Lab report

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Lab report

**Discussion**

**Response 1: Explain how insulin changed plasma glucose concentration over the course of the experiment?**

In the experiment, insulin caused plasma glucose concentration to decrease. When insulin helps the cells to absorb glucose, the level of plasma glucose concentration in blood decreases.

**Response 2: Explain how glucagon changed plasma glucose concentration over the course of the experiment?**

Glucagon helps in the breakdown of liver glycogen in the body, which in response increases the blood glucose concentration. In the experiment, glucagon changed the plasma glucose concentration to increase.

**Response 3: Explain what caused the change in plasma ketone concentration over the course of the experiment?**

During fasting, the ketone level is high in the body which is required for the production of energy in the form of ATP. When the body consumes carbohydrates, these are used instead of ketone ultimately level of ketone decreases as not required by the body to produce energy.

**Response 4: Explain how negative feedback caused the changes in plasma insulin concentration observed during the experiment?**

The level of glucose in the body controls the concentration of glucagon and insulin via the process of negative feedback. When the body consumes sugars or food, this causes an imbalance in the blood sugar levels. The pancreas in response to blood sugar level produces insulin to take up sugars by the cells which ultimately levels the blood glucose normal.

**Response 5: Explain how negative feedback caused the changes in plasma glucagon concentration observed during the experiment.**

In the experiment, low glucose levels stimulated the pancreas to produce glucagon. The glucagon breakdown started in the liver which raises the concentration of glucose in the blood back to normal and in response glucagon inhibited.

**Response 6: The insulin glucagon ratio changed over the course of experiment indicating changes in glucose storage and changes in the ability to increase blood glucose concentration via glycogenolysis and gluconeogenesis. State when glucose storage capability was highest and why?**

The glucose storage capability was the highest 1 hour before meal which is indicated because of the maximum sugar present in the blood (Wilson, 2012).

**Response 7: State when glycogenolysis and gluconeogenesis were highest and why?**

The process of glycogenolysis is at its peak after consuming food because it is the process of breaking down glycogen to glucose. The process of gluconeogenesis is highest during the condition of fasting as this is the process of conversion or formation of glucose to glycogen.

**Response 8: Explain how a high blood ketone helps the body conserve blood glucose?**

High blood ketone level is a condition that means the body is capable to burn a significant amount of fat to produce energy in the form of ATP. Insulin keeps the body to use glucose to be stored for later use as many individuals are relying on the glucose consumption for the energy.

**Response 9: Restate your predictions that were correct and give the data from your experiment that supports them. Restate your predictions that were not correct and correct them, giving the data from your experiment that supports the correction?**

The level of blood glucose was high after the meal, it was 6.4 after consuming a meal. The blood plasma level of ketone was the highest in fasting that is 109. Plasma insulin level was also high after meal and graphical representation shows that the level of insulin was high at table 3. The level of glucagon in blood plasma was high one hour before the meal depicted in graph 3 in support of the answer.

**Application**

**Response 1: During exercise, epinephrine and norepinephrine are released from the adrenal medulla. Epinephrine and norepinephrine have the same effect on plasma glucose levels as glucagon. Explain how epinephrine and norepinephrine affect plasma glucose and why this is important during exercise?**

During exercise, more energy is required for the body. Glucagon help in rising blood glucose level in the body and epinephrine and norepinephrine also function to release more glucose to produce more energy in the cells (Wilson, 2012).

**Response 2: The symptoms of diabetes mellitus include high plasma glucose levels and ketoacidosis (blood pH decreases due to increasing levels of ketones). Explain how diabetes causes these symptoms?**

In patients with diabetes mellitus insulin is not produced to meet body requirements. This results in a high level of blood acids that are ketones (Wilson, 2012). A high level of ketones causes ketoacidosis in patients with diabetes mellitus.

References

Wilson, V. (2012). Diagnosis and treatment of diabetic ketoacidosis. *Emergency Nurse (through 2013)*, *20*(7), 14.