Egg-cellent Enamel

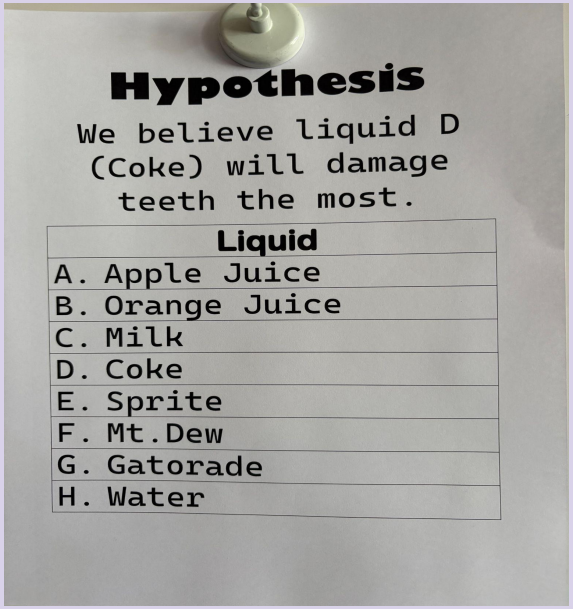
Testing Liquids on Egg Shells

Introduction

Our class wanted to see how different things we drink affect our teeth.

Question/Prediction

Which liquid damages teeth the most?

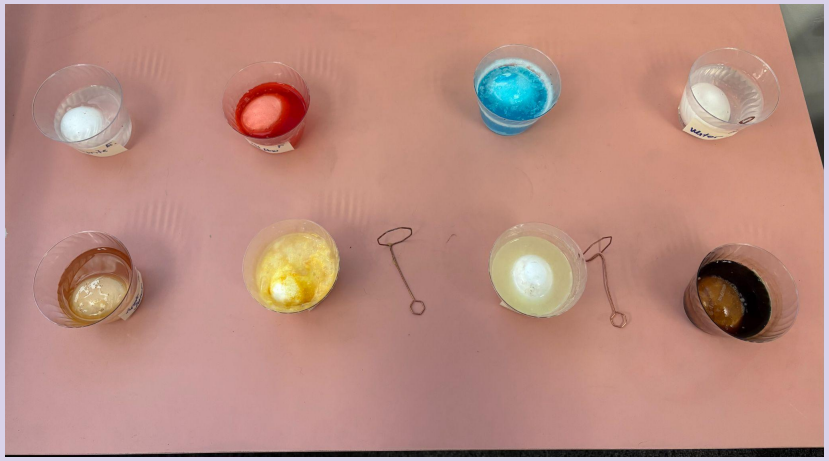


- "Photo by K. Matzdorff".

The majority of the class predicts that Coke will damage teeth the most.

Materials/Procedure

- 8 various liquid drinks with labels
- small clear plastic cups
- 8 hard boiled eggs



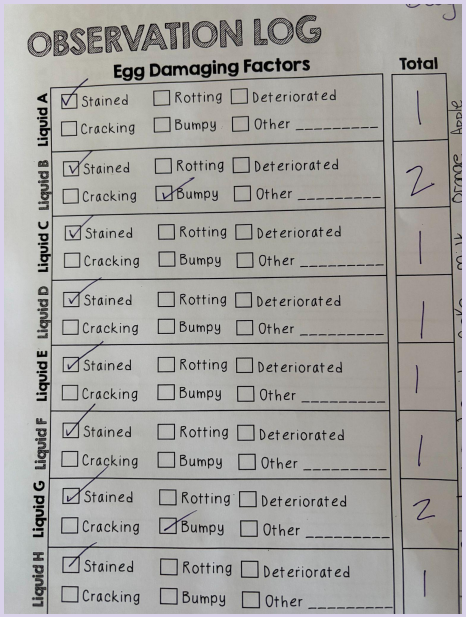
- "Photo by K. Matzdorff".

1. Fill each cup half way with Liquid.
2. Place hard boiled egg into cup.
3. Repeat for all liquids and eggs.
4. Observe for 1 week and record results.
5.
6. Find the damaging factors average for each liquid.

Results/Data

Liquid A Apple Juice	5
Liquid B Orange Juice	9
Liquid C Milk	3
Liquid D Coke	5
Liquid E Sprite	3
Liquid F Red Mt. Dew	5
Liquid G Blue Gatorade	6
Liquid H Water	1

"Photos by K. Matzdorff".



Discussion/Interpretation

The students noticed the next day that some of the colored liquids were staining the egg shells. They assumed that colored liquids are probably not good for you teeth. The coke stained the most. It was dark brown. The red Mt. Dew and the blue Gatorade were very bright. The orange juice and apple juice were only stained a little. The clear and milk were not stained until later. In the 8 days that we observed we did not see an egg crack or deteriorate. We determined quickly that sugar was not good for your teeth. The students agreed that they think the worst drink was definitely coke. No one wants brown teeth. They said at least the red and blue were cool colors. There was no doubt that water probably doesn't damage your teeth at all. It can help wash away the sugar on your teeth and help prevent tooth decay.

Implications Ideas for Future Research

- Alternative and Diet Beverages: Researchers are investigating the erosive effects of sugar-free and diet drinks, as they are often still highly acidic, challenging the misconception that "sugar-free" equals "safe" for teeth.
- Energy and Sports Drink Erosion: Studies indicate that energy drinks (e.g., Rockstar, Monster, Red Bull) can cause twice as much enamel loss as sports drinks (e.g., Gatorade, Powerade). Future studies are examining the specific chemical properties in these drinks that drive this high rate of erosion.

References

Wold, Rob. “How Different Drinks Affect Your Teeth.”

Https://Science.drinklmnt.com/Did-You-Know/How-Different-Drinks-Affect-Your-Teeth.

Arafa, Abla, et al. “Erosive Effect of Beverages on Surface Hardness and Ultra-Structure of Deciduous Teeth Enamel.” *Pediatric Dental Journal*, vol. 32, no. 3, Sept. 2022, https://doi.org/10.1016/j.pdj.2022.08.001.