

BMD 330 and 334: Human Physiology
Chapter 7 Objectives

The Endocrine System: Regulation of Energy Metabolism and Growth

1. Define metabolism, catabolism, and anabolism and describe what governs transitions between catabolism and anabolism.
2. Describe the fate of primary biomolecules in cells – compare how they are used to how they are stored.
3. Compare the metabolic pathways operating during energy mobilization to those operating during energy utilization.
4. Explain the concepts of energy balance. Compare negative to positive energy balance.
5. Compare energy metabolism during the absorptive state to that during the postabsorptive state.
6. Describe the role of insulin and glucagon in regulating metabolism during the absorptive and postabsorptive states, respectively.
 - a. Explain the need and mechanism for maintaining blood glucose levels.
7. Describe growth patterns.
8. Describe how growth hormone regulates growth.
 - a. Describe patterns of growth hormone secretion.
 - b. Describe effects of growth hormone on target cells.
 - c. Describe bone growth
 1. Describe the functions of the different bone cells: osteoblasts, osteoclasts, osteocytes
 2. Compare changes in bone width and bone length
9. Describe the synthesis and secretion of thyroid hormones.
10. Distinguish between direct and permissive actions of thyroid hormone.
11. Describe the effects of glucocorticoids on whole-body metabolism. Compare the physiological effects of glucocorticoids to their pharmacological effects.
12. Describe the stress response.