

Rapid Assessment of Glucose Levels in Clinical Practice

Common Uses of Glucose Measurements

Measurements for determination of blood glucose levels are important in the diagnosis and treatment of patients suffering from disorders of carbohydrate metabolism. Common indications for glucose measurement include, but are not limited to, the following:

- Patients with polyuria, polydipsia, weakness, coma, behavioural change and seizures (partial or complete).
- Patients with known hepatic or adrenal insufficiency, severe sepsis, pancreatic neoplasia and glucosuria.
- Patients receiving insulin or total parenteral nutrition.

Common Causes of Hyperglycemia and Hypoglycaemia

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| Hyperglycemia (Fasting) | Diabetes mellitus, hyperadrenocorticism (Cushing's disease), steroid administration, IV glucose administration |
| Pseudohyperglycemia | Non-fasted sample, physiologic ("stress") response in felines |
| Hypoglycemia | Insulin overdose, hyperinsulinism, hepatic failure, starvation, septicaemia |
| Pseudohypoglycemia | Delay in processing (>30 minutes) |

Clinical signs of hypoglycaemia usually are not evident until glucose concentration is less than 45 mg/dL and can range from early signs of tachycardia, nervousness, and trembling, to later signs of behavioural changes, weakness and ataxia. If untreated, hypoglycaemia can progress to collapse, seizures, stupor and coma.

Introducing the i-STAT 1 Glucose Strip.

The new i-STAT 1 Handheld Clinical Analyser contains an on-board glucose strip reader for rapid glucose assessment. Using one drop of fresh whole blood or fresh whole blood in lithium heparin yields accurate results in 20 seconds. Test strip must be loaded in to the analyser first before applying the sample. Care should be taken to remove any air bubbles from the sample and a hanging drop of blood should be applied directly to the target area.

PCx Plus Glucose Strips use a proprietary chemical configuration making them more specific for glucose and less sensitive to greater than 60 common interfering substances. In addition, each test strip contains a semi-opaque window that gives visual confirmation of the sample and fill process.

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Glucose Reference Ranges

| CANINE | Whole Blood mmol/L | Plasma mg/dL | Serum mg/dL |
|---------------------------|--------------------|--------------|-------------|
| i-STAT Analyser Cartridge | 3.33 – 6.38 | 60 – 115 | 60 - 115 |
| PCx Plus Glucose Strip* | 2.47 – 5.77 | | |

| FELINE | Whole Blood mmol/L | Plasma mg/dL | Serum mg/dL |
|---------------------------|--------------------|--------------|-------------|
| i-STAT Analyser Cartridge | 3.33 – 7.22 | 60 – 130 | 60 - 1130 |
| PCx Plus Glucose Strip* | 2.47 – 6.38 | | |

* Heska recommends using only fresh, whole blood or lithium heparinized blood samples with PCx Plus Glucose Strips. Serum or plasma should not be used.

i-STAT Cartridges vs. PCx Plus Glucose Test Strips

- Technology differences exist between i-STAT analyser cartridges and PCx Plus Glucose Test Strips; therefore the reference ranges and measured values for each may be slightly different.
- Unlike the i-STAT analyser cartridges, PCx Plus Glucose Test Strips do not have internal controls that run automatically with every test. To verify the accuracy of the glucose strip and the strip reader an external control must be run prior to application of the patient sample.
- Glucose strips have greater variability in their results than the i-STAT analyser cartridges. Cartridges are more accurate and precise and are considered the superior method of assessing patient glucose levels.
- Heska recommends all abnormal glucose values obtained from a glucose strip be confirmed on the i-STAT analyser cartridge or chemistry analyser.

Uses of PCx Plus Glucose Test Strips

Ease of use and 20 seconds to results makes the glucose strip reader on the i-STAT analyser ideal for every case requiring rapid assessment of glucose levels – including patients who are actively seizing (especially young animals), presently in shock, or are suspected of having sepsis or an insulinoma. In addition, PCx Plus Glucose Test Strips are excellent for documenting glucose trends in animals on insulin therapy and monitoring patients with end-stage liver disease and accidental insulin overdose.

For further assistance please call Woodley Equipment's Technical Support Department on +44 (0)1204 669033, option 1.



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