activation of vitamin D
 - C. increased blood calcium levels by stimulating osteoclasts to dissolve bone
 - D. acceleration of heartbeat
 - E. a, b, and c

38. The hormonal products of the adrenal medulla affect all of the following except they
- A. accelerate heartbeat
 - B. stimulate synthesis of glycogen
 - C. increase blood pressure
 - D. reduce blood flow to the skin and digestive organs
 - E. increase blood sugar
39. Which one of the following glucocorticoids is important in both gluconeogenesis (glucose produced from amino acids) during starvation and as an anti-inflammatory agent?
- A. aldosterone
 - B. cortisol
 - C. glucagon
 - D. insulin
 - E. prolactin
40. Which of the following hormones is not produced by the adrenal gland?
- A. epinephrine
 - B. cortisol
 - C. prolactin
 - D. aldosterone
 - E. norepinephrine
41. Which of the following hormones is (are) absolutely essential for survival by humans?
- A. aldosterone
 - B. parathyroid hormone
 - C. cortisol
 - D. a, b, and c
 - E. a and b
42. The two hormones that interact to maintain the level of blood glucose are
- A. cortisone and testosterone
 - B. epinephrine and norepinephrine
 - C. glucagon and insulin
 - D. LH and FSH
 - E. oxytocin and vasopressin
43. When the body's blood glucose level raises above normal, which of the following hormones is produced?
- A. glucagon
 - B. epinephrine
 - C. insulin
 - D. norepinephrine
 - E. prolactin

44. Which of the following conditions is not related to Type I or II diabetic disease?
- A. elevated levels of blood glucose
 - B. lowered production of insulin by the pancreas
 - C. reduced sensitivity to insulin by the body cells
 - D. ineffective pituitary gland
 - E. diet and exercise usually help to balance the blood sugar levels
45. The right atrium of the heart secretes atrial natriuretic hormone, which stimulates the kidneys to excrete salt and water in the urine, atrial natriuretic hormone, therefore, acts antagonistically to
- A. aldosterone
 - B. cortisol
 - C. glucagon
 - D. thyroxine
 - E. progesterone
46. All of the following are examples of sex steroid hormones except
- A. estrogen
 - B. progesterone
 - C. prolactin
 - D. testosterone
 - E. estradiol
47. In insects, metamorphosis and molting are regulated by which of the following hormones?
- A. melatonin
 - B. ecdysone
 - C. estrogen
 - D. somatostatin
 - E. trypsin
48. There are two systems in the human body that are devoted exclusively to the regulation of the body organs. They are the
- A. endocrine and circulatory systems
 - B. respiratory and circulatory systems
 - C. nervous and circulatory systems
 - D. nervous and endocrine systems
 - E. respiratory and nervous systems

49. Select the mismatched chemical category of a hormone and its example from the choices below.
- A. polypeptides-ADH
 - B. steroid-estradiol
 - C. amine-FSH
 - D. glycoprotein-LH
 - E. steroid-testosterone
50. Sex steroid hormones are secreted by the
- I testes
 - II ovaries
 - III placenta
 - IV adrenal cortex
 - V adrenal medulla
- A. choices I and II
 - B. choices I,II, and III
 - C. choices I, II, III, and IV
 - D. choices II, II, III, and V
 - E. choices I, II, III, IV, and V
51. Select the **incorrect** statement regarding paracrine regulation from the choices below.
- A. Paracrine regulation molecules can be placed into two broad groups called cytokines and growth factors.
 - B. Nitric oxide, which can function as a neurotransmitter, can also be classed as a paracrine regulator molecule.
 - C. Endothelin and bradykinin are paracrine molecules that are used in the circulatory system for control of vessel constriction and dilation.
 - D. Paracrine molecules are released directly into the circulatory system.
 - E. Nerve growth factor, platelet-growth factor, and insulin-like growth factor are some of the examples of paracrine regulator molecules.

52. A diverse group of paracrine regulators are called prostaglandins. Prostaglandins participate in a variety of regulatory functions in many of the body's systems. Prostaglandins are used in the
- I immune system
 - II reproductive system
 - III digestive system
 - IV respiratory system
 - V circulatory system
 - VI urinary system
- A. choices I, II, and III
B. choices I, II, III, and IV
C. choices I, II, III, IV, and V
D. choices II, III, and VI
E. choices I, II, III, IV, V, and VI
53. Select the mismatched endocrine gland and its hormone from the choices below.
- A. adrenal cortex—aldosterone
 - B. pancreas—insulin
 - C. pineal gland—melatonin
 - D. adrenal medulla—cortisol
 - E. posterior lobe of pituitary gland—oxytocin
54. The cells of the anterior lobe of the pituitary gland secrete many hormones. From the following list select the hormone that is **not** secreted from the anterior lobe of the pituitary.
- A. growth hormone
 - B. prolactin
 - C. follicle-stimulating hormone
 - D. melanocyte-stimulating hormone
 - E. antidiuretic hormone
55. Insects are capable of shedding their exoskeletons in a process called molting. This is especially noticeable in juvenile insects. Select the best choice that presents a diagrammed sequence of events during the molting process.
- A. prior to molting—brain surface cells secrete brain hormone → which stimulates the prothoracic gland to produce ecdysone → which causes molting
 - B. prior to molting—brain surface cells secrete juvenile hormone → which stimulates the prothoracic gland to produce ecdysone → which causes molting
 - C. prior to molting—brain surface cells secrete ecdysone → which stimulates the prothoracic gland to produce juvenile hormone → which causes molting
 - D. prior to molting—the corpora allata near the brain secretes brain hormone → which stimulates the prothoracic gland to produce ecdysone → which causes molting
 - E. prior to molting—the corpora allata near the brain secretes juvenile hormone → which stimulates the prothoracic gland to produce ecdysone → which causes molting

56. Some hormones can not enter a cell directly because they are too large or polar. From the list below select the molecule that acts as a secondary messenger for some of these hormones that can not enter a cell directly.
- A. catecholamine
 - B. cyclic AMP
 - C. epinephrine
 - D. norepinephrine
 - E. calcitonin
57. Select the **incorrect** statement about hormones that can enter directly into cells.
- A. Steroid hormones and thyroxine can enter directly into cells because of their lipophilic makeup.
 - B. Water-soluble hormones can enter directly into cells because of their nonpolar status.
 - C. Steroid hormones do not dissolve in the plasma and are thus transported with special protein carriers, which transport them to their target cells.
 - D. Once entry into the cell is achieved, some of these hormones bind with specific receptor proteins in the cytoplasm and then can move as a hormone-receptor complex to the nucleus.

Answer Key

1	Endocrine
2	Hormone
3	Ductless
4	Lipophilic
5	Paracrine
6	Second
7	Posterior
8	1-D, 2-B, 3-C, 4-A, 5-E
9	Negative
10	Parathyroid
11	Pancreas
12	Metamorphosis
13	A
14	E
15	C
16	E
17	B
18	D
19	E
20	A
21	C
22	D
23	D
24	C
25	A
26	C
27	D
28	B
29	B
30	C
31	A
32	E
33	C
34	C
35	E
36	B

37	D
38	B
39	B
40	C
41	E
42	C
43	C
44	D
45	A
46	C
47	B
48	D
49	C
50	C
51	D
52	E
53	D
54	E
55	A
56	B
57	B