READING GUIDE

MONO- AND DISACCHARIDES METABOLISM

Objectives

1. Diagram and describe fructose metabolism and the mechanisms of essential fructosuria and fructose intolerance
2. Diagram and describe galactose metabolism and the mechanisms of disorders of galactose metabolism
3. Diagram and describe normal and defective lactose and sorbitol metabolism

Mono- and disaccharides metabolism is covered in Chapter 12 from Lippincott's Biochemistry.

FRUCTOSE METABOLISM

- How is fructose different than glucose regarding insulin?
- Which enzymes can phosphorylate fructose? Which enzyme is specific for fructose? (Fig. 12.2)
- What is aldolase B? How does it relate to fructose metabolism?
- Why are the kinetics of fructose metabolism faster than glycolysis?
- What is "essential fructosuria"? What is "Hereditary Fructose Intolerance"? (Fig. 12.3)
- What are the possible fates of glyceraldehyde?
- How is mannose converted to fructose 6-phosphate?
- Glucose can be converted to fructose via the sorbitol pathway. What enzymes perform this? What tissues does this occur in? What is the effect of hyperglycemia on sorbitol metabolism? (Fig. 12.4)

GALACTOSE METABOLISM

- How is galactose metabolized? What enzyme phosphorylates galactose? Why is UDP-galactose formation necessary? Can UDP-galactose be used as a carbon source for glycolysis or gluconeogenesis? Why? (Fig. 12.5)
- What is Classic Galactosemia? (Fig. 12.5)
- How is Lactose synthesized? (Fig. 12.7)

LACTOSE METABOLISM

- How is lactose synthesized?