

Olfactory Loss and Olfactory Training

Loss of sense of smell is also known as olfactory loss, which can occur for many different reasons.

Olfactory Loss

Common reasons for olfactory loss are sinusitis, nasal allergy, and respiratory viral illnesses. Olfactory loss is much more common with COVID-2019 than with other types of respiratory viral illnesses. Less common reasons for olfactory loss include head injury, sinus or nasal tumors, medications, and toxins. Olfactory loss can be the first sign of neurological diseases, such as Alzheimer or Parkinson disease.

Many people who lose their sense of smell also complain of loss of taste. The tongue senses only the 5 basic tastes—sweet, sour, salty, bitter, and umami. All the remaining and unique flavors of food and drink are dependent on one's ability to smell them. That is why many people who lose their sense of smell also complain of a loss of taste.

Effect of Olfactory Loss

The importance of the sense of smell can only be understood once it is lost. Smell protects us from eating food that has gone bad and alerts us when there are dangerous things in the environment, such as smoke or natural gas. Those who have lost this protective ability often feel vulnerable and scared. Smell is what allows us to enjoy eating and drinking, and people who experience olfactory loss can experience either weight gain or loss as a result of the loss of the usual satisfaction found with eating.

Social interaction with family, friends, and strangers often takes place while eating food and drinking beverages. The inability to enjoy this can lead to social isolation, depression, and anxiety. Smell affects our personal relationships and plays a role in how we make first impressions. Smell is an important part of being human, and its loss deeply affects a person's quality of life.

Diagnosis

A detailed description of the history of smell loss, results from smell tests, examination of the inside of the nose, and imaging studies can help establish the diagnosis and likely cause of the smell loss.

Treatment

There are several different treatments for olfactory loss and the choice of treatment will depend on the cause of the smell loss. Allergy medications can be helpful when the loss of smell is due to allergic rhinitis (hay fever). Surgery can be helpful for patients who have nasal polyps or tumors. Olfactory training (OT) is the most widely recommended treatment option for people with persistent loss of smell after a viral infection.

Olfactory training is a simple, structured program of smelling various scents, commonly lemon, rose, clove, and eucalyptus, in the



form of essential oils. Scientists think that OT reorganizes the nerve connections in the brain through a process known as neuroplasticity, although the exact mechanism of action is unclear. The patient is instructed to hold the scent to their nose and slowly breathe in and out for 15 to 20 seconds. The patient rotates the 4 scents with a short, 10-second break in between and does this twice per day for at least 3 to 6 months. While sniffing, the patient is instructed to focus on the memory of the smell, and it is believed that through this process the patient will retrain the brain to smell. The important part is that the patient recognizes the scents so they can focus on the memory of the smell. At 1 to 3 months, the odors can be changed (for example, menthol, thyme, tangerine, and jasmine; or green tea, bergamot, rosemary, and gardenia). A patient can also increase the number of scents they practice with. Studies suggest improved sense of smell in patients suffering from viral olfactory loss as well as after trauma and other causes. The use of a nasal saline irrigation (neti pot or squeeze bottle) with a topical steroid medication may result in a less inflamed nasal environment for the smell nerves to regrow and can improve the overall effectiveness of OT.

Author: Zara M. Patel, MD

Published Online: July 15, 2021. doi:10.1001/jamaoto.2021.1507

Author Affiliation: Department of Otolaryngology–Head and Neck Surgery, Stanford University School of Medicine, Stanford, California.

Conflict of Interest Disclosures: Dr Patel reported personal fees from Medtronic (consultant), personal fees from Optinose (advisory board), and personal fees from Regeneron/Sanofi (advisory board) outside the submitted work.

Sources: Patel ZM, Wise SK, DelGaudio JM. Randomized controlled trial demonstrating cost-effective method of olfactory training in clinical practice: essential oils at uncontrolled concentration. *Laryngoscope Invest Otolaryngol*. 2017;2(2):53-56.

Soler ZM, Patel ZM, Turner JH, Holbrook EH. A primer on viral-associated olfactory loss in the era of COVID-19. *Int Forum Allergy Rhinol*. 2020;10(7):814-820.

Nguyen TP, Patel ZM. Budesonide irrigation with olfactory training improves outcomes compared with olfactory training alone in patients with olfactory loss. *Int Forum Allergy Rhinol*. 2018;8(9):977-981.

Section Editor: Samantha Anne, MD, MS.

The JAMA Otolaryngology–Head & Neck Surgery Patient Page is a public service of JAMA Otolaryngology–Head & Neck Surgery. The information and recommendations appearing on this page are appropriate in most instances, but they are not a substitute for medical diagnosis. For specific information concerning your personal medical condition, JAMA Otolaryngology–Head & Neck Surgery suggests that you consult your physician. This page may be photocopied noncommercially by physicians and other health care professionals to share with patients. To purchase bulk reprints, email reprints@jamanetwork.com.