

**Instructional Objectives / Learning Outcomes**  
**DMP 775, Veterinary Clinical Pathology**  
**Department of Diagnostic Medicine/Pathobiology**  
**College of Veterinary Medicine, Kansas State University**

Chapter 14: Glucose and related regulatory hormones

1. If given appropriate measured values for [glucose] and [IRI] and other supportive information or laboratory data,
  - a. List or classify abnormalities using appropriate terms.
  - b. Propose appropriate ideas or conclusions (i.e., diseases, syndromes, or pathologic states) that might cause the defined abnormalities.
  - c. Based on your conclusions or ideas, explain the pathogenesis of each defined abnormality if the abnormality could be caused by the disorder.
2. Explain how poor sample handling can cause erroneous glucose values.
3. Explain and recognize why a blood glucose concentration does not equal a plasma/serum glucose concentration.
4. List the three major processes that produce hyperglycemia.
5. Explain and recognize the pathogenesis of a hyperglycemia that may be found with the following conditions or situations.
  - a. Blood sample collected soon after animal ate
  - b. Excitement or fright
  - c. Glucocorticoid-associated 'stress'
  - d.  $\beta$ -cell destruction in dogs
  - e. Pancreatic amyloidosis in cats
  - f. Acute pancreatitis
  - g. Hyperadrenocorticism
  - h. Equine hyperpituitarism
  - i. Bovine BVD infection
  - j. Pharmacologic: intravenous glucose, glucocorticoids, ketamine, xylazine or detomidine, excess injected insulin, progestins including megestrol acetate
6. List the five major pathologic processes that produce hypoglycemia.
7. Explain and recognize the pathogenesis of hypoglycemia that may be found in the following conditions.
  - a. Pancreatic  $\beta$ -cell neoplasia
  - b. Hypoadrenocorticism
  - c. Hepatic insufficiency
  - d. Lactational hypoglycemia (bovine ketosis)
8. Explain and recognize:
  - a. Why an animal's serum [glucose] should be known when you are interpreting an [IRI].
  - b. Why published reference intervals for [IRI] or IRI:G ratios may not be satisfactory to interpret [IRI] or IRI:G ratios in your patient.
9. Extra credit
  - a. Immunoreactive glucagon section (p. 502-503)
  - b. Amended insulin:glucose ratio (p. 501-2)