CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s)
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Project Number
S0405

Project Title
BPA: Safe or Not? The Effects of Exposure to Bisphenol A (BPA) from Canned Food on the Learning of Mice

Abstract

Objectives/Goals
Most canned food in the U.S. contains the chemical BPA in the lining, and 95% of Americans have a detectable amount of BPA in their urine. I set out in this experiment to see how exposure to BPA though canned green beans affects how well mice are able to learn the Morris Water Maze. I hypothesized the mice that mice that were exposed to BPA would not learn the Morris Water Maze as fast as mice that were not exposed to BPA, because BPA, in low doses, has been found reduce hippocampal formation, which is important for spatial memory.

Methods/Materials
In my experiment, I fed one group of mice 1 gram of canned green beans with BPA each at night and regular mouse food in the day, one group of mice 1 gram of BPA free french cut canned green beans each at night and regular mouse food in the day, one group of mice 1 gram of fresh green beans each at night and regular mouse food in the day, and had one control group of mice that received regular mouse food only. Each group had 2 tanks, one with 5 males and one with 5 females. The mice were fed green beans daily, for the entire experiment. All of the mice had unlimited access to regular mouse food throughout the experiment. The mice were tested in the Morris Water Maze on days 7-13 and data was recorded on all of the days to determine how well the mice learned the Morris Water Maze during those seven days.

Results
I found that BPA from canned food does not affect how the mice were able to learn the Morris Water Maze. The average times for each group to find the platform were not consistent from day to day. The mice that were exposed to BPA did not have significantly longer times to find the location of the platform.

Conclusions/Discussion
The data from my experiment does not support that the mice#s learning was impaired by exposure to BPA. The mice that were exposed to BPA did not take significantly greater times to find the platform. Americans eat canned food on a daily basis and many cans contain the chemical BPA in the lining, which then leaches into the food. Current studies point toward the possible risks of BPA, but no published studies tested the effects from a human food source. My study did not show any possible effects of BPA from canned food on learning.

Summary Statement
This project investigated if the spatial learning of mice was affected by exposure to BPA through canned food.

Help Received
My parents provided me with some of the supplies for my experiment, and allowed me to test the mice in out house; Ms. Fisher provided me with some of the supplies for my experiment; Jeff Rawson helped me to correctly determine the gender of the mice.