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Common Beverages and Tooth Decay

The purpose of this project was to determine if there is an effect of common beverages on tooth decay. Eggshells are composed of calcium and I used them to simulate teeth. I hypothesized that an eggshell would dissolve fastest in the drink with the most acid content, or the lowest pH level. I hypothesized the outcome would be that Coke would decompose the eggshell fastest.

First I blew out the eggs through holes made in each end of the eggshells. I measured the pH levels at the beginning and end of the experiment using pH strips and a digital pH meter. I weighed the eggshells and submerged them into each beverage. I monitored physical changes to the eggshells over 14 days and measured the pH levels of the beverages on the first and 14th days.

The data collected did not support my original hypothesis. The eggshell in orange juice, with a pH of 5, deteriorated to the point of falling apart. Theoretically, the eggshell in Coke, with a pH of 2, should have deteriorated more due to the amount of acid in the beverage; it stayed intact but was severely stained.

These findings lead me to believe that it is important to brush teeth after drinking sugary and acidic beverages. Certain beverages considered unhealthy and bad for teeth were proven to stain the eggshell; however, may actually not be quite as destructive as a beverage that is considered healthy, like fruit juice.