

# Biology mice case study

[Business](#)



**ASSIGN  
BUSTER**

A group of 11 mice was given water, and another group of 10 mice was supplied with diluted black coffee (coffee: water 1 as drinking fluids for five weeks. The composition of the diets and living conditions were similar for both groups of mice.

10th glucose was monitored weekly for all mice. After five weeks, there was no change in average body weight between groups. Results indicated that blood glucose concentrations increased significantly in the mice that drank water compared with those that were supplied with coffee.

Finally, blood glucose concentration in the coffee group exhibited a 30 percent decrease compared with that in the water group. In the original paper\*, the investigators acknowledged that the coffee for the experiment was supplied as a gift from a corporation. ) Answer the following questions: 1 .

What was the hypothesis of this experiment? (Reminder: Hypothesis is a statement. ) What question(s) was (were) the investigator asking?

Hypothesis: Testing group of mice which were fed only water compared to mice fed a coffee/water mixture would identify benefits of coffee consumption  
Question: Would an animal lab est. provide further evidence of the positive effects of coffee in diabetes patients?  
2. Which is the control group? Why? The control group for this experiment would be the 11 mice which were given only water to drink. Water is the controlled substance in this experiment in that all mice, in both test groups, received water.

3. Which is the treatment group? Why? The treatment group in this experiment were the 10 mice which drank the coffee/ water mixture.

The experiment was conducted based upon the hypothesis that adding coffee into water would effect the mice differently that those mice which only rank water, without coffee. 4. Did the researchers follow the scientific method in their experimental design? Explain. Yes the researchers followed the scientific method in their experiment design.

They had an initial observation that previous studies which indicated caffeine (coffee) had a positive effect on diabetes patients Nas not tested on lab animals. They asked the question, would an animal lab test provide further evidence of the positive effects of coffee in diabetes patients?

They hypothesized testing a group of mice which were fed only water compared to mice De a coffee/water mixture would identify benefits of coffee consumption. Their prediction, based on past studies, was that yes coffee would decrease the risk of diabetes. They then formulated an experiment between the two groups of mice to test support for their claim. 5.

Do you think that there may be any possible biases or other problems in this experiment? Explain. Yes there could definitely be possible biases based upon the coffee coming from suppliers as a gift for the experiment.

It's unlikely the coffee would chemically alter the results but there definitely could be a reception issue with the suppliers providing the source of material for the controlled group. 6. Based on the data, was the hypothesis supported, and what can Ho conclude from this experiment? Fees based upon the data the hypothesis was soups e art d. The lab result TTS largely indicated differences between the controlled and treatment group.

One could reasonably conclude coffee does affect the groups differently but it may be more difficult to draw a line to coffee being the sole reason. The sample size of the groups seems extremely small.

Additionally, there is little evidence to support other factors, such as heredity or predisposition to high/low glucose levels which could skew the results. It would also make sense to think the researchers should have put the treatment group back on a water only diet for a similar period of time to see if glucose levels began to rise. Another possible outcome not garnered could be the effect over a significant period of time.

With a drop as high as 30% it would seem highly unsustainable that this drop would continue to occur or the possible side effects of a continual drop to say 80% might cause other negative effects on the group of mice.