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CHAPTER 25 – Control of the Internal Environment
CHAPTER 26 - Chemical Regulation

Chapter Reading Guides

Thermoregulation

1. Describe the four ways that heat is gained or lost by an animal.

2. In your own words, explain how animals **thermoregulate**.

Osmoregulation and Excretion

3. Explain the need for and physiological consequences of sweating.

4. Explain how some animals are able to tolerate seasonal dehydration and how these adaptations can be put to use by humans.

5. Describe the **three** ways that animals eliminate nitrogenous wastes and the **advantages** and **disadvantages** of each method.

Method of waste removal	Advantages	Disadvantages

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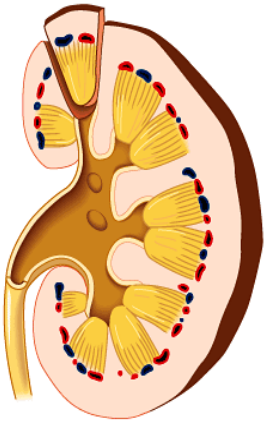
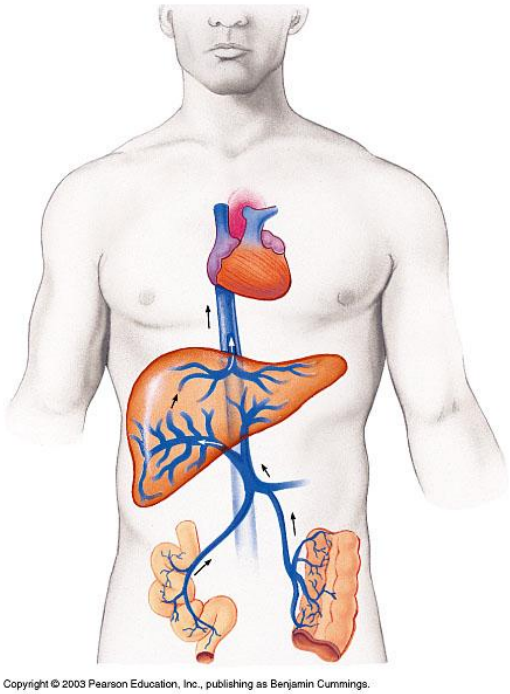
6. a) Describe the general and specific structure of the human kidney **(label the diagram below before you begin)**. **b)** Explain how this organ promotes homeostasis. **c)** Describe the key events in the process by which the kidneys convert filtrate into urine.



7. Describe the four major processes by which the human excretory system produces and eliminates urine.

<u>Homeostatic Functions of the Liver</u>

8. Describe the structures and the various functions of the liver as well as the other organs that are directly related to its function. **Label the drawing.**



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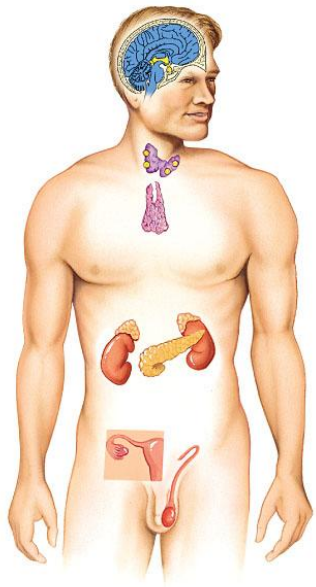
The Nature of Chemical Regulation

9. Define a hormone and compare the mechanisms and functions of the endocrine and nervous systems.

10. Compare the two general mechanisms by which hormones trigger changes in target cells.

The Vertebrate Endocrine System

11. Describe the different types and functions of vertebrate endocrine organs. **Label the drawing.**



12. Describe the functions of and interrelationships between the hypothalamus and the anterior and posterior pituitary glands.

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Hormones and Homeostasis

13. Describe the functions of the thyroid gland. Describe the symptoms of hypothyroidism, hyperthyroidism, and a goiter.

hypothyroidism –

hyperthyroidism –

goiter –

14. Explain how the thyroid and parathyroid maintain calcium homeostasis.

15. Explain how insulin and glucagon work to manage blood glucose levels. Explain what occurs in the different types of diabetes.

16. Describe the three major categories of sex hormones and note their functions.

Categories of Sex Hormones	Function