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Physiology 125

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# Hormone Activity: The Glucose Tolerance Test

## Purpose

The purpose of this experiment is to understand the basic mechanism of hormonal activity and to understand the absorptive and post-absorptive states. It is also to understand the role of insulin and glucagon in the regulation of blood glucose.

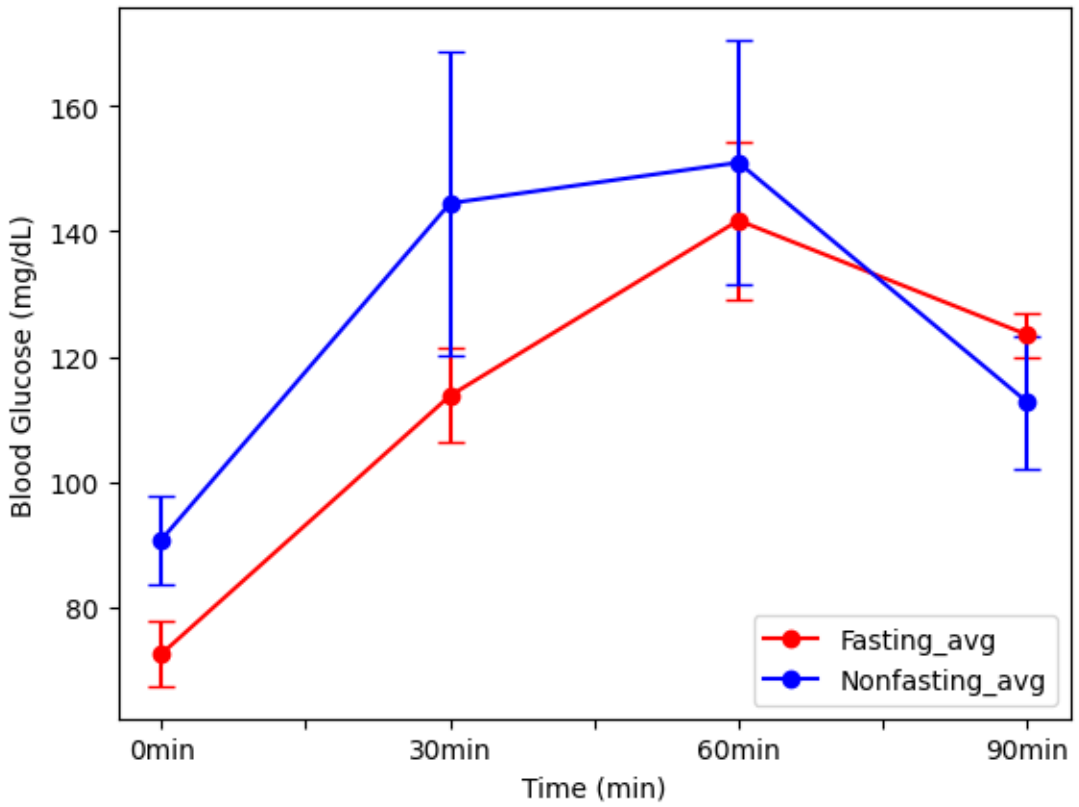
## Procedures

In this experiment, some students were selected to fast for 10-12 hours, and some students were selected to do their normal activities and not fast. Each student's normal fasting blood glucose level was determined using the test strips for the glucometer assigned to each student even for the students who did not fast. Each volunteer cleaned their fingers with alcohol, then used a sterile lancet to obtain a drop of blood for the test. Each subject drank a lemon flavored solution called Tru-Glu of 25% glucose. The quantity of the solution was based on 1g of glucose per kilogram of the subject's body weight. The body weight was determined in kilograms, the weight in pounds was divided by 2.2. After the glucose was ingested, the subject repeated the blood testing procedures every 30 minutes for 1 and ½ hours.

## Results

In this experiment, the 8 volunteers followed the procedures carefully. The testing was conducted in four parts: 0 min, 30 mins, 60 mins, and 90 mins. The following results are below.

| Group | Fasting (1) | Fasting (2) | Fasting (3) | Fasting (4) | Nonfasting (5) | Nonfasting (6) | Nonfasting (7) | Nonfasting (8) |
|---|---|---|---|---|---|---|---|---|
| **0 min** | 72 | 59 | 84 | 84 | 86 | 103 | 103 | 73 |
| **30 mins** | 98 | 113 | 132 | 115 | 206 | 127 | 127 | 89 |
| **60 mins** | 115 | 136 | 176 | 140 | 208 | 129 | 129 | 145 |
| **90 mins** | 118 | 118 | 133 | 125 | 82 | 119 | 119 | 131 |




**Discussion**

In this experiment, the glucose level was tested of the eight volunteers based on whether they fasted or not. Based on the table above, we can see the difference of numbers between the fasting and the non-fasting. In 0 min, we can see that the volunteers who did the fasting have

lower numbers (72, 59, 84, and 84) than the people who didn't do the fasting (86, 103,103, and 73). After drinking the glucose, we see a major spike on numbers at the 30 minutes mark for both fasting and non-fasting volunteers. On the 60 minutes mark we can see that the glucose level is still going up but not significantly faster than the 30 minutes mark. As soon as the 90 minutes mark passed, the glucose level suddenly went down for most people except for Fasting #1. The sudden loss of glucose levels is understandable because the volunteers are moving causing the use energy resulting in the glucose level to go down but a bit.

**Conclusion**

In conclusion, drinking a lemon flavored solution called Tru-Glu of 25% glucose can help to increase the glucose level of a person. We also saw that people who fasted have lower sugar level than those who did not fast at all. Also, consuming glucose can increase the glucose levels in a span of 30 minutes. While doing the experiment, after the 90 minutes mark, we saw how most of the volunteers' sugar level went down by a bit because they are using energy from doing the experiment.