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Thursday lab

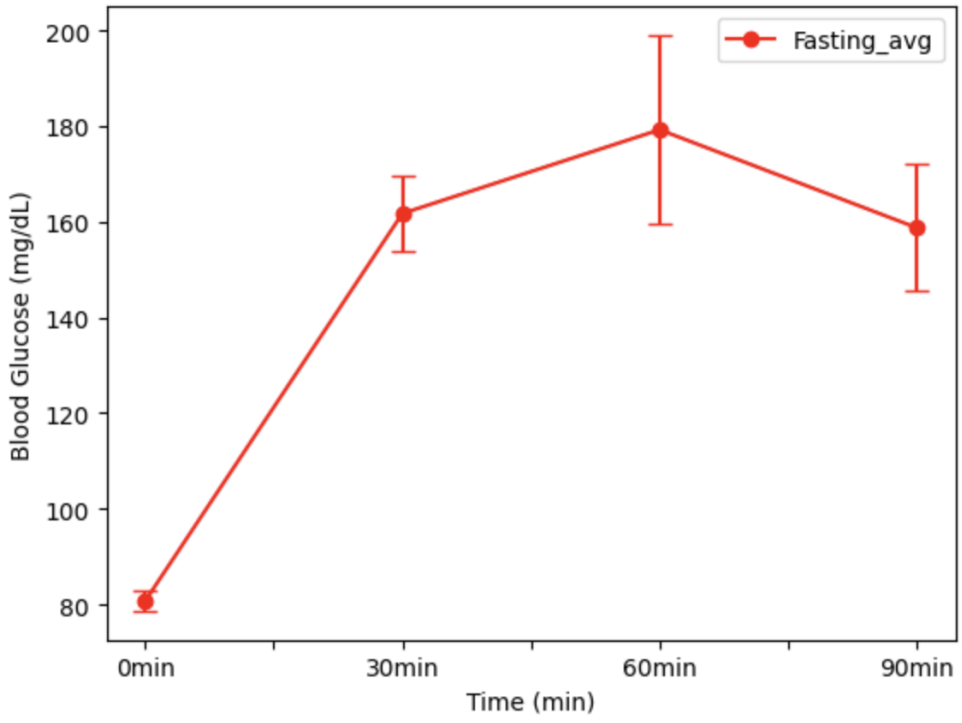
11/9/2023

Lab #8 Hormonal Activity: The Glucose Tolerance Test

Purpose: Perform the glucose tolerance test to test the ability of the body (especially the pancreas) to respond to an excess ingestion of glucose.

Procedure:

1. Six student volunteers will be selected for this experiment. These subjects should report to the lab in the fasted state–not having eaten for 10-12 hours.
2. Each student's normal fasting blood glucose level will be determined using the test strips for the glucometer assigned to each student. Each volunteer will clean a finger with 70% alcohol, then use a sterile lancet to obtain a drop of blood for the test. **If a student is helping another obtain a blood sample, gloves and universal precautions will be followed.
3. Each subject will then drink a lemon-flavored solution (Tru-Glu) of 25% glucose. The quantity of solution will be based on 1 g of glucose per kilogram of body weight. To determine body weight in kilograms, the weight in pounds will be divided by 2.2.
4. After ingesting the glucose, the subject will repeat the blood testing procedures every 30 minutes. Testing will continue in this manner for 1 1/2 hours or until the end of the lab period.
5. Record and graph the average of the class results of the blood glucose tests.
6. Compare the results with the normal glucose tolerance test curve. Describe the graphs in terms of absorptive and post-absorptive states.



Results:

Discussion: Insulin is an endocrine hormone secreted by the beta cells of the Islets of Langerhans in the pancreas. Its principle function is to assist the transport of glucose across the cellular membrane. When insulin is deficient or lacking,

only a small amount of glucose can cross the cell membrane and be used in cellular metabolism. This low rate of transport results in excess accumulation of glucose in the blood, called hyperglycemia. An excess of insulin causes a decrease in the level of blood glucose or hypoglycemia

Conclusion: The glucose tolerance test assays the ability of the body (especially the pancreas) to respond to an excess ingestion of glucose. Six students volunteered for this experiment, they all had to report to the lab in the fasted state–not having eaten for 10-12 hours. Each student's normal fasting blood glucose level was determined using the test strips for the glucometer assigned. After they drank a lemon-flavored solution (Tru-Glu) of 25% glucose, there were reports of headache and nausea. This could have been from fasting all day or from how sweet the Tru-Glu was. To conclude, we were able to understand the role of insulin and glucagon in the regulation of blood glucose.