



## Sneezing

Now that Spring has sprung, hopefully all the colds and runny noses are now a thing of the past and won't surface again until sometime next year. The flu epidemic hit pretty hard in 2019 and it wasn't uncommon to see heaps of people walking along with the tissue out having a good old sneeze, which got us wondering, what is a sneeze and what's the purpose and the use of it.



A sneeze, or sternutation, is a semi-autonomous, convulsive expulsion of air from the lungs through the nose and mouth, usually caused by foreign particles irritating the nasal [mucosa](#) membrane. A sneeze expels air forcibly from the mouth and nose in an explosive, spasmodic involuntary action which allows for mucus to escape through the nasal cavity. Sneezing is



possibly linked to sudden exposure to bright light, sudden change (fall) in temperature, breeze of cold air, a particularly full stomach, or viral infection and can lead to the spread of disease.

During a sneeze, the soft palate and [palatine uvula](#) depress while the back of the tongue elevates to partially close the passage to the mouth so that air ejected from the lungs may be expelled through the nose. Because the closing of the mouth is only partial, a considerable amount of this air is usually also expelled from the mouth. The force and extent of the expulsion of the air through the nose varies.

Sneezing cannot occur during sleep due to REM atonia – a bodily state where motor neurons are not stimulated and reflex signals are not relayed to the brain. Sufficient external stimulants, however, may cause a person to wake from sleep to sneeze, but any sneezing occurring afterwards would take place with a partially awake status at minimum.

Sneezing typically occurs when foreign particles or sufficient external stimulants pass through the nasal hairs to reach the nasal mucosa. This triggers the release of histamines, which irritate the nerve cells in the nose, resulting in signals being sent to the brain to initiate the sneeze through the [trigeminal nerve network](#). The brain then relates this initial signal, activates the [pharyngeal](#) and [tracheal](#) muscles and creates a large opening of the nasal and oral cavities, resulting in a powerful release of air and bioparticles. The powerful nature of a sneeze is attributed to its involvement of numerous organs of the upper body – it is a reflexive response involving the face, throat, and chest muscles. Sneezing is also triggered by sinus nerve stimulation caused by nasal congestion and allergies.

The sneeze reflex involves contraction of a number of different muscles and muscle groups throughout the body, typically including the eyelids. The common suggestion that it is impossible to sneeze with one's eyes open is, however, inaccurate. Other than irritating foreign particles, allergies or possible illness, another stimulus is sudden exposure to bright light – a condition known as photic sneeze reflex (PSR). Walking out of a dark building into sunshine may trigger PSR, or the ACHOO (autosomal dominant compulsive helio-ophthalmic outbursts of sneezing) syndrome as it's also called. The tendency to sneeze upon exposure to bright light affects 18-35% of the human population. A rarer trigger, observed in some individuals, is the fullness of the stomach immediately after a large meal. This is known as sntiation and is regarded as a medical disorder passed along genetically as an autosomal dominant trait.

#### Epidemiology

While generally harmless in healthy individuals, sneezes spread disease through the infectious aerosol droplets, commonly ranging from 0.5 to 5.0µm (micrometre). A sneeze can produce 40,000 droplets. To reduce the possibility of thus spreading disease (such as the flu), one holds the forearm or the inside of the elbow in front of one's mouth and nose when sneezing. Using one's hand for that purpose has recently fallen into disuse as it is considered inappropriate, since it promotes spreading germs through human contact (such as handshaking) or by commonly touched objects (most notably doorknobs).





Examples of preventive techniques are:

- the deep exhalation of the air in the lungs that would otherwise be used in the act of sneezing,
- holding the breath in while counting to ten or gently pinching the bridge of the nose for several seconds.

Proven methods to reduce sneezing generally advocate reducing interaction with irritants, such as keeping pets out of the house to avoid animal dander; ensuring the timely and continuous removal of dirt and dust particles through proper housekeeping; replacing filters for furnaces and air-handling units; air filtration devices and humidifiers; and staying away from industrial and agricultural zones. Some people, however, find sneezes to be pleasurable and would not want to prevent them.



In English-speaking countries, one common verbal response to another person's sneeze is "God bless you". Another common verbal response to another's sneeze is "Gesundheit", which is a German word that means, appropriately, "good health". Several hypotheses exist for why the custom arose of saying "bless you" or "God bless you" in the context of sneezing:

- Some say it came into use during the plague pandemics of the 14th century. Blessing the individual after showing such a symptom was thought to prevent possible impending death due to the lethal disease.





- In Renaissance times, a superstition was formed claiming one's heart stopped for a very brief moment during the sneeze; saying bless you was a sign of prayer that the heart would not fail.
- It has also been stated that one says "(God) bless you" so that one does not catch the flu, cold, or any other forms of sickness.

Other cultures have similar traditions.

Some people may sneeze during the initial phases of sexual arousal. Doctors suspect that the phenomenon might arise from a case of crossed wires in the autonomic nervous system, which regulates a number of functions in the body, including "waking up" the genitals during sexual arousal. The nose, like the genitals, contains erectile tissue. This phenomenon may prepare the vomeronasal organ for increased detection of pheromones.

A sneeze has been compared to an orgasm, since both orgasms and sneeze reflexes involve tingling, bodily stretching, tension and release. On this subject, sexologist Vanessa Thompson from the University of Sydney states, "Sneezing and orgasms both produce feel-good chemicals called endorphins but the amount produced by a sneeze is far less than an orgasm."



According to Dr. Holly Boyer from the University of Minnesota, there is a pleasurable effect during a sneeze, where she states, "the muscle tension that builds up in your chest causes pressure, and when you sneeze and the muscles relax, it releases pressure. Anytime you release pressure, it feels good... There's also some evidence that endorphins are released, which causes your body to feel good". Endorphins induce the brain's reward system, and because sneezes occur in a quick burst, so does the pleasure

Sneezing while menstruating may result in a sudden vaginal menses emission.

Sneezing is not confined to humans or even mammals. Many animals including cats, dogs, chickens and iguanas sneeze. African wild dogs use sneezing as a form of communication, especially when considering a consensus in a pack on whether or not to hunt.

A long-standing estimate pins the velocity of a sneeze at roughly 100 meters per second, or 224 miles per hour, but that appears to be a gross exaggeration. The figure originates from a mid-century researcher named William Firth Wells, who analyzed the size of airborne droplets from a sneeze and then inferred the speed at which air must travel across a liquid surface to form them. Wells' figure has been repeated for





many years but never directly tested in the lab. "I think people have been waiting for someone to come along and debunk it," says Julian Tang, a medical virologist at the Alberta Provincial Laboratory for Public Health in Edmonton.

For a study published this year, Tang and his colleagues used high-speed cameras to take pictures of pepper-induced sneezes from six volunteers. The team captured each sneeze by positioning the volunteers in front of a concave mirror and then shining an LED beam toward it. The warm air from the sneeze has a different refractive index than the cooler ambient air, so the reflected LED bends differently. The camera records the changes, and scientists can map the sneeze.

The study found that a sneeze's maximum velocity is nowhere near 100 meters per second but instead reaches a high of 4.5 meters per second, or 10 miles per hour. That's comparable to the velocity of air expelled by coughing—and a violent cough can push up a larger volume of air, which requires even more force. "The sneeze is really coming from your upper respiratory tract," Tang explains.

Tang, who did his study in Singapore, acknowledges that his numbers might have come out differently if he'd chosen different subjects. "All my data is from these rather slim Asian students," he says. "If somebody did this in the North American setting, with the bigger body frames that they have here, they might find higher velocities."



**Men are always  
whining about  
how we're  
suffocating  
them.**

**Personally, I  
think if you can  
hear them  
whining you're  
not pressing  
hard enough on  
the pillow!**



## Best sunscreen: Understand sunscreen options.

Now that the sun is on the way back it's time to recall the old "Slip, slop, slap" message. It's time to head off to the Chemist and stock up on sunscreen and to limit your time exposed in the sun.



What are the best ways to protect yourself from the sun? Focus on the big picture when it comes to sun safety. For example:

- Avoid the sun during peak hours. Generally, this is between 10 a.m. and 4 p.m. Water, sand and concrete reflect light and increase the risk of sunburn.
- Wear sun protective clothing. This includes pants, shirts with long sleeves, sunglasses and hats.
- Use sunscreen. Look for water-resistant, broad-spectrum coverage with an SPF of at least 30. Apply sunscreen generously and reapply every two hours — or more often if you're swimming or sweating.

What does a broad-spectrum sunscreen do?

There are two types of UV light that can harm your skin — UVA and UVB. A broad-spectrum sunscreen protects you from both. UVA rays can prematurely age your skin, causing wrinkling and age spots. UVB rays can burn your skin. Too much exposure to UVA or UVB rays can cause skin cancer. The best sunscreen offers protection from UV light.



What SPF do you need?

SPF stands for sun protection factor, a measure of how well sunscreen protects against UVB rays. (UVA protection isn't rated.) Manufacturers calculate SPF based on how long it takes to sunburn skin treated with the sunscreen as compared to skin with no sunscreen. Experts recommend using a sunscreen with an SPF of at least 30. Sunscreens with SPFs greater than 50 provide only a small increase in UV protection. High-number SPFs last the same amount of time as low-number SPFs.

Sunscreen is often not applied thoroughly or thickly enough and it can be washed off during swimming or sweating. As a result, sunscreen might be less effective than the SPF number suggests. The term water resistant means that the SPF is maintained for up to 40 minutes in water. Very water resistant means the SPF is maintained for 80 minutes in water.

What do I need to know about sunscreen ingredients?

Sunscreens contain filters that reflect or absorb UV rays. There are two main types of filters:

- **Organic.** Organic filters absorb UV radiation and convert it to a small amount of heat. Examples include cinnamates, salicylates and benzophenones.



- **Inorganic.** Inorganic filters reflect and scatter UV radiation. Examples include titanium dioxide and zinc oxide. Inorganic sunscreens are typically less irritating to skin.

Sunscreens might also contain or be combined with:

- **Insect repellent.** Experts recommend using separate sunscreen and insect repellent products. Sunscreen needs to be applied generously and often, while insect repellent should be used sparingly and less frequently.
- **Cosmetics.** Some moisturizers, makeup and after-shaves contain sunscreen. While convenient, these products need to be regularly reapplied to continue providing protection.



Should I use a spray sunscreen or a lotion? Consider the pros and cons for different applications, including:

- **Creams.** If you have dry skin, you might prefer a cream — especially for your face.
- **Lotions.** Lotions are often preferred for application on large areas. Lotions tend to be thinner and less greasy than creams.
- **Gel.** Gels work best in hairy areas, such as the scalp or chest.
- **Stick.** Sticks are useful when applying sunscreen around the eyes.
- **Spray.** Sprays are easy to apply on children. Because it's difficult to know how well you're applying it, spray a generous and even coating. To prevent inhalation of the product, don't spray near the face or mouth. Check the direction of the wind before spraying.

When you use sunscreen:

- Apply generous amounts of sunscreen to dry skin 15 minutes before you go outdoors.
- Use sunscreen on all skin surfaces that will be exposed to the sun, such as your neck, the tops of your feet, your ears and the top of your head. Apply a lip balm or lipstick with an SPF of least 30 to your lips.
- Since UV light can pass through clouds, use sunscreen even when it's cloudy.
- Check the sunscreen's expiration date. If it's out of date, toss it, it has lost most of its usefulness.
- Avoid using sunscreen on children younger than age 6 months. Instead, try to limit sun exposure.

Use sunscreen year-round, but don't let any product lull you into a false sense of security about sun exposure. A combination of shade, clothing, sunscreen and common sense is your best bet.





## High blood pressure dangers: Hypertension's effects on your body.

High blood pressure (hypertension) is a risk factor for more than heart disease.

It can quietly damage your body for years before symptoms develop. Left uncontrolled, you may wind up with a disability, a poor quality of life or even a fatal heart attack. Roughly half the people with untreated hypertension die of heart disease related to poor blood flow (ischemic heart disease) and another third die of stroke. Treatment and lifestyle changes can help control your high blood pressure to reduce your risk of life-threatening complications. This is what the complications high blood pressure can cause when it's not effectively controlled.



### Damage to your arteries.

Healthy arteries are flexible, strong and elastic. Their inner lining is smooth so that blood flows freely, supplying vital organs and tissues with nutrients and oxygen. Hypertension gradually increases the pressure of blood flowing through your arteries, as a result, you might experience:

- **Damaged and narrowed arteries.** High blood pressure can damage the cells of your arteries' inner lining. When fats from your diet enter your bloodstream, they can collect in the damaged arteries. Eventually, your artery walls become less elastic, limiting blood flow throughout your body.
- **Aneurysm.** Over time, the constant pressure of blood moving through a weakened artery can cause a section of its wall to enlarge and form a bulge (aneurysm). An aneurysm can potentially rupture and cause life-threatening internal bleeding. Aneurysms can form in any artery throughout your body, but they're most common in your body's largest artery (aorta).

### Damage to your heart.

Your heart pumps blood to your entire body. Uncontrolled high blood pressure can damage your heart in a number of ways, such as:

- **Coronary artery disease.** Coronary artery disease affects the arteries that supply blood to your heart muscle. Arteries narrowed by coronary artery disease don't allow blood to flow freely through your arteries. When blood can't flow freely to your heart, you can experience chest pain, a heart attack or irregular heart rhythms (arrhythmias).
- **Enlarged left heart.** High blood pressure forces your heart to work harder than necessary in order to pump blood to the rest of your body. This causes the left ventricle to thicken or





stiffen (left ventricular hypertrophy). These changes limit the ventricle's ability to pump blood to your body. This condition increases your risk of heart attack, heart failure and sudden cardiac death.

- **Heart failure.** Over time, the strain on your heart caused by high blood pressure can cause your heart muscle to weaken and work less efficiently. Eventually, your overwhelmed heart simply begins to wear out and fail. Damage from heart attacks adds to this problem.

### Damage to your brain

Just like your heart, your brain depends on a nourishing blood supply to work properly and survive. But high blood pressure can cause several problems, including:

- **Transient ischemic attack (TIA).** Sometimes called a ministroke, a transient ischemic attack is a brief, temporary disruption of blood supply to your brain. It's often caused by atherosclerosis or a blood clot — both of which can arise from high blood pressure. A transient ischemic attack is often a warning that you're at risk of a full-blown stroke.
- **Stroke.** A stroke occurs when part of your brain is deprived of oxygen and nutrients, causing brain cells to die. Uncontrolled high blood pressure can lead to stroke by damaging and weakening your brain's blood vessels, causing them to narrow, rupture or leak. High blood pressure can also cause blood clots to form in the arteries leading to your brain, blocking blood flow and potentially causing a stroke.
- **Dementia.** Dementia is a brain disease resulting in problems with thinking, speaking, reasoning, memory, vision and movement. There are a number of causes of dementia. One cause, vascular dementia, can result from narrowing and blockage of the arteries that supply blood to the brain. It can also result from strokes caused by an interruption of blood flow to the brain. In either case, high blood pressure may be the culprit.
- **Mild cognitive impairment.** Mild cognitive impairment is a transition stage between the changes in understanding and memory that come with aging and the more-serious problems caused by Alzheimer's disease. Like dementia, it can result from blocked blood flow to the brain when high blood pressure damages arteries.



### Damage to your kidneys.

Your kidneys filter excess fluid and waste from your blood — a process that depends on healthy blood vessels. High blood pressure can injure both the blood vessels in and leading to your kidneys, causing several types of kidney disease (nephropathy). Having diabetes in addition to high blood pressure can worsen the damage.

- **Kidney failure.** High blood pressure is one of the most common causes of kidney failure. That's because it can damage both the large arteries leading to your kidneys and the tiny blood vessels (glomeruli) within the kidneys. Damage to either makes it so your kidneys



can't effectively filter waste from your blood. As a result, dangerous levels of fluid and waste can accumulate. You might ultimately require dialysis or kidney transplantation.

- **Kidney scarring (glomerulosclerosis).** Glomerulosclerosis is a type of kidney damage caused by scarring of the glomeruli. The glomeruli are tiny clusters of blood vessels within your kidneys that filter fluid and waste from your blood. Glomerulosclerosis can leave your kidneys unable to filter waste effectively, leading to kidney failure.
- **Kidney artery aneurysm.** An aneurysm is a bulge in the wall of a blood vessel. When it occurs in an artery leading to the kidney, it's known as a kidney (renal) artery aneurysm. One potential cause is atherosclerosis, which weakens and damages the artery wall. Over time, high blood pressure in a weakened artery can cause a section to enlarge and form a bulge — the aneurysm. Aneurysms can rupture and cause life-threatening internal bleeding.

### Damage to your eyes.

Tiny, delicate blood vessels supply blood to your eyes. Like other vessels, they, too, can be damaged by high blood pressure:

**Eye blood vessel damage (retinopathy).** High blood pressure can damage the vessels supplying blood to your retina, causing retinopathy. This condition can lead to bleeding in the eye, blurred vision and complete loss of vision. If you also have both diabetes and high blood pressure, you're at an even greater risk.

**Fluid buildup under the retina (choroidopathy).** In this condition, fluid builds up under your retina because of a leaky blood vessel in a layer of blood vessels located under the retina. Choroidopathy can result in distorted vision or in some cases scarring that impairs vision.

**Nerve damage (optic neuropathy).** This is a condition in which blocked blood flow damages the optic nerve. It can kill nerve cells in your eyes, which may cause bleeding within your eye or vision loss.



### Sexual dysfunction

Although the inability to have and maintain an erection (erectile dysfunction) becomes increasingly common in men as they reach age 50, it's even more likely to occur if they have high blood pressure, too. Over time, high blood pressure damages the lining of your blood vessels and causes your arteries to harden and narrow (atherosclerosis), limiting blood flow. This means less blood is able to flow to your penis. For some men, the decreased blood flow makes it difficult to achieve and maintain





erections — often referred to as erectile dysfunction. The problem is fairly common, especially among men who are not treating their high blood pressure.

Women may have sexual dysfunction as a side effect of high blood pressure, as well. High blood pressure can reduce blood flow to your vagina. For some women, this leads to a decrease in sexual desire or arousal, vaginal dryness, or difficulty achieving orgasm. Improving arousal and lubrication can help. Like men, women can experience anxiety and relationship issues due to sexual dysfunction.

### **Other possible dangers of high blood pressure.**

High blood pressure can also affect other areas of the body, leading to such problems as:

- **Bone loss.** High blood pressure can increase the amount of calcium that's in your urine. That excessive elimination of calcium may lead to loss of bone density (osteoporosis), which in turn can lead to broken bones. The risk is especially increased in older women.
- **Trouble sleeping.** Obstructive sleep apnea — a condition in which your throat muscles relax causing you to snore loudly — occurs in more than half of those with high blood pressure. It's now thought that high blood pressure itself may help trigger sleep apnea, also, sleep deprivation resulting from sleep apnea can raise your blood pressure.



### **High blood pressure emergencies.**

High blood pressure is usually a chronic condition that gradually causes damage over the years. But sometimes blood pressure rises so quickly and severely that it becomes a medical emergency requiring immediate treatment, often with hospitalization.

In these situations, high blood pressure can cause:

- Memory loss, personality changes, trouble concentrating, irritability or progressive loss of consciousness
- Stroke
- Severe damage to your body's main artery (aortic dissection)
- Chest pain
- Heart attack
- Sudden impaired pumping of the heart, leading to fluid backup in the lungs resulting in shortness of breath (pulmonary edema)
- Sudden loss of kidney function
- Complications in pregnant women (preeclampsia or eclampsia).