Name _____ Date _____ Class _____

Guided Reading Activity 6-3

The Endocrine System

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For use with textbook pages 170–173

Directions: Recalling the Facts Use the information in your textbook to answer the questions.

1. What causes the "rush" people experience when doing something risky, such as running with bulls at the Pamplona fiesta? hormones adrenaline or epinephrine (emergency situation causes high activation)

2. In what way is the endocrine system like the nervous system? communication system of sending signals to and from brain

3. Why are endocrine glands also called "ductless glands"? release hormones directly into the blood stream

4. What are three ways that hormones affect behavior? (1.) Growth = physical capacity (2.) Metabolism = energy / (3.) Gender = boy or girl (4.) Stress action / (5.) Moods, drives

5. How does the pituitary gland act as the "master gland"? secretes large # of hormones that control the output of other hormones by other endocrine glands

6. What is "hypothyroidism" and how does it make people feel? too little thyroxine (makes people feel lazy and lethargic)
hyperthyroidism - overactive, lose weight + sleep

7. When a person is angry or frightened, how do the adrenal glands prepare the person for action? release of epinephrine or norepinephrine = ↑ heartbeat, ↑ breathing

8. What do ovaries produce? eggs, estrogen, progesterone

9. How does testosterone affect males in adolescence? muscle/bone growth, male sex characteristics

10. What is the difference between a hormone and a neurotransmitter? hormone - released into blood (endocrine) / neurotransmitter - released by cell (nervous)

11. As organisms grew more complex, their single communication system split into two. How did these two systems differ in the kinds of messages they sent?
nervous system - rapid, specific messages
circulatory system - slow, widespread communication ↓ evolved into endocrine system

Endocrine Glands & Hormones

Gland	Hormone	Target Tissue	Effects
Anterior Pituitary Gland	Adrenocorticotropic Hormone (ACTH)	Adrenal Glands	Stimulates the production of cortisol
	Follicle Stimulating Hormone (FSH)	Ovaries & Testes	Stimulates release of testosterone & ovarian follicles
	Luteinizing Hormone (LH)	Ovaries & Testes	Stimulates release of testosterone and ovulation
	Prolactin	Mammary Glands	Stimulates milk production in breasts
	Somatotropin (HGH)	All Tissues	Stimulates growth of bones and muscles
	Thyroid-Stimulating Hormone (TSH)	Thyroid Gland	Stimulates production of thyroxin
Posterior Pituitary Gland	Antidiuretic Hormone (ADH)	Kidneys, Blood Vessels	Stimulates reabsorption of water in kidneys
	Oxytocin	Mammary Glands, Uterus	Simulates uterine contractions and milk secretion
Pineal	Melatonin	Unknown	Regulates biorhythms & mood; possibly puberty
Thyroid	Thyroxine	All Tissues	Increases metabolism
	Calcitonin	Bone Tissue	Inhibits calcium loss; lowers blood-calcium levels
Parathyroid	Parathyroid Hormone (PTH)	Bone tissue, Kidneys	Controls calcium metabolism
Adrenal	Aldosterone	All Tissues	Controls salt & water balance
	Cortisol	Kidneys	Controls carbohydrate metabolism; raises blood glucose levels; reduces inflammation
	Epinephrine (Adrenaline) / Norepinephrine	Circulatory Organs	Increases heart rate, blood pressure; dilates vessels
Pancreas	Glucagon	Liver, Fatty Tissues	Converts glycogen to glucose; raises blood sugar
	Insulin	All Tissues	Converts glucose to glycogen; lowers blood sugar
Ovaries	Estrogen	Female Organs	Stimulates secondary sex characteristics
	Progesterone	Uterus, Breasts	Maintains uterine lining; breast development
Testes	Testosterone	Male Organs	Stimulates secondary sex characteristics