Sugar Rush Sugar Crash: Analyzing the Effect of Sugar on Physical and Mental Performance Using ANoVA

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Glucose (sugar) is the fuel of the body, but does it actually result in better performance? I tested the mental and physical responses to glucose. My hypothesis was that there would be a sugar rush and then a sugar crash both mentally and physically. My null hypothesis was H0= T0= T15= T30, meaning sugar would not make a difference in the group means. My alternative hypothesis was HA? T0? T15? T30 meaning that sugar would make a difference in the group means. I used the correlated samples ANOVA test to analyze the data, and determine statistical significance with a 95% confidence level. I gave baseline tests of 30 seconds of addition and pushups, administered 24 g of glucose, and repeated the tests at 15 and 30 minutes. The results were that there was a sugar rush for physical tasks 15 minutes after eating glucose, meaning there was a statistically significant increase in the ability to do pushups. For mental tasks, the overall results showed there was no definite sugar rush or crash. However, when negative responders, the people who decreased in ability to do math problems (75% of the sample), were analyzed separately, they had statistically significant decreases. I cannot determine the negative responders to glucose without running these tests. My hypothesis needed to be refined: there is a sugar rush for physical ability from time 0 to time 15, but no sugar crash. For mental ability there was no sugar rush at all, and for negative responders there was a sugar crash from time 0 to time 15. My conclusion is that eating sugar is a good idea before and during physical work, but a bad idea before mental tasks.

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