

COVID affected taste and 'Paxlovid mouth' sounds disgusting: What causes dysgeusia?

May 24 2022, by Sarah Hellewell



Credit: CC0 Public Domain

Loss or alteration of taste (dysgeusia) is a common symptom of COVID.

It's also a side effect of several illnesses and medications, including Paxlovid, the new antiviral medication to treat COVID infection.

Although it affects fewer than 6% of people who are given Paxlovid, some [report](#) a "horrible" taste that came on soon after they started taking the drug.

Dysgeusia is described as a bitter, metallic or sour taste in the mouth. But what exactly is it, and what's going on in the body when it happens?

What happens in the brain when we taste?

Aside from the pleasure we get from eating food that tastes good, our [sense of taste](#) also serves other purposes. Taste helps us [decide what to eat](#), ensuring we get enough nutrients and energy. It also helps us metabolize the foods we have eaten.

Our sense of taste can also keep us safe from consuming things that are dangerous to our health, such as poisons or food which has spoilt.

There are around [10,000 taste buds](#) in the human mouth, with each taste bud having up to 150 [taste receptors](#). These taste receptors on our [taste buds](#) help detect whether food is salty, sweet, bitter, sour or [umami](#).

Taste buds transmit information to the [brain](#) about what we're eating through several [nerve pathways](#).

Information about taste is first transmitted to the [brain stem](#) at the base of the brain, and is then sent throughout the brain via connected pathways, reaching the [orbitofrontal cortex](#) at the front of the brain. This area [connects](#) to sensory areas and the limbic system that helps encode memory and emotion.

Three causes of dysgeusia

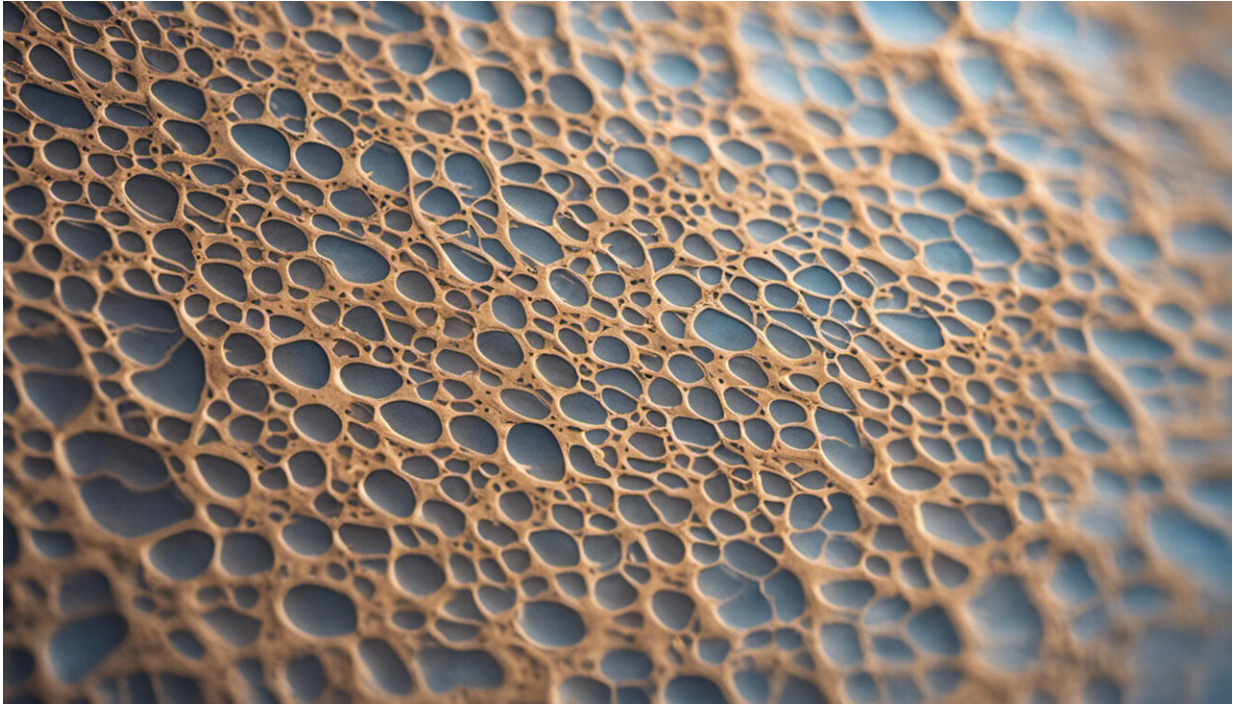
Aside from direct damage to the tongue and mouth, dysgeusia can be caused by [several factors](#): infection or disease, medicines, or damage to the central nervous system.

1. Infection or disease

Alterations in taste have been reported after [influenza](#) infection, in hayfever, diabetes, heart disease and [others](#).

Today, one of the most frequent causes of dysgeusia is [COVID](#), with loss of taste one of the first [symptoms](#) many people experience. Research suggests dysgeusia occurs in between [33%](#) and [50%](#) of people with COVID, though less so with [newer variants](#). It's also been [reported](#) as a lingering symptom of Long COVID.

Scientists don't know exactly why COVID or other infections cause dysgeusia. Some recent theories center on how the SARS-CoV-2 virus that causes COVID triggers an inflammatory response by binding to receptors in the mouth. This might cause changes in [molecular and cellular pathways](#) which could alter taste.



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

Because of the close links between taste and smell, [viral-induced damage](#) to the lining of the nose may be enough to cause taste disturbance.

The virus could also be causing more direct damage to taste buds, nerves involved in taste, or brain areas responsible for taste [sensory processing](#).

2. Injury

Loss of taste can also follow [damage to the nerves and brain pathways](#) involved in taste perception.

This could be because of lesions in the nerves or [brain tissue](#), or could be due to loss of the fatty myelin coating which helps insulate the pathways

used for taste signaling. In rare cases, dysgeusia can also be due to brain tumors.

3. Medications

Dysgeusia is a known side effect of several medications, including antibiotics and medications for Parkinson's disease, epilepsy and HIV.

There could be several reasons for this. The medications themselves may have a bitter taste which lingers in our taste buds.

Medications can also activate specific taste receptors that detect bitter, sour or metallic flavors, activating these taste receptors in a way that we don't often experience with our food.

The new antiviral [medication Paxlovid](#) is almost 90% effective at reducing COVID hospitalizations and deaths.

However, dysgeusia is a prominent side effect of Paxlovid. Although it occurs in less than 6% of people, dysgeusia has been nicknamed "[Paxlovid mouth](#)."

[Paxlovid](#) is actually two medications: nirmatrelvir and ritonavir.

Nirmatrelvir is the main antiviral drug to combat COVID, and Ritonavir is given [at the same time](#) to stop nirmatrelvir being broken down too quickly, so it can remain active in the body for longer.

[Ritonavir](#) has a [bitter taste](#) and causes dysgeusia when taken alone or in combination with other medications. Although the mechanism has not been researched, Ritonavir could be the underlying factor behind Paxlovid mouth.

Huge thanks to [@redprotist](#) 's advice on dealing with the

absolutely bizarre mouth issues from paxlovid.

I thought it was just me.

My mouth feels like a pharmaceutical manufacturing facility in a desert covered in bleeding grapefruit.

Apparently that is a *thing* with paxlovid

— Jacklyn Grace Lacey, AMNH Whistleblowing Witch
(@TheVelvetDays) [May 13, 2022](#)

Leaving a bad taste

While it can be unpleasant, dysgeusia is usually short-lived, and should improve after medications are finished or infection is resolved.

People who experience prolonged changes in taste should seek medical assessment to determine the underlying cause. In the short term, lozenges, mints and salt water gargles may make dysgeusia more manageable. Although it may be an unpleasant side effect of Paxlovid, short-term dysgeusia is a palatable trade-off to reduce the severity of COVID infection.

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