

Med-Sense Guaranteed Association

# JOURNAL

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## What Your Nose Knows

Whether coffee brewing, pine trees in a forest, or smoke from a fire, the things we smell are actually tiny molecules released by substances all around us. When we breathe in these molecules, they stimulate specialized sensory cells high inside the nose. Each of these sensory cells has only one type of odor receptor – a structure on the cell that selectively latches onto a specific type of “smelly” molecule. There are more smells in the environment than there are odor receptors. But a given molecule can stimulate a combination of these receptors, creating a unique representation in the brain of a particular smell.



### Sense of Smell and Your Health

Your sense of smell enriches your experience of the world around you. Different scents can change your mood, transport you back to a distant memory, and may even help you bond with loved ones. Your ability to smell also plays a key role in your health. If your ability to smell declines, it can affect your diet and nutrition, physical well-being, and everyday safety.

“It’s estimated that the number of odors that people can detect is somewhere between 10,000 and 100 billion, or even more,” says Dr. Gary Beauchamp, a taste and smell researcher at Monell Chemical Senses Center in Philadelphia.

We all have different combinations of odor-detecting cells in our noses, he explains, so people vary greatly in their sensitivity to smells. “In fact, when you or I smell the same physical thing, our perceptions may be very different,” Beauchamp says.

Because smell information is sent to different parts of the brain, odors can influence many aspects of our lives, such as memory, mood, and emotion. For thousands of years, fragrant plants have been used in healing practices across many cultures, including ancient China, India, and Egypt. Aromatherapy, for example, aims to use essential oils from flowers, herbs, or trees to improve physical and emotional well-being.

To date, there’s little scientific evidence supporting aromatherapy’s

effectiveness for most health issues. Yet memories of smell can be vivid and long lasting, which may have a positive effect.

“Lavender is a good example, which is touted as a relaxation odor,” Beauchamp says. “But the question is: Is that a relaxation odor because we’ve had past experience with this particular odor where we’ve been relaxed, and so we’ve learned the association?” Scientists continue to examine how different types of aromatherapies might affect our health and well-being. *continued on page 2*

Smell is also important for your perception of taste. Chewing your food releases aromas that travel from your mouth and throat to the nose. Without smell, we can detect only 5 basic tastes: sweet, salty, bitter, sour, and umami (savory). But our brains incorporate information from both taste and smell receptors to create the perception of many different flavors.

Some people may think they've lost their sense of taste if food begins to taste bland or slightly "off." But in fact, they may have lost their ability to smell.

Many things can cause smell loss. A stuffy nose, or a harmless growth in the nose (called a polyp) can block air and thus odors from reaching the sensory cells. Certain medications, like some antibiotics or blood pressure pills, can alter smell. These effects are usually temporary. Your smell should come back once you've recovered or stopped the treatments.

But some things can cause a long-lasting loss of smell. A head injury or virus, for example, can sometimes damage the nerves related to smell. And your ability to smell may naturally fade as you get older.

"A good sized majority of people don't know they have a problem with their sense of smell," says Howard Hoffman, a public health expert at NIH. A national health and nutrition survey recently revealed that 12% of adults have a smell dysfunction. The problem increases with age, with 39% of those ages 80 and older showing a deficit.

"Quality of life issues from smell loss affect people differently depending upon their situation," Hoffman says. "The effects can be enormous." Food can become less enjoyable. You may lose interest in eating or change your eating habits, consuming a less healthy diet.

People who've lost their sense of smell sometimes try to boost flavor by adding

more salt or sugar to their foods. But these additions might cause problems for those at risk for certain medical conditions, such as high blood pressure, kidney disease, or diabetes. Talk with your doctor if you think a smell deficit might be affecting your quality of life.

Smell loss can also put you in harm's way if you don't notice a "warning" smell. The recent national health and nutrition survey found that 1 in 10 people couldn't identify the smell of smoke, and about 15% couldn't identify the smell of natural gas. "As people get older, those rates go up," Hoffman says. For those ages 70 and older, 20% couldn't identify the smell of smoke, and 31% couldn't recognize gas odor.

## Smell Loss and Safety

If you've lost your ability to smell, it's important to find other ways to detect:

### Smoke

Check your smoke detectors once a year to make sure they work.

### Gas leaks

Make sure you have a gas detector in your home.

### Spoiled food

Throw out food that's been in the refrigerator too long and practice other basic food safety. Learn more at [www.foodsafety.gov](http://www.foodsafety.gov).

### Household chemicals

Make sure there's fresh air where you live and work.

"With age, there is a decline in the ability to smell to some extent in the nose, but much more in the brain itself," says Dr. Davangere Devanand at Columbia University, an expert on neurodegenerative diseases and smell loss. "The main reason appears to be that the functioning of the brain regions involved in smell and memory become impaired as we grow older."

But problems with your ability to smell may be more than normal aging. They can sometimes be an early sign of serious health conditions, such as Parkinson's disease, Alzheimer's disease, or multiple sclerosis. Devanand's group is currently studying the relationships between smell dysfunction and Alzheimer's disease.

If your food doesn't smell or taste the way you think it should, talk to your doctor. Health care providers can give you a "scratch and sniff" smell identification test to help assess the kind of smell disorder you might have. This test alone can't diagnose more serious health problems, but it can be informative when used alongside other tests.

Smell may be the most mysterious of our 5 senses, Beauchamp says. "We know quite a bit about smell loss and can diagnose this fairly well. But, for the most part, we have no treatments that are reliable and widely accepted" for long-lasting cases of smell loss. Some studies suggest that smell training may help you improve your ability to discriminate and identify odors. It may stimulate growth of new receptors or improve your brain's ability to interpret low levels of odors, Beauchamp explains. But researchers are still learning how and whether this works.

Like all of your senses, your sense of smell plays an important part in your life. If you think you're experiencing a loss of taste or smell, see your health care provider. There may be ways to help fix the problem. If not, your doctor can help you learn to cope with the changes in smell and taste.

## References

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New chemosensory component in the U.S. National Health and Nutrition Examination Survey (NHANES): first-year results for measured olfactory dysfunction. Hoffman HJ, Rawal S, Li CM, Duffy VB. *Rev Endocr Metab Disord*. 2016 Jun 10. [Epub ahead of print] Review. PMID: 27287364.



## Arthritis Mechanisms May Vary by Joint

Knee and hip joints with rheumatoid arthritis have differing genetic markers linked to inflammation, suggesting that different joints may have varying disease mechanisms. These new findings may lead to more effective, personalized therapies for rheumatoid arthritis.

People with rheumatoid arthritis have swelling and pain in joints throughout the body. These problems arise when the immune system, which protects the body from germs and infections, mistakenly attacks the joints. For unknown reasons, different joints are affected differently in people with rheumatoid arthritis.

An NIH-funded research team previously found that certain cells in joints have unique patterns of chemical tags—called epigenetic markers—that differ between rheumatoid arthritis and osteoarthritis. Such tags can affect when genes turn on or off and can regulate immune function.

In the new study, the scientists examined epigenetic patterns in joint cells from 30 people with rheumatoid arthritis and 16 with osteoarthritis. Rheumatoid arthritis and osteoarthritis cells had differing patterns of epigenetic tags as expected. But unexpectedly, in patients with rheumatoid arthritis, the patterns in knee joint cells differed from cells in hip joints.

The scientists next assessed the affected biological pathways that distinguish different joints. Knee and hip joints with rheumatoid arthritis had differing activated genes and biological pathways. Many of these pathways were related to immune system function.

The team also found that new drugs for treating rheumatoid arthritis may affect some of these pathways. Their findings might offer an opportunity for developing more precise approaches to treating different arthritic joints.

“We showed that the epigenetic marks vary from joint to joint in rheumatoid arthritis,” says study coauthor Dr. Gary S. Firestein of the University of California, San Diego. “This might provide an explanation as to why some joints improve while others do not, even though they are exposed to the same drug.”

*Reference: Joint-specific DNA methylation and transcriptome signatures in rheumatoid arthritis identify distinct pathogenic processes. Ai R, Hammaker D, Boyle DL, et al. Nat Commun. 2016 Jun 10;7:11849. doi: 10.1038/ncomms11849. PMID: 27282753.*

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## Curb Your Eating - Help Your Brain Fight the Urge to Splurge

Ever tried to eat just one potato chip, or take just one bite of chocolate cake? It may feel impossible. A little nibble triggers an urge to eat more. Some people feel driven to keep eating to the point where the food's no longer enjoyable. You know the resulting weight gain will harm your health. So why do you keep eating when it's not in your best interest?

Out-of-control behaviors around food can look and feel remarkably similar to an addiction to drugs and other substances. In fact, imaging studies have shown that addictive drugs can hijack the same brain pathways that control eating and pleasurable responses to foods. NIH-funded researchers are closely studying the biology of overeating to try to find new ways to help people curb these out-of-control behaviors.

"There's an addictive element to foods – especially high-fat, high-sugar foods – that drives many of us to overeat," says Dr. Nora Volkow, director of NIH's National Institute on Drug Abuse. She's been studying the brain's role in drug addiction and obesity for more than 20 years. Volkow and other scientists have found that high-calorie foods, like addictive drugs, can trigger the brain's reward system, releasing brain chemicals such as dopamine that make you feel terrific. So it's natural to want more. In fact, wanting more helped early humans survive.



"Each of us should be aware if there are certain foods that we can't stop eating once we start. Avoid having them at home. Don't buy them or start eating them, because that might trigger binge eating." *Dr. Nora Volkow*

"Our brains are hardwired to respond positively to foods that have a high content of fat or sugar, because these foods helped our ancestors survive in an environment where food was scarce," Volkow says. "In today's society, though, highly rewarding foods are everywhere. And our brain's reward system for foods is now a liability."

Seeing, smelling, tasting, or even hearing certain cues – from food ads on the radio to the smell of cinnamon buns in a shopping mall – can make us crave fattening foods when we're not even hungry. Brain studies show that food cues can be especially strong in people who are obese or at risk for

weight gain. In one NIH-funded study, volunteers who had a heightened brain response to a sip of a milkshake when they weren't hungry were more likely to gain weight a year later.

While some brain areas drive us to seek sweets and fatty foods, other regions at the front of the brain can help us control our urges. We can help our "rational" brain regions take control by avoiding tasty temptations and developing healthy habits.

Make healthy eating a part of your everyday routine by swapping unhealthy habits with healthy ones. Eat fruit instead of cookies as a daily dessert, or have a mid-day *continued on page 6*



## MSGA College Scholarships

Scholarships will be awarded in the Fall for the 2017-2018 school year. The scholarship program provides education financial assistance to members of the MSGA and/or a legal dependent or household relative of a member. Forty-four individual scholarships were awarded in 2016. See the web site for complete details, and watch for updates in the coming months.

In 2017, MSGA will also look to continue making gifts for its Nursing Scholarship Program. These gifts to nursing schools are to be used to provide scholarships to nursing students. If you have suggestions or recommendations, please email your comments to the Association at [info@medsensemembers.com](mailto:info@medsensemembers.com).



With our focus on improving members' health, MSGA is proud to announce that it has provided St. Louis University with a gift in the amount of \$25,000 to go toward the Med-Sense Guaranteed Association Nursing Scholarship Fund. Additionally, the \$25,000 gift has been matched 100 percent by Go Further, the University's scholarship matching program. As a result, a total benefit of \$50,000 will be provided for helping nursing school students succeed.

Pictured are Ron Kotowski (MSGA Business Manager), Teri Murray, PhD (Dean of the School of Nursing), Bartley Bouchein (MSGA Board Member) and Jane Baum (Director of Development of the School of Nursing).

## Med-Sense Member Perks

We're proud to offer you member-only discounts and corporate rates on everything from pizza and the zoo, to movie tickets, car rentals, and hotels! With over 302,000 offers across 10,000 cities and easy mobile access, you'll always find a reason to Celebrate Your Savings!

Go to

<http://med-sense.abenity.com>

Click Register.

The registration code is MSGA2017.



## Wyndham Hotel Discounts

Whether you are looking for an upscale hotel, an all-inclusive resort or something more cost-effective, (MSGA) members can save on rooms at nearly 7,000 participating hotels worldwide. Wyndham Hotels are offering (MSGA) Members 25% off the "Best Available Rate" at participating locations every time you travel. Visit Wyndham Rewards or call our special member benefits hotline **1-877-670-7088** (be sure to mention Corporate Code # 1000007591) or, to reserve your room today, go to:

[https://www.wyndhamhotels.com/?corporate\\_id=1000007591](https://www.wyndhamhotels.com/?corporate_id=1000007591)

snack of crunchy carrots instead of potato chips. Instead of walking directly to the refrigerator after work, take a walk through your neighborhood. Over time, healthy habits can become wired in your brain. You'll do them without even thinking.

"Childhood and teen years are ideal times to develop healthy habits," Volkow says. "Healthy eating habits will help protect them in the future against the diseases associated with obesity."

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## Control Your Eating

**Stick to a shopping list.** It helps to shop when you're not hungry.

**Remove temptation.** Don't bring high-fat or sugary foods into your home.

**Change your surroundings to avoid overeating.**

For example, don't eat while watching TV.

**Meet friends in places that don't serve food.**

**Use smaller plates.** We tend to eat most of what's on our plates, no matter the size.

**Don't reward successes with food.** Choose other rewards you enjoy – a movie, a massage, or personal time.

**Seek help.** Ask friends and family for support. Consider enrolling in a class or program.

**Forgive yourself if you overeat.** We all have occasional setbacks.

All articles, unless noted otherwise, are reprinted from the National Institutes of Health's NIH News in Health.

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Articles in this newsletter are meant to be informative, enlightening, and helpful to you. While all the information contained herein is meant to be completely factual, it is always subject to change. Articles are not intended to provide medical advice, diagnosis or treatment. Consult your doctor before starting any exercise program.

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