

Department of Food Science

COVID-19, SMELL AND TASTE LOSS: UNDERSTANDING A UNIQUE SYMPTOM

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Smell and taste dysfunction are emerging as important symptoms of COVID-19. These symptoms are more unique to COVID-19 compared to the other signs of infection. This publication outlines some basic science behind smell and taste loss due to COVID-19, explains the importance of smell and taste loss as a symptom, and describes how to test yourself for smell and taste loss.

How does COVID-19 create smell/taste loss?

Like many other aspects of COVID-19, how the virus disrupts ability to smell or taste is not completely understood. We are quickly learning how COVID-19 attacks parts of the body responsible for smell and taste. When it comes to smell, many types of cells could be damaged by the virus and lead to smell dysfunction. The short duration of loss with COVID-19 gives a clue to ways smell is impaired. Cells that support our taste and smell receptors turn over at higher rates than the receptors themselves. When the virus attacks these supporting cells, leading to their malfunction or death¹. Also, just like many other viral causes of smell loss, the body's immune response to the virus can damage nerve cells important for transmitting smell information.

Why are smell and taste loss associated with COVID-19 important?

Many people with COVID-19 experience some form of smell or taste dysfunction¹. Other symptoms of COVID-19, such as fever and headache, also occur with other illnesses. Sudden smell and taste loss are not entirely specific to COVID-19, but are more unique than other general symptoms. Sudden smell or taste loss, especially without nasal congestion, makes this symptom one of the best indicators of COVID-19. Other corona viruses, such as those responsible for the common cold, often alter ability to smell but typically also cause nasal congestion. Smell loss may be one of the first or the only symptom to appear in many patients – especially in young people. Noticing smell loss could be a key sign to self-isolate and ensure you do not pass the virus on to others³.



How will I know if I start to lose my sense of smell or taste?

Some people notice changes in the *flavor* of food, which is driven by both smell and taste. A shift in food flavor can be an indicator of smell or taste changes, but these shifts can be hard to notice for some. People tend to be less aware of subtle changes in their ability to smell and taste. Five basic tastes are currently recognized: sweet, sour, salty, bitter and umami (savory). Clinical tests can measure smell and taste ability separately but are typically only performed by specialized physicians.

Testing yourself at home

You can measure smell and taste losses at home. Sweet and salty solutions can be made by dissolving table sugar or salt. Your taste system is probably functioning well if you can reliably tell the difference between tap water, salt water and sugar water. Sour, bitter and savory are not as easy to measure at home. Doing so requires chemicals not commonly found in all kitchens.

Recipe for a Home Taste Testing Kit

<i>Basic Taste</i>	<i>Ingredient</i>	<i>Amount</i>	<i>Amount of Water</i>
Salty	Table Salt	½ teaspoon	2 ½ cups
Sweet	Granulated Sugar	3 teaspoons	1 cup

To assess your smell function, simply smell a familiar food. For example, does your morning coffee smell as you recall? Other good household foods to test smell are peanut butter and herbs such as basil, oregano or parsley. Additionally, online tools can help test smell using common household items. One website, smelltracker.org, allows smell tracking using five household items of your choice. Lastly, be vigilant of any changes in food flavor. It may be a sign of changes in your smell or taste system.

What should I do if I lose my sense of smell or taste?

The long-term effects of COVID-related smell and taste loss are not well understood. Most early reports of smell and taste recovery are based on self-reported information and are likely to be updated as more research around smell/taste recovery is performed. One reason self-report measures can be misleading is that people confuse smell and taste dysfunction because of their shared role in food flavor perception. That being said, the best data so far suggest that about half of patients who lose their sense of smell and taste regain full capabilities after 50 days^{4,5}. Unfortunately, there is currently not a cure for any form of smell loss. Some functionality may be regained over time. Smell training may help regain that functionality. Smell training's role in helping with smell problems can be thought of the same way physical therapy helps with physical injuries. In general, smell training consists of frequently smelling a series of essential oils, such as lemon, clove and rose oils. Unlike smell, no practical therapies for taste loss exist.

What resources are available to me if I lose my sense of smell?

If your sense of smell is not returning, it may be worth seeing a physician who specializes in smell and taste disorders. The Vanderbilt University Smell and Taste Center is a good resource in Tennessee (vanderbilthealth.com/billwilkerson/50613). Smell training is a proven therapy to help regain smell. Details on smell training can be found here: abscent.org/smell-training. The effect of COVID-19 on smell and taste disorders is also an active research topic; share your experiences to help the scientific community. Research consortiums such as the Global Consortium for Chemosensory Research (gcchemosensr.org) have questionnaires and information about current research regarding smell and taste loss associated with COVID-19.

References

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