

Fatty Acid Metabolism  
Chapter 19 Learning Objectives

*By the end of the chapter you should be able to:*

1. List the functions of fatty acids
2. Know how to draw a fatty acid and phospholipid (know the chemical bond – esterification of the fatty acids / lipids)
3. Understand why lipids are a better store of energy than carbohydrate
4. Understand the mechanism and release of stored fatty acids
5. Relate the main features of lipid digestion and transport.
6. Be able to distinguish between digestion and metabolism
7. Know the general roles of the various lipoproteins
8. Relate the various roles for each of the apoproteins.
9. Understand how eicosanoids and LDLs play a role in plaque formation
10. Explain why familial hypercholesterolemia happens
11. Know how the LDL receptor is regulated by cholesterol
12. Know the locations for each part of both fatty acid oxidation and synthesis
13. Explain the energy requirements / energetics of both the oxidation and synthesis of fatty acids
14. Describe the transport mechanisms for the two pathways
15. Provide the biochemical basis for the inability of animals/humans to convert fatty acids into glucose
16. Explain the consequences and the reasons for ketone body utilization
17. List the substrates and products of the committed step in fatty acid synthesis
18. Know the types of reactions catalyzed by the FAS
19. Describe how malonyl CoA drives the condensation of acetyl units with the growing acyl chain.
20. Describe the transport of Acetyl CoA through the cell and relate how this can provide energy for the biosynthesis of fatty acids
21. Discuss the different modes of regulation of acetyl CoA carboxylase.
22. Understand the general reciprocal control of fatty acid synthesis and degradation