Endocrine Physiology: Glucose Tolerance Test

LAB REPORT / QUESTIONS

Before you begin:

1) Prepare a single graph from the class data illustrating the changes in blood glucose levels for all experimental conditions. Attach the graph to your report.
2) Review the graphs of urine glucose and urine ketones and make note of any anomalies (you do not need to attach these graphs)

Note: you should access the entire class data set and preliminary graphs from the course web page. To prepare your graph you may elect to isolate your individual groups data and/or use averaged class data to prepare your graph.

Graphs may be prepared using excel or by hand. All graphs must be clearly titled and labeled.

Exercise A: Averaged Blood Glucose (mg%) over time – all conditions.

<table>
<thead>
<tr>
<th>Time (min)</th>
<th>0</th>
<th>30</th>
<th>60</th>
<th>90</th>
<th>120</th>
<th>150</th>
<th>180</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood Glucose (mg%)</td>
<td></td>
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Exercise A - Results / Data

1. How long did it take for blood glucose levels to peak? What is the average blood glucose level at this high point?

2. Did blood glucose ever exceed the renal threshold? Does the urine data (urine glucose and urine ketones) support this conclusion. Explain.
3. Describe the relationship between insulin, glucagon & blood glucose concentrations.

4. What is the difference between Diabetes Mellitus and Diabetes Insipidus?

5. Why is Type I Diabetes sometimes called Juvenile Onset Diabetes (or IDDM)?

6. What is the difference between Diabetes Mellitus Type I and Diabetes Mellitus Type II? How is type I diabetes treated? How is type II diabetes treated?
7. What are the three hallmark symptoms of an individual with Diabetes Mellitus (type I)? Explain how each symptom is produced.

8. Explain why someone with uncontrolled diabetes (type I) might have acetone breath.

9. Why is Type II Diabetes sometimes called Maturity Onset Diabetes (or NIDDM)?

10. Why are Type II diabetics advised to restrict carbohydrates in their diet and increase exercise?