CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY

Name(s)
Jenna S. Madeyski

Project Number
J1423

Project Title
Activity Level and Ability to Concentrate Direct Attention: The Effects of Prolonged Consumption of Sugar

Abstract

Objectives/Goals
The objectives of my experiments were to investigate whether or not prolonged consumption of sugar would affect the ability of mus musculi (domestic mice) to concentrate their direct attention; and to document the impact of sugar intake on their activity level. My hypothesis was that, when compared to the #Control Group,# the "Sugar Group" would display increased activity levels and lesser ability to concentrate.

Methods/Materials
I utilized 2 cages of 5 mice (all male and from the same gene pool). Everything was identical, save for one exception: One of the cages featured sugar water at a 4:1 ratio (for every cup of water, there was 1/4 cup of sugar). The sugar variable was applied for two weeks prior the experiment. To test Activity Level, I put each mouse in an exercise ball, then placed the ball on an 64-square grid. Subjects were positioned in the exact center of the grid and given 2 minutes to be freely active. During each subject#s 2-minute time period, I # along with two witnesses # counted the total number of grids covered. To test their Ability to Concentrate Direct Attention, I put each mouse in the exercise ball positioned at one end of a 6-meter-long run. Each subject was timed on how long it took to reach the opposite end. If a mouse took more than 5 minutes to finish the test, it was assumed that they had lost interest entirely, the maximum 5 minutes was recorded, and the subject was removed from the run.

Results
As compared to the #Control Group#, the mice given sugar showed an increase in activity level; though only slight (15%). The #Sugar Group# did, however, demonstrate a drastic 215% decrease in their ability to concentrate direct attention. This second result demonstrated that sugar can significantly reduce one#s ability to concentrate.

Conclusions/Discussion
Although sugar might serve to slightly boost activity levels, its effect does not last. Long-term consumption of significant levels of sugar decreases one#s ability to concentrate direct attention span, but far more drastically than I thought in my hypothesis. In closing, although high-level, long-term consumption of sugar might make one slightly more active, it clearly causes one to become extremely inattentive.

Summary Statement
For two weeks, I observed the effects of sugar consumption by mice, specifically testing their activity level and ability to concentrate direct attention.

Help Received
both parents assisted in editing for the notebook and backboard, as well as supporting me financially; Mindy Engevik helped also with editing; The Hamilton-Kinders helped me obtain mouse cages