Gross Anatomy and Basic Function of the Endocrine Glands

2. Define *hormone.* _____

_____

3. Chemically, hormones belong chiefly to two molecular groups, the _____

and the _____.

4. Define *target cell.* _____

_____

5. If hormones travel in the bloodstream, why don't all tissues respond to all hormones? _____

_____

6. Identify the endocrine organ described by each of the following statements.

_____ 1. located in the throat; bilobed gland connected by an isthmus

_____ 2. found atop the kidney

_____ 3. a mixed gland, located behind the stomach and close to the small intestine

_____ 4. paired glands suspended in the scrotum

_____ 5. ride "horseback" on the thyroid gland

_____ 6. found in the pelvic cavity of the female, concerned with ova and female hormone production

Microscopic Anatomy of Selected Endocrine Glands

12. Choose a response from the key below to name the hormone(s) produced by the cell types listed.

Key: a. calcitonin
b. GH, prolactin
c. glucagon
d. glucocorticoids
e. insulin
f. mineralocorticoids
g. PTH
h. T_4/T_3
i. TSH, ACTH, FSH, LH

_____ 1. parafollicular cells of the thyroid

_____ 2. follicular cells of the thyroid

_____ 3. beta cells of the pancreatic islets

_____ 4. alpha cells of the pancreatic islets

_____ 5. basophil cells of the anterior pituitary

_____ 6. zona fasciculata cells

_____ 7. zona glomerulosa cells

_____ 8. parathyroid cells

_____ 9. acidophil cells of the anterior pituitary

WHY THIS MATTERS

13. Explain why growth hormone is an anabolic hormone. _____

_____

14. Considering the primary target organs of growth hormone, explain why growth hormone is not a tropic hormone. _____

7. The table below lists the functions of many of the hormones you have studied. From the keys below, fill in the hormones responsible for each function, and the endocrine glands that produce each hormone. Glands may be used more than once.

Hormones Key:

ACTH	FSH	prolactin
ADH	glucagon	PTH
aldosterone	insulin	T_3/T_4
cortisol	LH	testosterone
epinephrine	oxytocin	TSH
estrogens	progesterone	

Glands Key:

adrenal cortex	parathyroid glands
adrenal medulla	posterior pituitary
anterior pituitary	testes
hypothalamus	thyroid gland
ovaries	
pancreas	

Function	Hormone(s)	Synthesizing Gland(s)
Regulate the function of another endocrine gland (tropic)	1.	
	2.	
	3.	
	4.	
Maintain salt and water balance in the extracellular fluid	1.	
	2.	
Directly involved in milk production and ejection	1.	
	2.	
Controls the rate of body metabolism and cellular oxidation	1.	
Regulates blood calcium levels	1.	
Regulate blood glucose levels; produced by the same "mixed" gland	1.	
	2.	
Released in response to stressors	1.	
	2.	
Drive development of secondary sex characteristics in males	1.	
Directly responsible for regulation of the menstrual cycle	1.	
	2.	

8. Although the pituitary gland is sometimes referred to as the master gland of the body, the hypothalamus exerts control over the pituitary gland. How does the hypothalamus control both anterior and posterior pituitary functioning?

_____

_____

9. Indicate whether the release of the hormones listed below is stimulated by (A) another hormone; (B) the nervous system (neurotransmitters, or neurosecretions); or (C) humoral factors (the concentration of specific nonhormonal substances in the blood or extracellular fluid).

_____ 1. ACTH

_____ 2. calcitonin

_____ 3. estrogens

_____ 4. insulin

_____ 5. norepinephrine

_____ 6. parathyroid hormone

_____ 7. T_4/T_3

_____ 8. testosterone

_____ 9. TSH, FSH

10. Name the hormone(s) produced in *inadequate* amounts that directly result in the following conditions.

_____ 1. tetany

_____ 2. excessive urine output without high blood glucose levels

_____ 3. loss of glucose in the urine

_____ 4. abnormally small stature, normal proportions

_____ 5. low BMR, mental and physical sluggishness

11. Name the hormone(s) produced in *excessive* amounts that directly result in the following conditions.

_____ 1. large hands and feet in the adult, large facial bones

_____ 2. nervousness, irregular pulse rate, sweating

_____ 3. demineralization of bones, spontaneous fractures