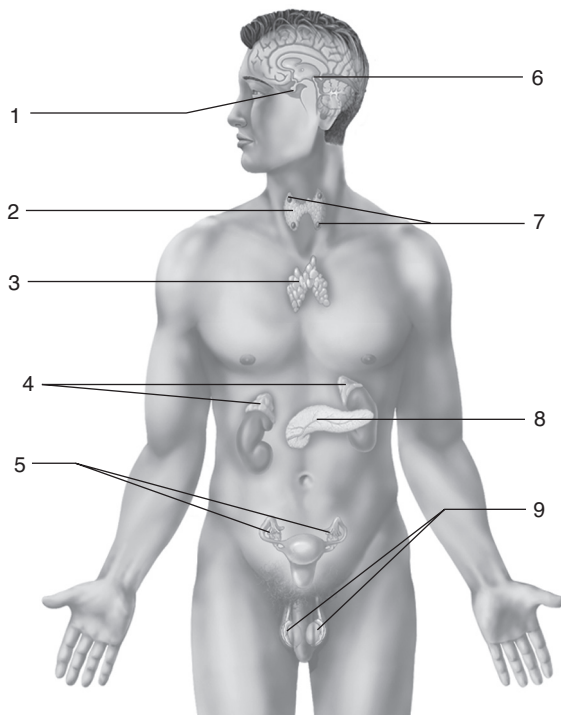


1. Endocrine Glands

- a. Label the endocrine glands in the figure by placing the number of the gland in the space beside the correct label.



- 4 Adrenal
5 Ovary
8 Pancreas
7 Parathyroid
6 Pineal
1 Pituitary
9 Testis
3 Thymus
2 Thyroid

- b. Contrast exocrine and endocrine glands.

- 1) Secretions of exocrine glands are carried by Ducts.
 2) Secretions of endocrine glands are carried by The blood.

2. The Nature of Hormones

- a. Match the hormone with the correct statement.

1) Steroid hormone

- 2 Binds to a plasma membrane receptor.
2 Requires a second messenger.
1 Fat-soluble hormone.

2) Nonsteroid hormone

- 1 Receptor-hormone complex causes DNA to initiate synthesis of new proteins (enzymes).
1 Binds to receptor within the target cells.

b. Write the terms that match the statements in the spaces at the right.

- | | |
|---|----------------------------------|
| 1) Chemical messengers. | <u>Hormones</u> |
| 2) Carries hormones throughout the body. | <u>Blood</u> |
| 3) Glands producing hormones. | <u>Endocrine</u> |
| 4) Cells containing hormone receptors. | <u>Target cells</u> |
| 5) Excessive production of a hormone. | <u>Hypersecretion</u> |
| 6) Deficient production of a hormone. | <u>Hyposecretion</u> |
| 7) Usual regulatory mechanism for hormone production. | <u>Negative feedback control</u> |
| 8) Local "hormones" produced by nonendocrine cells. | <u>Prostaglandins</u> |

3. Pituitary Gland

a. Write the names of the pituitary hormones that match the statements in the spaces at the right.

- | | |
|---|-------------------------------------|
| 1) Stimulates secretion of thyroid hormone. | <u>Thyroid-stimulating hormone</u> |
| 2) Stimulates cell growth and division. | <u>Growth hormone</u> |
| 3) Stimulates secretion of estrogens. | <u>Follicle-stimulating hormone</u> |
| 4) Stimulates secretion of testosterone. | <u>Luteinizing hormone</u> |
| 5) Stimulates secretion of cortisol. | <u>Adrenocorticotropic hormone</u> |
| 6) Stimulates sperm production. | <u>Follicle-stimulating hormone</u> |
| 7) Stimulates water retention by kidneys. | <u>Antidiuretic hormone</u> |
| 8) Stimulates contraction of uterus. | <u>Oxytocin</u> |
| 9) Stimulates secretion of progesterone. | <u>Luteinizing hormone</u> |
| 10) Causes the onset of puberty. | <u>Follicle-stimulating hormone</u> |

b. Match the lobe with the hormone it produces.

- | | |
|----------------------|----------------------------|
| 1) Anterior lobe | 2) Posterior lobe |
| 1) <u>1</u> ACTH | <u>1</u> 3) Prolactin |
| 2) <u>2</u> Oxytocin | <u>1</u> 4) FSH and LH |
| | <u>1</u> 5) TSH |
| | <u>1</u> 7) Growth hormone |
| | <u>2</u> 6) ADH |

4. Thyroid and Parathyroid Glands

Write the terms that match the statements in the spaces at the right.

- | | |
|--|----------------------------|
| 1) Element essential for activity of thyroxine. | <u>Iodine</u> |
| 2) Hormone that increases metabolic rate. | <u>Thyroid hormone</u> |
| 3) Hormone that increases blood calcium. | <u>Parathyroid hormone</u> |
| 4) Hormone whose secretion is controlled by TSH. | <u>Thyroid hormone</u> |
| 5) Hormone that decreases blood calcium. | <u>Parathyroid hormone</u> |
| 6) Gland that secretes calcitonin. | <u>Thyroid hormone</u> |
| 7) Controls secretion of parathyroid hormone. | <u>Blood calcium level</u> |

5. Adrenal Glands

Write the terms that match the statements in the spaces at the right.

- | | |
|--|--|
| 1) Converts glycogen into glucose. | <u>Epinephrine</u> |
| 2) Controls secretion of adrenal medulla. | <u>Sympathetic division</u> |
| 3) Two related hormones secreted by the adrenal medulla. | <u>Epinephrine</u>
<u>Norepinephrine</u> |
| 4) Three groups of hormones secreted by adrenal cortex. | <u>Mineral corticoids</u>
<u>Glucocorticoids</u>
<u>Sex hormones</u> |
| 5) Controls levels of electrolytes in blood. | <u>Aldosterone</u> |
| 6) Inhibits inflammation; depresses immunity. | <u>Cortisol</u> |
| 7) Secretion controlled by blood levels of sodium and potassium. | <u>Aldosterone</u> |
| 8) Prepares body to meet emergencies. | <u>Epinephrine</u> |
| 9) Increases blood levels of sodium and water. | <u>Aldosterone</u> |
| 10) Converts noncarbohydrates into glucose. | <u>Cortisol</u> |
| 11) Increases heart rate and blood pressure. | <u>Epinephrine</u> |
| 12) Secretion controlled by ACTH. | <u>Cortisol</u> |

6. Pancreas

Write the terms that match the statements in the spaces at the right.

- | | |
|---|-----------------------------|
| 1) Portion of gland secreting hormones. | <u>Islets of Langerhans</u> |
| 2) Hormone decreasing blood glucose. | <u>Insulin</u> |
| 3) Hormone aiding movement of glucose into cells. | <u>Insulin</u> |
| 4) Hormone increasing blood glucose. | <u>Glucagon</u> |
| 5) Controls secretion of pancreatic hormones. | <u>Blood glucose level</u> |
| 6) Secretion stimulated by high glucose levels. | <u>Insulin</u> |

7. Gonads, Pineal and Thymus Glands

Write the terms that match the statements in the spaces at the right.

- | | |
|--|--|
| 1) Hormones formed by ovaries. | <u>Estrogen</u>
<u>Progesterone</u> |
| 2) Hormone secreted by testes. | <u>Testosterone</u> |
| 3) Hormone of the pineal gland. | <u>Melatonin</u> |
| 4) Hormone of the thymus gland. | <u>Thymosin</u> |
| 5) Seems to influence biorhythms. | <u>Melatonin</u> |
| 6) Stimulates development of male sex organs and secondary sexual characteristics. | <u>Testosterone</u> |
| 7) Stimulates development of female sex organs and secondary sexual characteristics. | <u>Estrogen</u> |
| 8) Involved in maturation of T lymphocytes. | <u>Thymosin</u> |

8. Disorders of the Endocrine System

Write the names of the disorders described below in the spaces at the right.

- | | |
|--|----------------------------|
| 1) Hypersecretion of GH in adults. | <u>Acromegaly</u> |
| 2) Production of large amounts of dilute urine. | <u>Diabetes insipidus</u> |
| 3) Enlarged thyroid due to lack of iodine. | <u>Simple goiter</u> |
| 4) Excessive metabolic rate and bulging eyes. | <u>Exophthalmic goiter</u> |
| 5) Hyposecretion of thyroid hormone in adults. | <u>Myxedema</u> |
| 6) Hyposecretion of GH in growing years. | <u>Pituitary dwarfism</u> |
| 7) Hyposecretion of aldosterone and cortisol. | <u>Addison's disease</u> |
| 8) Hypersecretion of glucocorticoids. | <u>Cushing's syndrome</u> |
| 9) Hyposecretion of ADH. | <u>Diabetes insipidus</u> |
| 10) Continued growth of bones of face and hands. | <u>Acromegaly</u> |
| 11) Inability of glucose to enter body cells. | <u>Diabetes mellitus</u> |
| 12) Hypersecretion of thyroxine. | <u>Exophthalmic goiter</u> |
| 13) Mental retardation, sluggishness, and stunted growth in an infant. | <u>Cretinism</u> |
| 14) Coarse, dry skin and hair; edema; and sluggishness in adult. | <u>Myxedema</u> |
| 15) Round, full face; high blood pressure; high blood glucose; and decreased immunity. | <u>Cushing's syndrome</u> |

9. Clinical Applications



- a. A patient is taken to the emergency room by her husband. She is sweating and breathing rapidly. A blood test reveals acidosis and hyperglycemia. What hormone should be administered immediately? Insulin Explain. **Without adequate insulin, glucose cannot enter body cells for use in cellular respiration. This produces hyperglycemia and forces cells to use fats for cellular respiration which results in acidosis.**
- b. A new mother is informed that her baby has severe hypothyroidism. How would you explain the importance of thyroxine medication for her infant? **A normal level of thyroxine is essential for normal physical and mental development. A thyroxine deficiency will result in mental retardation and impaired development.**
- c. A patient with high blood pressure and edema (water-logged tissues) is given a drug that counteracts the action of ADH. Explain why this drug was administered and how it will work. **It is a diuretic that promotes the excretion of water which will decrease blood volume and enable removal of excess interstitial fluid.**