

Comments and Study Questions for Campbell, Ch. 41

General Biology 2
Spring 2008

General Comments: This is a rather elementary chapter but the material will make a nice overview for the more detailed notes that I put on line and that will form the basis of class. There is little reason to concentrate on the comparative aspects (they are interesting, however). Learning terms prior to class will help you when we cover this material.

Terms (sorry there are a lot of these but all are important): essential vs non-essential, peristalsis, salivary amylase, esophagus, symbiotic

Questions and suggestions for reading:

Comment:

1. What is the approximate energy value of a gram of fat compared to carbohydrate when fully oxidized?
2. Know the difference between undernourishment and malnourishment.
3. Know the sources, conditions of release, and actions of the following hormones: leptin, PYY, ghrelin, and insulin and especially their roles in regard to appetite. What is the probable reason for the evolution of the leptin signal – to serve as an appetite suppressant when high or stimulant of appetite when fat levels are low? Explain.
4. What feature do essential fatty acids (for humans) share?
5. Distinguish between fat-soluble and water soluble vitamins in terms of:
(a) functions – know what B complex (broadly) A, C, D, E and K do (at least as far as is understood). Which are fat-soluble? Which are most easily eliminated. For the B complex, know at least 3 different functions but there is no reason to associate specific vitamins with these functions.
6. List at least 4 functions of minerals.
7. Know the five kinds of digestive accessory glands and their functions.
8. Explain how the activation of some pepsinogen to pepsin initiates a positive feedback process.
9. Explain fat digestion including extracellular processes, what happens in gut epithelial cells, and the role of lacteals and chylomicrons. What are micelles? (last semester).
10. Review the hormonal control of digestion (fig. 41.22). We will also cover this in detail in class.
11. Describe the hepatic portal circulation.
12. Distinguish between the cecum and appendix.
13. What are the main functions of the colon? Where are most nutrients absorbed?
14. Why does active transport of materials allow more to be absorbed than by simple diffusion?