

1. Mark your confusion.
2. Show evidence of a close reading.
3. Write a 1+ page reflection.

Why We Have Two Nostrils Instead of One Big Hole

Our nostrils share the workload like coworkers on rotation.

Source: Sarah Phillip, *Popular Science*, December 4, 2025

If you close one eye or put a finger to your ear, there's an immediate sense of loss. Two eyes help us see the world while two ears enable us to locate sounds. But there's not the same dramatic sense of loss if you block one nostril. Unlike the eyes or ears, they're in almost the exact same position on our face. So why don't we just have a large hole like the mouth? Why do we have two nostrils?

It turns out that each nostril behaves differently to the other nostril throughout the day. This is known as the nasal cycle, and it plays a vital role in our overall health. At a certain point, one nostril takes in air more rapidly. Later the dominant nostril shifts. Throughout the day, which nostril is dominant keeps swapping. This alternating airflow seems to help us breathe and smell more effectively.

How our nostrils take turns breathing

We're wired to breathe through our nose. Mouth breathing is only really required when we need more air during exercise or respiratory distress, or when the nose is blocked. Unlike the mouth, the nose does more than just draw air into and out of the lungs. One of its core functions is to prepare the air for the lungs, something the mouth cannot do. The nose filters out dust and pollutants, warms the air to body temperature, and adds the right amount of moisture so that the air is at 100 percent humidity before it gets to the lungs. Without this process, the air would be colder and drier, which irritates and constricts the airways and can lead to inflammation.

Having two nostrils helps the nose cope with this demanding task of preparing air for the lungs. "The fact that we have two nostrils is not unusual, as we have two eyes and two ears," says Ronald Eccles, an emeritus professor at Cardiff University who founded its Common Cold Centre. "What is unusual is that the nostrils alternate airflow from one side to the other. This may allow one side of the nose to rest."

Studies have shown that at no point do both nostrils draw in the same amount of air. Every few hours one side of the nose is more open and handles most of the airflow while the other processes less air, enabling it to recover moisture.

How each nostril smells differently

Smell is closely linked to breathing. As we breathe, odor molecules enter the nostrils, dissolve into the mucus lining and bind to neurons that send signals to the brain. Thanks to the nasal cycle, air flows into the nostrils at different speeds and so each nostril handles odors differently.

When we breathe, one nostril is more closed than the other and so has a slower rate of airflow. That slower flow of air means that there's more time for slowly-absorbing chemicals to dissolve into the mucus lining. Experiments suggest that people smell slowly absorbed chemicals more strongly through a resting, or more closed, nostril.

However, the more closed nostril is not as good at detecting quickly-dissolving odor chemicals. Meanwhile, the more open nostril's faster airflow means that quickly-dissolving chemicals can reach

more of the smell-detecting tissue in your nose and send more signals to the brain. So basically each nostril smells slightly differently.

“It’s not one blunt odor that’s hitting you,” says Thomas Hummel, the head of the Interdisciplinary Centre for Smell and Taste at Dresden University of Technology.

“You perceive chemicals differently because they are absorbing differently.” This usually happens without our conscious awareness. The alternating airflow ensures that each nostril gives the brain different inputs. The brain then combines these inputs together to get more information and a richer sense of smell.

Two nostrils improve our ability to locate smell

The distance between our two nostrils is not as large as the distance between the eyes or ears. But having two nostrils can still help us locate smells. “The brain is good at using even small inputs,” says Matthew Grubb, a professor of neuroscience at King’s College London, who focuses on the olfactory system. “There’s pretty good evidence that one of the things nervous systems can do is to use information from the two nostrils to figure out where a smell is coming from.”

In one experiment, scientists asked blindfolded participants to sniff out a 33-foot chocolate trail through grass. Participants wore a device that fits onto the nose and mixed odors from the outside world so that there was no difference in what each nostril smells. This made participants slower and less accurate at locating and tracking the chocolate scent than when they didn’t wear the device.

Two nostrils might give us an advantage against colds

Two nostrils could even bring other benefits besides breathing and smell: They may help us fight viral infections. When you have a cold, one nostril is a lot more congested while the other manages most of the breathing. Having a severely blocked nostril causes the temperature of the nasal passage to increase. This may repel cold viruses since viruses don’t reproduce well at high temperatures.

Having two nostrils is far from redundant. We might not notice the nasal cycle, but it’s still a key part of the way the nose functions. The nostrils work together to enhance the way we breathe and smell. So next time you take a deep breath or smell a delicious pie, don’t take your two nostrils for granted.

Possible Response Questions

- What are your thoughts about the information in this article? Explain.
- Did something in the article surprise you? Discuss.
- Pick a word/line/passage from the article and respond to it.
- Discuss a “move” made by the writer in this piece that you think is good/interesting. Explain.