

Are Your Teeth at Risk?



Purpose

I chose to do this project because I wanted to know what some liquids actually do to your teeth. While I was thinking of a project to do, this idea popped into my head, because I drink a lot of soda. I thought it would be cool if I really knew what was happening to my teeth when I was drinking different types of liquids, and this project was the perfect way to find out!

Application

This is important to know about because we need to know how to keep our teeth healthy, and what we can do to prevent our teeth from rotting.

Hypothesis

After doing a lot of research, I think that Coca Cola will damage the teeth most of all. I think this because the website that I was reading off of said that Coca Cola and Pepsi are most acidic, and acid rots away at your teeth a bunch. So if you drink it lots, it can have a big effect. I also think that some of the juices might make the teeth very gross because people always think that fruit juices are good for you, but they actually have a lot of sugar in them. Before I did this project I looked at all of the labels and the fruit juices had more sugar than I thought they would.

Materials

- Coca-Cola
- Bubly Cherry
- Pepsi
- Coffee
- Orange Juice
- Apple Juice
- White Wine
- Chocolate Milk
- Bison Teeth
- String
- 8 cups
- Measuring Cup
- Scissors
- 8 pens

Procedure

1. Purchase Bison teeth online.
2. Put a piece of string through the pre-drilled holes on the tooth and tie a knot.
3. Gather Coca-Cola, Bubly Cherry, Pepsi, Coffee, Orange Juice, Apple Juice, White Wine, and Chocolate Milk.
4. Set out 8 cups.
5. Pour a $\frac{1}{3}$ cup of each liquid into a cup.
6. Put a pen through the string loop.
7. Set the pen on top of the glass so that it holds the bison tooth in the liquid.
8. Wait 24 hours.
9. Take the teeth out of the liquids, and observe what happened.

What drinks put your teeth at risk?

White Wine - White wine is very acidic and wears away at enamel at a fast pace. With this drink your enamel could completely disappear if constantly being consumed.

Sparkling Water - Sparkling water is not that great for your teeth. Sparkling water does not have much acid in it without flavouring, just enough to create the bubbles and fizz. Except, almost all sparkling water contains flavour, and that is what holds most of the acid. So, if you buy sparkling water (I used cherry flavoured), the cherry is what contains most of the acid. So, with both acids combined, the sparkling water will wear away at your enamel. Since it is

water though, it will actually make your teeth a bit whiter in the process. Even though it makes them a bit whiter, losing your enamel is not worth it!

Coffee - Coffee isn't that bad for your teeth! It is proven that coffee actually helps to prevent cavities, but may stain easily. Coffee fights bacteria that rests on your teeth, therefore it helps prevent tooth decay. However, coffee is high in acid and acid wears away at your teeth A LOT, so the more coffee that you drink, the weaker the enamel becomes, and the easier it is for your teeth to decay! Small amounts of coffee at a time won't be bad and might even help out your teeth.

Soda - Soda is the worst drink that could be put on your teeth, and although you can buy sugar free sodas, don't be fooled! Sugar free sodas have almost the same effect on your teeth as a regular

pop would, because the acid in a drink plays a bigger role than sugar on your teeth. Sugar is not far behind though!

Chocolate Milk - Chocolate milk is not the best liquid for your teeth. It is made of milk, so it has plenty of calcium, but the chocolate syrup that is in the milk is very sugary and will cause tooth decay quickly.

Fruit Juices - Juice does have a pretty large effect on your enamel, but only if it is constantly being consumed. Just like a lot of other drinks, fruit juices have lots of acid and sugar in them, so the acid and sugar work away at your tooth enamel.

Facts

- Have you ever wondered what the enamel on your teeth really does? The enamel on a tooth is the hard outer layer that stops your teeth from rotting. The enamel is actually the hardest mineral in the human body! It is what protects your teeth from what you eat and drink. If it wears away, it is gone for good. Without enamel it can be hard to eat and drink! You can tell if you have enamel by how smooth your teeth are. If your teeth are gritty, it means the enamel is wearing away or has already worn away. If you lose your enamel you will never be able to get it back. Although if the enamel is only damaged, it can be helped. The minerals in toothpaste and

mouthwash help to restore enamel! For how strong this mineral is it isn't very thick. It is only about 2.5 mm at the cusp (top of your tooth), but gets thinner towards the border (around your tooth)!

-Did you know that if you drink soda it is actually bad to brush your teeth right after! This is bad because your enamel likes to fight off sugar, after all that is what it is made to do. When you don't let the enamel do its job your teeth start becoming weaker, because of the enamel thinking it doesn't have to do anything anymore. You should wait at least 30 minutes after having any sort of sugar on your teeth before brushing.

-When you have a sip of your favourite sugary drink, your teeth are actually under attack! When you take just one sip of a sugary drink your teeth get put under attack for 20 minutes. With every sip the 20 minutes restart. Your enamel can fight it off. But if your teeth are constantly under attack your enamel can't keep up and that is how your teeth start to rot!

-Have you noticed your teeth have never been white! Well that actually can mean your teeth are healthy. The color of your enamel is a blueish, light grey. The enamel is also considered translucent so the color of your dentin will always show. Your dentin is yellow no matter what and since the enamel is translucent it shows the yellow. So if your teeth are yellow it

means that they are healthy. But there's a difference between healthy yellow and unhealthy yellow. If your teeth are very yellow it can mean that your enamel is starting to get stained and that is hard to get rid of.

-Do you know how many layers your teeth are? Your teeth actually have 3 layers: the enamel on the outside, the dentin in the middle, and the pulp on the very inside. The dentin is the hard layer under the enamel and if the enamel is lost the dentin will be very very sensitive! The pulp is the innermost layer of the teeth and is very soft. It is the part of the tooth that has all of the living blood vessels and large nerves. It is like a sponge and is very soft.

Some people refer to it as the pulp of an orange, very soft and squishy!

Conclusion

After doing my experiment I have realized what sugar can really do to your teeth. The Coca-Cola and Pepsi did stain the teeth lots, so half of my hypothesis was right! The other half was not correct. The Apple Juice and Orange Juice did not stain or make the teeth gross like I thought that they would. Although, I could tell that the orange juice took off some of the enamel by the texture of the tooth. Overall my experiment went very well and I learned a lot about my teeth and what different things can do to them. It was a lot of fun!

Sources

1. <https://www.mouthhealthy.org/en/nutrition/food-tips/the-truth-about-sparkling-water-and-your-teeth>
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3. <https://crest.com/en-us/oral-health/conditions/enamel/tooth-enamel-loss-erosion-repair>
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