



How Sugar Causes Cavities and Destroys Your Teeth



By Verena Tan, RD, PhD — [Updated on April 6, 2017](#)

It's common knowledge that sugar is bad for your teeth, but it wasn't always so.

In fact, when the ancient Greek philosopher Aristotle first observed that sweet foods like soft figs caused tooth decay, nobody believed him.


But as science has progressed, one thing is certain — sugar causes tooth decay.

That said, [sugar](#) on its own is not the culprit. Rather, the chain of events that takes place afterward is to blame.

This article takes a detailed look at how sugar affects your teeth and how you can prevent tooth decay.

Your Mouth Is a Battleground

Many different types of bacteria live in your mouth. Some are beneficial to your dental health, but others are harmful.

For example, studies have shown that a select group of harmful bacteria produce acid in your mouth whenever they encounter and digest sugar (1 ) .

These acids remove minerals from the tooth enamel, which is the shiny, protective, outer layer of your tooth. This process is called demineralization.

The good news is that your saliva helps to constantly reverse this damage in a natural process called remineralization.

The minerals in your saliva, such as **calcium** and phosphate, in addition to fluoride from toothpaste and water, help the enamel repair itself by replacing minerals lost during an “acid attack.” This helps strengthen your teeth.

However, the repeated cycle of acid attacks causes mineral loss in the enamel. Over time, this weakens and destroys the enamel, forming a cavity.

Simply put, a cavity is a hole in the tooth caused by tooth decay. It’s the result of harmful bacteria digesting the sugar in foods and producing acids.

If left untreated, the cavity can spread into the deeper layers of the tooth, causing pain and possible tooth loss.

The signs of tooth decay include a toothache, pain when chewing and sensitivity to sweet, hot or cold foods and drinks.

SUMMARY:

Your mouth is a constant battleground of demineralization and remineralization. Nonetheless, cavities occur when bacteria in your mouth digest sugar and produce acid, which weakens tooth enamel.

Sugar Attracts Bad Bacteria and Lowers Your Mouth's pH

Sugar is like a magnet for bad bacteria.

The two destructive bacteria found in the mouth are *Streptococcus mutans* and *Streptococcus sorbrinus*.

Both of them feed on the sugar you eat and form dental plaque, which is a sticky, colorless film that forms on the surface of the teeth (2[✓]).

If the plaque is not washed away by saliva or brushing, the environment in the mouth becomes more acidic and cavities may start to form.

The pH scale measures how acidic or basic a solution is, with 7 being neutral.

When the pH of plaque drops below normal, or less than 5.5, the acidity start to dissolve minerals and destroy the tooth's enamel (3[✓], 4[✓]).

In the process, small holes or erosions will form. Over time, they will become larger, until one large hole or cavity appears.

SUMMARY:

Sugar attracts harmful bacteria that destroy the tooth's enamel, which can cause a cavity in the affected tooth.

Dietary Habits That Cause Tooth Decay

In recent years, researchers have found that certain food habits matter when it comes to the formation of cavities.

Consuming High-Sugar Snacks

Think before you reach for that sugary snack. Many studies have found that the frequent consumption of sweets and sugary drinks leads to cavities (2[✓], 5[✓], 6[✓]).


Frequent snacking on foods high in sugar increases the amount of time your teeth are exposed to the dissolving effects of various acids, causing tooth decay.


One recent study among school children found that those who snacked on cookies and potato chips were four times more likely to develop cavities than children who did not (7).


Drinking Sugary and Acidic Beverages

The most common source of liquid sugar is [sugary soft drinks](#), sports drinks, energy drinks and [juices](#).

In addition to sugar, these drinks have high levels of acids that can cause tooth decay.

In a large study in Finland, drinking 1–2 sugar-sweetened beverages a day was linked to a 31% higher risk of cavities (8 )

Also, an Australian study in children aged 5–16 found that the number of sugar-sweetened drinks consumed was directly correlated to the number of cavities found (9 )

What's more, one study involving more than 20,000 adults showed that just one occasional sugary drink resulted in a 44% increase in the risk of losing 1–5 teeth, compared to those who did not drink any sugary drinks (10 )

This means that drinking a sugary drink more than twice daily nearly triples your risk of losing more than six teeth.

Fortunately, one study found that reducing your [sugar intake](#) to less than 10% of daily calories decreases your risk of tooth decay (11 )

Sipping on Sugary Beverages

If you constantly sip sugary drinks throughout the day, it's time to rethink that habit.

Research has shown that the way you drink your beverages affects your risk of developing cavities.

One study showed that holding sugar-sweetened beverages in your mouth for a prolonged time or constantly sipping on them increased the risk of cavities (3[✓]).

The reason is partly because this exposes your teeth to sugar for a longer time, giving the harmful bacteria more opportunity to do their damage.

Eating Sticky Foods

“Sticky foods” are those that provide long-lasting sources of sugar, such hard candies, breath mints and lollipops. These are also linked to tooth decay.

Because you retain these foods in your mouth for longer, their sugars are gradually released. This gives the harmful bacteria in your mouth plenty of time to digest the sugar and produce more acid.

The end result is prolonged periods of demineralization and shortened periods of remineralization (3[✓]).

Even processed, starchy foods such as potato chips, tortilla chips and flavored crackers may linger in your mouth and cause cavities (12[✓], 13[✓]).

SUMMARY:

Certain habits are linked to tooth decay, including snacking on high-sugar foods, drinking sugary or acidic beverages, sipping on sweet drinks and eating sticky foods.

Tips to Fight Tooth Decay

Research has found that other factors can hasten or slow the development of cavities, as well. These include saliva, eating habits, exposure to fluoride, oral hygiene and overall diet (3[✓], 4[✓]).

Below are some ways you can fight tooth decay.

Watch What You Eat and Drink

Make sure to eat a [balanced diet](#) rich in whole grains, fresh fruits, vegetables and dairy products.

If you do eat sugary foods and sweetened or acidic beverages, have them with your meals, instead of between them.

Also, consider using a straw when drinking sugary and acidic beverages. This will give your teeth less exposure to the sugar and acid in the drinks.

Furthermore, add raw fruit or vegetables to your meals to increase the flow of saliva in your mouth.

Finally, do not allow infants to sleep with bottles containing sweetened liquids, fruit juices or formula milk.

Cut Down on Sugar

Sugary and sticky foods should only be eaten occasionally.

If you do indulge in sweet treats, drink some water — preferably tap water that contains fluoride — to help rinse out your mouth and dilute the sugar that sticks to the tooth surface.

Moreover, only drink soft drinks in moderation, if at all.

If you do drink them, don't sip them slowly over a long period of time. This exposes your teeth to sugar and acid attacks for longer.

Instead, [drink water](#). It contains no acid, sugar or [calories](#).

Practice Good Oral Hygiene

Not surprisingly, there's also oral hygiene.

Brushing at least twice per day is an important step in preventing cavities and tooth decay.

It's recommended to brush after each meal whenever possible and then again before you go to bed.

You can further promote good oral hygiene by using a toothpaste that contains fluoride, which helps protect your teeth.

Additionally, stimulating saliva flow helps bathe the teeth in beneficial minerals.

Chewing sugar-free gum may also prevent plaque build-up by stimulating saliva production and remineralization.

Lastly, nothing ensures keeping your teeth and gums healthy like visiting your dentist every six months.



SUMMARY:

Besides watching your sugar intake, try to eat a healthy, balanced diet, take good care of your teeth and visit your dentist regularly in order to prevent tooth decay.

The Bottom Line

Whenever you eat or drink anything sugary, the bacteria inside your mouth work to break it down.

However, they produce acid in the process. Acid destroys the tooth enamel, which results in tooth decay over time.

To fight this, keep your intake of high-sugar foods and beverages to a minimum — especially between meals and right before bedtime.

Taking good care of your teeth and practicing a healthy lifestyle are the best ways to win the battle against tooth decay.

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