How do Food Rewards Affect Test Results?

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Abstract

The purpose of this study was to determine how 7th and 8th-grade students' test results are affected by food rewards. On the first day, we gave students a 10 question test. We then told them they would get a donut if they achieved above an 80% to see if it would yield better test scores. On the second day, we did everything the exact same way but told the students taking the test, they would get a different treat instead(something healthy, we chose fruit). After testing the students and analyzing the results of all of the participants, we found that the average test score of the students who were given donuts were much better than the results of the student who were given fruit.

Introduction

Our research project was centralized around how types of food rewards increase/decrease efficiency on tests. According to an article written by Adriana Galvan it has been proven that the brain chases a reward and that the quality of that reward directly correlates to the effectiveness in completing certain tasks. This led us to hypothesize that in our own research the donut reward would be more effective in helping people achieve a higher test score on a grade level math and logic test. An article written by Shan Luo states that glucose in food items reduces the motivation to complete tasks. This article relates to our question because if we know that glucose (carbs) decreases the value of rewards we can use this in determining the effect of glucose on students' test scores because if the reward that we offer to the students has more glucose on one day vs. the other: for example donut holes having more glucose than fruit. In our project our main goal is to figure out how healthy vs. sweet foods affect how 7th and 8th grade students do on tests.

Purpose

We've hypothesized that while taking tests people tend to do tasks better when they receive a reward. However, we don't know if this is true in a more general sense and with a broader spectrum of people. Some students also find it helpful to have a motivational reward so we wanted to research what food reward would be most helpful for this by boosting our efficiency on tests and quizzes. So, for our research, we have decided to have two different testing days, one with a sweet treat for a reward and the other with something on the healthier side and see which day yields a better result.

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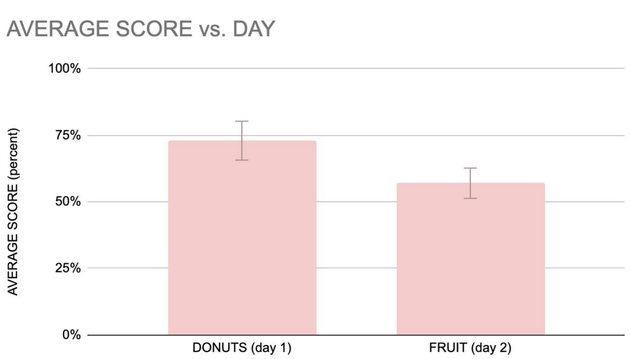
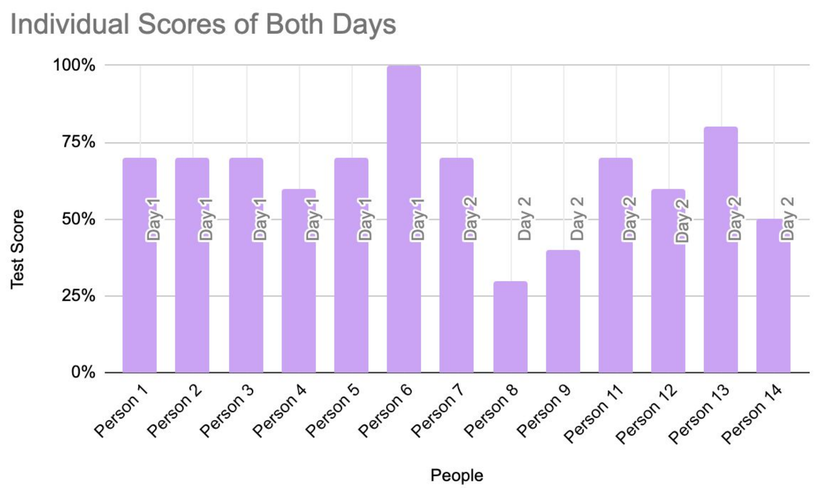
Materials and Methods

We used a few basic materials for our project, we brought food (donuts for day one, and fruit for day two). We also created a basic test revolving around math for the test subjects to complete. Our project started off with everyone sitting down with a test, one of the group members read the script we had previously written. We let them take the test for around 10 minutes giving them a tad bit of extra time if they needed it. As people were turning them in we graded them, and if the person got 80% or higher they would receive a treat. We did NOT tell them the treat before the day of the test, however, once they were in the classroom we informed them of their reward. Day one people got donuts as their treat and day two people got fruit. Our teacher provided the food for both days and we created and provided the test.





Results

We observed that the students who took the test with the prize of donuts at the end received a better average test score than those who were promised a reward of fruit. As seen with our first graph the group with the donut reward achieved an average score of 73% while the group with the fruit reward achieved a score of 57%. Our results suggested that as the "quality" of the reward got better so did the test results of the students. However this might not have worked for all people as seen with our second graph. The second graph showed that even though day one people were offered donuts, not everyone in this group earned one showing that motivational reward didn't work for some people.

Discussion

Our data as a whole showed that the students who participated on day 1 (donuts) had higher and better results than the people on day 2 (fruit). On day one the average test score was 73% proving our hypothesis correct, that as the quality of the reward increased so did the average test score. The scores on day 2 were significantly lower with the average score being 57%. As seen in our first graph day 2 (fruit) had a lower score on average than day 1 people (donuts). The second graph was an expansion of our first one, showing individual scores compared to one another on the same and different days. Our original research question is "How does a healthy versus unhealthy reward affect students' efficiency on tests?" This relates to our data collected because our data showed that the unhealthier treat resulted in better scores from the students. One potential source of error was that while we were making the test we chose one hard question that nobody got the answer to except one 8th grader who was in a much higher math class. We realized that people who were in pre-algebra, or algebra did not know how to solve this problem. This was one setback in the grading of our tests. In the end, we decided to not count that question as a point and made the test out of 9 instead of out of 10. One idea for a potential follow up experiment could be to research what specific types of "unhealthy" foods show the highest results. The dependent variable would be the test the students are given, the time they are allotted, etc. and the independent variable would be the type of "unhealthy" reward given to the people taking the test. The experiment setup would be quite similar to how ours was. The students would walk in, sit down, read a script (that promises a certain type of reward) and then take the test, whoever scores above 80% gets the reward for that day.

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