

Can Bright Light Make You Sneeze?

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STORY AT-A-GLANCE

- › Autosomal dominant compelling helio-ophthalmic outburst syndrome (ACHOOs), aka photic sneezing syndrome, occurs when sudden bright light causes someone to sneeze
- › Photic sneezing is a reflex that's stepped back into the scientific spotlight, but it's a phenomenon that Aristotle wrote and conjectured about in the 3rd century
- › Science reveals that individuals with photic sneezing tend to have above-average intelligence. It's also genetic; the gene is neither X nor Y, but if one parent has the syndrome, half of his or her children will, too
- › Further studies of the mechanisms causing photic sneezing may be helpful because seizures and migraines are often precipitated by flashing light

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Pepper can make you sneeze. So can a cold, cat dander and dust. But bright light from the sun, a flash photo or a flashlight beamed in your eyes? That might be a new one, to some, but not to 18% to 35% of the population.

I happen to be one of them, although mostly when I was young. Nearly every time I would go outside I would sneeze once. It hasn't happened for quite some time since I radically improved my diet and health, but I always wondered why it happened.

This anomaly hasn't been researched much, and it's not really a big deal as syndromes go, but it is a syndrome, known as photic sneezing. It's a genetic malady¹ and can't really

be put in the same category with painful, uncomfortable or debilitating problems, because it's none of the above.

Back in 2016, a study on this odd phenomenon was published in the Archives of the Spanish Society of Ophthalmology.² However, only 12 people were involved, and all of them were members of the same family, so scientists acknowledged that other research might be warranted.

The scientific name for photic sneezing is autosomal dominant compelling helio-ophthalmic outburst syndrome, or ACHOOs (which makes you wonder how many people sat around a boardroom table trying to fill in the appropriate blanks for that acronym).

It apparently happens only at the onset of the bright light's appearance, not continually as you [remain in the sun](#).

One of the conjectures is that it may have something to do with prominent corneal nerves, as 67% of the sunlight sneezers had this in common. Scientists involved in the study noted that eye structure doesn't seem to play a role in ACHOOs.

History of Photic Sneezing (aka ACHOOs)

In 1991, Emyr Benbow, a pathologist in Manchester, England, wrote a letter to the editor of the British Journal of Ophthalmology noting that even trivial symptoms like sneezing at light, for instance, seem more easily tolerated if there's a name for them. Being a sneezer himself, he said he felt relieved that it's a "normal" behavior.

Benbow wrote that sudden exposure to sunlight when emerging from a long road tunnel could induce a sneeze and momentary [blindness](#), and noted related vocations that might find sneezing at an inopportune time particularly dangerous in light of worst-case scenarios — tightrope walkers, baseball outfielders, and one that sparked a study, aircraft pilots.

By that time, photic sneezing had already been noted by a few enterprising scientists. Perhaps the first in modern times was by Jean Sédan, a French ophthalmologist

(according to a Reddit article³) who in 1954 recorded notes from some patients with the idiosyncrasy. Unable to find any other reference, he figured it must be rare.

One decade later, Dr. H.C. Everett coined the term “photic sneeze reflex” in his article in the journal *Neurology*,⁴ eventually indicating that not only was the syndrome being scrutinized by other scientists, it was definitely not rare.

Here’s an interesting tidbit – Researchers in a study undertaken in Israel in 1990⁵ found that individuals with this propensity have something else in common: **above-average intelligence**.

Another observation is that the percentage of photic sneezers is significantly lower in white females than in white males, but with the assurance that this statistic is completely unrelated to intelligence scale. *Scientific American* explains this, in part:

“The trait is autosomal-dominant – the gene is neither on the X nor Y chromosome and only one copy of the gene has to be present for the trait to be expressed – so if one parent sneezes when they look at a bright light, about half of his or her children will, too.”⁶

Ancient History of Photic Sneezing

The book of Proverbs says there’s no new thing under the sun, and apparently that’s true, because the “rare” syndrome was allegedly discussed by the likes of Aristotle, a noted 4th century B.C. Greek philosopher and scientist.

His tome, “*Problems*,”⁷ was translated into English by E.S. Forster and published in 1927, with this very concern listed as being a “problem” he contemplated.

While scholars question how much of the book’s contents is entirely Aristotle’s musings, it does say that Aristotle decided heat from the sun hitting the nose caused the nasal explosion, but fire, which dehydrates the nose, inhibits sneezing.

Seventeenth-century English philosopher Francis Bacon proved Aristotle's observation as rubbish with his own simple experiment: He stepped into the sun with his eyes closed and didn't sneeze.

He surmised that the sun causes the eyes to water, causing moisture in the nose (aka "braine humour") causing irritation to the nose and causing the sneeze. BBC updated the science by explaining:

"A sneeze is usually triggered by an irritation in the nose, which is sensed by the trigeminal nerve, a cranial nerve responsible for facial sensation and motor control. This nerve is in close proximity to the optic nerve, which senses, for example, a sudden flood of light entering the retina.

*As the optic nerve fires to signal the brain to constrict the pupils, the theory goes, some of the electrical signal is sensed by the trigeminal nerve and mistaken by the brain as an irritant in the nose. Hence, a sneeze."*⁸

Popular Science couldn't help reporting in its treatise on the reason for sneezing, "The ancient Greeks also suggested sneezing is divine and should occur only during sexual excitement."⁹

More Studies on What's Behind the Light-Precipitated Sneeze

Researchers conjectured that the nose may react in sympathy with the eyes when a sudden bright light occurs; the Israeli study explained that strong light:

*"Might enhance nasal sensations to the point of precipitating sneezing ... Subjects who sneezed in response to bright light replied that they had not paid attention to it, assuming that all people reacted thus, while those who did not sneeze at bright light replied that they did not know that such a reaction existed."*¹⁰

Other scientists have wondered if it's a case of "crossed signals," but Popular Science shared the research of a study from the University of Zurich, which brought in 10

ACHOOs volunteers and 10 more without the condition, and used electroencephalograms (EEGs) to measure their **brain waves**.

Another study on electroencephalograms, which gauge brain activity, reported in The New York Times:¹¹

"... [S]uggested that the reflex is unusual in involving specific higher brain areas governing vision and sensation, rather than a classical reflex that happens at the level of the brainstem or spinal cord."¹²

It makes sense that if bright lights might bring on a snit of sneezing, certain populations might be good candidates for concern.

Scientists determined that wavelengths of light might not cause problems, but changes in light intensity might, posing a previously unrecognized danger to aircraft pilots.¹³ Fortunately, wearing **sunglasses** largely eliminated this alarm.

Photic Sneezing in Relation to Epileptic Seizures and Migraines

The interesting correlations between sneezing in sudden, bright sunlight and the fact that some episodic disorders such as **migraine headaches** and epilepsy may also be related to light have made an increasing number of neurologists sit up and take notice.

Dr. Louis Ptáček, a neurologist at the University of California, San Francisco, and an investigator at the Howard Hughes Medical Institute, decided more investigation was "worth doing," as photic sneeze reflex might present some connection that would be helpful, especially since seizures and migraines are often precipitated by flashing light.

"If we could find a gene that causes photic sneezing, we could study that gene and we might learn something about the visual pathway and some of these other reflex phenomena," Ptáček said in Scientific American.¹⁴

This, however, will require finding the right families, because it's an anomaly comparable to the ability to roll your tongue.

A doctor in Cleveland, Dr. Harold H. Morris III, reported¹⁵ on one patient, a 55-year-old woman who said she'd always been an "easy sneezer," but didn't know if light had anything to do with it. Ensuing tests revealed that **flashing lights** at a rate of 15 Hertz (Hz.) produced a sneeze about nine seconds later. The tests helped scientists conclude that Aristotle was at least partly right:

"Despite the information that researchers have managed to amass on the subject, nobody quite knows exactly how optical stimulation of the eyes leads to a sneeze, but one possibility is that the eyes and the nose are connected via the fifth cranial, or trigeminal, nerve. Or it could be the result of a process called 'parasympathetic generalization.'

*When a stimulus excites one part of the body's parasympathetic nervous system, other parts of the system tend to become activated as well. So when bright light causes the eyes' pupils to constrict, that may indirectly cause secretion and congestion in the nasal mucus membranes, which then leads to a sneeze."*¹⁶

Other Reasons for Sneezing

Of course, there are many other reasons why people sneeze. One of them is the common cold, but certain smells and irritations can cause the same reaction, such as smoke, pollen and breathing in **black pepper**. Everyday Health says walking from room temperature into the cold, even a walk-in refrigerator, can trigger the sneeze reflex, and calls the urge "the final act of a precise chain of events" when the lining of your nose gets irritated:

*"Your body goes into reaction mode: Your chest muscles compress your lungs. The compression sends a blast of air upwards. The opening between your throat and mouth wants no part of it and slams shut. The powerful air, traveling 100 miles an hour, is forced out through your nose in the form of a sneeze."*¹⁷

Scientific American hit the nail on the head in regard to the dialogue about sunlight causing part of the population to sneeze being generally “whimsical,” but a more serious dialogue may in fact have real scientific benefit.

Sources and References

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