



CALIFORNIA STATE SCIENCE FAIR 2014 PROJECT SUMMARY

Name(s) Aiden G. Darius	Project Number 34897
Project Title Surfing the Blood Glucose Wave: The Impact of Different Types of Sugar on Blood Glucose	
Abstract Objectives/Goals The goal of this study is to understand the impact of different sugars on blood glucose. After eating, some foods process more quickly and cause the blood sugar to temporarily spike. If the spike stays high, it can cause long-term health complications. Faster digesting sugars such as dextrose, will cause more of a spike, than slower digesting sugars. Adding fat to carbohydrates slows the digestion process. Hypothesis: Different types of sugars have different effects on blood glucose in participants without diabetes, adding fat to the sugar slows down the effect. Methods/Materials Materials included different sugars, peanut butter, measuring spoons, blood glucose meters, directions, and data sheets. Participants were 6 adults without diabetes. The first variable, sugar, had three levels (dextrose, fructose, and agave). My second variable was fat (peanut butter). My third variable was blood glucose. My participants ate the sugars on separate mornings, then repeated this process eating the sugars with peanut butter. They were asked to get a blood sugar reading before and after eating the sugar to calculate the change in their blood glucose level. Results Average values for change in blood glucose were calculated, and compared across sugars. The results are consistent with my hypothesis. Gel had an average of 36, juice 32.5, and agave 4. Results for the second part regarding fat only partially supported my hypothesis. Juice alone averaged 32.5, and 3.2 with peanut butter. The agave alone averaged 4, and 3.6 with peanut butter. This was inconsistent with my expectations. If one outlier is eliminated from the analysis the average for gel is 26.8, and the average for gel with peanut butter is 20, providing partial support. Conclusions/Discussion Results from this project support the first part of the hypothesis. The dextrose gel changed blood glucose the most, followed by juice, then agave. Different forms of sugar do impact blood glucose differently. The second part of the hypothesis was only partially supported for juice. The dextrose gel was not changed by the fat until an outlier was removed. These findings are important because everyone needs to maintain healthy blood glucose levels to avoid many health complications. Doctors and health educators could use this information to help their patients learn how to make healthy choices.	
Summary Statement This project is about the impact of different types of sugar on blood glucose in non-diabetic participants.	
Help Received My mother helped type the submission and buy the supplies.	