



# CALIFORNIA STATE SCIENCE FAIR 2016 PROJECT SUMMARY

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<b>Project Title</b> <b>Mouse Runner: An Investigation on the Effects of Energy Drinks on Mouse Capability</b>	
<b>Objectives/Goals</b> Commercial energy drink companies advertise that products will provide consumers with energy, increased performance, alertness, etc. This project was designed to determine whether or not energy drinks live up to what's promised and whether there are aftereffects. To test this, mice ran through a maze on and off energy drink. If mice are fed energy drink and run a maze, mice will complete the maze faster, but become slower when the effects wear off. <b>Abstract</b> <b>Methods/Materials</b> 8 mice were purchased. A maze in which the testing would take place was built. Each mouse ran through the maze 1x for a baseline. 3 mice were then randomly selected to be the test group and receive energy drink. Mice were then placed back in cage for 12 hrs without food in order to give mice incentive to complete maze. At 5:00pm the next day, control mice ate 4 plain cheerios, and test mice 4 cheerios soaked in 2 mL of energy drink. Upon eating the soaked cheerios, a timer was set for 45 mins. to give the drink time to peak in the bloodstream and take effect. Each control mouse was tested in the maze and returned to the cage with food. When the 45 mins. were up, test mice ran the maze and returned to the cage. At 10:00, all mice were tested again to determine whether or not there was a change in maze run times. This process was repeated every day for 8 days. <b>Results</b> The test group consistently out-performed the control group during the 5:00 test, and consistently under-performed the control group during the 10:00 test. The test group had the fastest, but also the slowest times, as the spread between peak and slump times in avg. seconds ranged between 5.1 and 11.8x slower. The spread between the control group times was only between 1.2 and 2.6x slower. <b>Conclusions/Discussion</b> The data supports the hypothesis by showing that energy drinks did cause the test mice to run the maze in faster times than the control mice. The data also showed that after the effects of energy drinks wore off, the consumer was slower and had less energy than before. This experiment has given evidence that the energy from energy drinks is short lived. With so many people in today's world drinking energy drinks of all brands and quantities, experiments such as this one could help raise awareness to the truth of energy drinks.	
<b>Summary Statement</b> Mice were timed when running through a maze before, shortly after, and hours after consuming caffeinated energy drink and times were compared, finding that mice ran fastest shortly after consumption, and ran slowest hours after consumption.	
<b>Help Received</b> I designed the maze, and was aided in building it by my father. Throughout the course of the experiment, I fed, cared for, and tested the mice myself.	