

Toothache bothering you? It may be something other than a cavity

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Credit: AI-generated image ([disclaimer](#))

In some cases, a trip to the dentist for tooth sensitivity may indeed turn out to be the dreaded cavity, but in others, the sharp zings and dull aches associated with intense cold and heat may be caused by other things.

Andrea Ferreira Zandona, chair of the Department of Comprehensive

Care at Tufts University School of Dental Medicine (TUSDM), and Y. Natalie Jeong, chair of the Department of Periodontology at TUSDM, joined Tufts Now for conversations on how to prevent and treat different types of [tooth sensitivity](#), and when it's necessary to see your dentist.

Why is it so common to experience tooth sensitivity?

Zandona: The [tooth](#) is different than other parts of the body because the pulp, or [connective tissue](#) inside the tooth, which has lots of nerve endings, is inside the tooth in a closed space. Elsewhere on your body, if you get a cut, you see redness, the tissue can get inflamed. Well, when tooth pulp experiences any type of injury, it doesn't have space to expand. The only response that we have is pain.

For instance, if you have decay or exposed roots and eat or drink something cold, you may feel pain; if you have sweets, you may feel pain. It's not the same as if you have sensations on your skin that you can differentiate: you feel cold, you feel heat, you feel pain. But the tooth doesn't respond to those stimuli. It'll respond with pain because of the type of nerve fibers and pain receptors that are there.

And what part of the tooth might cause that sensitivity and pain response?

Zandona: Among the many things that can cause sensitivity are, of course, decay, also known as [dental caries](#). When there is decay, the hard, outer layer of the tooth, known as enamel, starts to break down and eventually exposes the dentin, the softer layer directly underneath. And the dentin has little tiny tubes that provide communication with the pulp, where the nerves are, and the outside of the tooth.

So, cavities can definitely cause pain, and anytime you have pain, you should have it looked at, especially if it doesn't go away. It may be innocuous, but it may also be something more serious.

Jeong: When you have sensitive teeth, certain activities such as brushing, eating, and drinking—especially cold beverages—can cause sharp temporary pain in your teeth. It may be from enamel wear or an exposed root, but it could also be due to decay, cracked or chipped teeth, or even defective or worn restorations or fillings. In some cases, it could be due to gum disease known as recession.

What happens when gums recede and why does it occur?

Jeong: Your gums provide a nourishing, protective, stabilizing environment for your teeth. When your gum recedes, the tooth's root surface becomes exposed. Then the nerve in the root becomes extremely irritated because it's not supposed to be exposed to the outside environment.

Why do people develop deep recession? There are a number of factors that could impact the way gums recede. A bad tooth alignment, like a crooked tooth, can push the gums in and out of place and cause them to recede. Or previous orthodontic treatment can trigger recession with the ways in which the teeth had to move in order to straighten. People might also have [gum disease](#) that can cause recession, and gums tend to shrink naturally as we age, too.

Recession could also just come down to someone's anatomy. People might have thin gum tissue to begin with. We all have different types of skin, right? Oily skin or dry skin can require different treatments. Some of us are born with extremely thin gum tissue, what we call the

phenotype. If you have really thin gum tissue, anything can irritate your gum easily. People tend to develop recession earlier if they are born with a thin gum type or phenotype. And the most common reason is aggressive toothbrushing.

I had no idea you could brush your teeth too hard.

What can people do to improve their brushing habits?

Jeong: First, take a look at your toothbrush. Does the packaging say it has hard or extra hard bristles? Use a soft toothbrush—that's number one. Next time you go to the dentist or [dental hygienist](#), have them observe how you brush your teeth to see if you need to modify your technique.

How can age and heredity play a factor in the way our gums recede?

Zandona: As we get older, the gums do recede a bit and expose the root of the tooth. Imagine you're wearing a long-sleeved shirt, and you slowly pull your sleeve up and away from your wrist. The place where your skin and sleeve originally met is where the gum would start. When the gum starts to recede, the roots become exposed. The roots have a covering called cementum and it's a very thin cover that quickly disappears by brushing, as well.

What can people do to reduce sensitivity related to recession?

Jeong: The number one thing you can do is talk to your dentist, because we need to identify exactly what's contributing to the sensitivity so we can decide how to treat or help. Depending on the circumstances, your

dentist or periodontist might recommend a number of different things such as fluoride treatment that you can apply at home, or desensitizing toothpaste you can use on a regular basis.

Zandona: The toothpastes for sensitivity work by plugging the dentin tubules and preventing the communication of the outside with the pulp. But toothpastes and fluoride only work as long as you're using them, so you must make it part of your dental hygiene habits. And not all treatments work for everyone, so let your dentist know if the sensitivity and pain continue.

How common are cracks in teeth? Is that something that people should worry about?

Zandona: Most of us will have some tiny little cracks, but sometimes they can be very significant and will go through the whole tooth or enough of it that pressure can cause sensitivity when you bite on it.

What can someone do who has a problem with clenching or grinding their teeth?

Zandona: If you're clenching or grinding your teeth, or putting added pressure on them, that can cause sensitivity, too. You may want to see your dentist for a mouth guard because it will be customized to you and protect your teeth. Your dentist will be able to line it up properly, so that your teeth are biting correctly. You could get other problems if you have a poorly fitted mouth guard.

In more severe gum recession cases, what types of treatment are?

Jeong: If the recession is contributing to sensitivity, we provide something called gum grafting, where your own existing gum tissue, typically from the roof of the mouth, or tissue from a human donor, or from animal skin, is grafted to existing tissue to better support the teeth. We have a lot of techniques that we utilize now that didn't exist in the past, and people may be a bit intimidated by the procedure but it's not something to be scared about.

If the tooth has experienced other injury, is there anything a dentist can do?

Jeong: They may do a desensitizing bonding treatment if the tooth is cracked. If there's a cavity that's contributing to sensitivity, they will likely treat the area with restoration or even root canal treatment.

What do you suggest people do to avoid developing cavities and gum recession?

Zandona: What you eat greatly impacts the type of bacteria that end up thriving in your mouth. Some types of bacteria have a preference for starches and can metabolize those. When they metabolize, they will create acid. They can also thrive in an acidic environment, so it becomes a sort of self-fulfilling circle, because you feed the bacteria with sugar, they metabolize that into acid, and then they multiply more because they are in the perfect environment for them—which then wears away at your enamel. Through what you eat and drink, you completely change the type of naturally occurring bacteria in your mouth.

Also, if you consume a lot of acidic beverages and foods, even if there is no sugar in them, the enamel can be eroded away and expose the dentin underneath and you can also start to develop sensitivity.

Diet is critical because even though we can do a very good job with [oral hygiene](#), most of us don't do a perfect job, especially in between teeth or other areas that are hard to clean. That's why sealants work well, because they make the surface smooth and bacteria can't stay in the pits between teeth. Flossing helps because it removes accumulation of the biofilm where bacteria like to breed.

Provided by Tufts University

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