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What Causes Healthy People to Faint?

Analysis by Dr. Joseph Mercola | January 02, 2024

STORY AT-A-GLANCE

- The vagus nerve's connection to your heart may be involved in triggering people to faint
- Your heart sends signals to your brain via the vagus nerve, and a disruption in these signals may be responsible for fainting
- Autonomic dysfunction is common in patients with long COVID, including symptoms like dizziness and fainting, and it's possible COVID-19 may influence signals passing through the vagus nerve
- A disruption in blood flow of even a few seconds is all it takes to cause fainting or loss of consciousness
- If you start to feel dizzy, lightheaded and clammy, and your vision gets blurry or filled with spots, sit or lie down immediately; this will reduce your chances of getting hurt by falling, and the horizontal position helps get blood flowing to your head

About 40% of people faint at some point during their lifetime.[1] While the experience can be jarring — both for the victim and those around them — and can be indicative of a serious underlying condition, most often the cause is benign.

Vasovagal syncope, or fainting, is the most common type, accounting for one-third of cases.[2] During a vasovagal syncope episode, your heart rate and blood pressure drop suddenly, reducing circulation to your brain and causing you to lose consciousness.

The vagus nerve, the primary information highway between your gut and your brain, which connects the two organs, is involved, but according to research published in Nature,[3] it's the nerve's connection to your heart that may trigger people to faint.

Heart-Brain Pathway May Trigger Fainting

While it was long believed that your vagus nerve was simply a way for your brain to communicate with your organs, it's now known that information is sent both ways; for instance, from your gut to your brain. Your heart, however, also sends signals to your brain via the vagus nerve, and a disruption in these signals may be responsible for fainting.[4]

The fact that your vagus nerve is involved in fainting isn't new knowledge. This has been known since the 19th century, according to study author Vineet Augustine, a neurobiologist at the University of California San Diego. Speaking with NPR, Augustine explained:[5]

> *"What was not clear was which part of the vagus nerve [was involved]. The vagus nerve is big. It's a major highway between the body and the brain …What we were trying to argue — well, the heart also sends signals back to the brain, which can influence its function and behavior."*

The scientists found nerve cells that link the heart's blood-pumping ventricles with the area postrema in the brain, a region that controls breathing and heart rate.[6,7] When the pathway was stimulated with a laser in mice, it led to fainting-like symptoms. "When the pulse hits them, the heart rate immediately dips. They wobble around a little bit, and then around seven seconds, they fall over," Augustine said.[8]

It's possible the finding could lead to new treatment options to help prevent fainting due to autonomic disorders, including the rise in fainting cases that occurred since the COVID-19 pandemic. Autonomic dysfunction is common in patients with long COVID, including symptoms like dizziness and fainting, and it's possible COVID-19 may influence signals passing through the vagus nerve.[9]

The vagus nerve influences many crucial bodily functions, as it's a primary part of the parasympathetic nervous system. It's involved in controlling your mood, immune response, digestion and heart rate, and transmits information about different inner organs to the brain via afferent fibers.

In addition to affecting fainting, vagus nerve stimulation is being looked into as a potential treatment for depression, posttraumatic stress disorder, inflammatory bowel disease and more.[10] Interestingly, since the vagal tone is influenced by breathing, yoga, which involves breath work, may offer benefits via the vagus nerve. It's been found, for instance, that yoga therapy can reduce fainting frequency and pre-fainting symptoms among people with recurrent fainting.[11]

Common Fainting Triggers

Cerebral blood flow is necessary to provide your brain with a steady supply of glucose to function properly. A disruption in blood flow of even a few seconds is all it takes to cause fainting or loss of consciousness. As noted in the National Library of Medicine's Stat Pearls:[12]

> *"Cerebral blood flow is maintained by a complex mechanism involving cardiac output, systemic vascular resistance, mean arterial pressure, and intravascular volume. Any defect in one or more of these systems leads to decreased cerebral blood flow."*

Fainting, which is sometimes described as blacking out, accounts for 1% to 3.5% of emergency department visits and 6% of hospital visits in the U.S.[13] Many factors increase the risk, including prolonged standing, crowded places, hot temperatures, severe pain, extreme fatigue, anxiety and stress.[14] Some people may also faint if they see blood.

Bed rest, underlying conditions that affect the nervous system and certain medications, particularly those that influence blood pressure or fluid levels, can also trigger fainting.[15]

Standing up too quickly, meanwhile, can cause a drop in blood pressure known as orthostatic hypotension, which can lead to lightheadedness and fainting.[16]

Dehydration is another common cause of fainting. If you don't drink enough water, your blood becomes thicker and circulates less, which may lead to muscle cramps, as well as trigger your kidneys to hold on to water, so your urine output decreases. Further, according to Toby Mündel, senior lecturer in sport and exercise science, Massey University, New Zealand:[17]

> *"The thicker and more concentrated your blood becomes, the harder it is for your cardiovascular system to compensate by increasing heart rate to maintain blood pressure. When your dehydrated body is 'pushed' — such as when exercising or faced with heat stress — the risk of exhaustion or collapse increases. This can cause you to faint, for instance, when you stand up too quickly."*

Signs You're About to Faint

Often, symptoms occur prior to the fainting episode. These include:[18,19]

Blurred vision	Nausea
Dizziness	Weakness
Sweating	Pale appearance
Headache	Disorientation
Confusion	Slurred speech

Less commonly, irregular heart rhythms may cause a person to faint. This may be a sign of a potentially serious condition. Aortic stenosis, enlarged heart and both fast or slow heart rates can trigger fainting.

Atrial fibrillation, an abnormal, often rapid, heart rhythm that occurs when the atria, your heart's upper chambers, beat out of sync with the ventricles, may also lead to fainting.[20] In cardiac fainting, heart palpitations may occur prior to the episode.[21] If you pass out with no warning, it's possible heart rhythm problems are to blame.[22]

Fainting Is Common After Vaccines

Medical procedures can trigger fainting, and this includes vaccinations. In fact, the U.S. Centers for Disease Control and Prevention says it has received reports of people fainting after nearly all vaccines, including the flu shot. NPR reported the case of a 39-year-old man who fainted five minutes after a flu shot, requiring a trip to the emergency room and resulting in a bill for $4,692.[23]

However, fainting after vaccines is particularly common in adolescents and most often occurs after the human papillomavirus (HPV) vaccine, meningococcal conjugate vaccine and the tetanus, diphtheria and acellular pertussis (Tdap) vaccine.[24] The CDC noted:[25]

> *"Because the ingredients of these three vaccines are different, yet fainting is seen with all of them, scientists think that fainting is due to the vaccination process and not to the vaccines themselves. However, there is not yet a definite answer about whether an ingredient of the vaccines is responsible for the fainting or if adolescents are simply more likely than children or adults to experience fainting."*

According to the CDC, the Vaccine Adverse Event Reporting System (VAERS) receives many reports each year of people fainting after vaccinations, "and many more are likely to go unreported." It's estimated that 62% of fainting reports after vaccines occur among adolescents aged 11 to 18 years.[26]

Another study of 9- to 18-year-olds who received a vaccine or venipuncture found that 2.99 per 10,000 vaccination events resulted in fainting, as did 16.33 per 10,000 venipunctures.[27] Fainting became more likely when more than one vaccine was given,

rising from 1.51 per 10,000 vaccination events following a single vaccine to 9.94 per 10,000 following three or more vaccines. In about 15% of vaccine and venipuncture events, fainting resulted in injury.

Fainting-related falls can be serious, with head injury the most significant risk. One study of fainting-related reports to VAERS found that 7% of the fainting episodes were serious, and 12% involved head injuries.[28] The CDC described one case as follows:[29]

> *"A girl aged 13 years fainted within 10 minutes of receiving HPV and MCV4 vaccinations. She fell backward and hit her head on the carpeted floor of the clinic. The girl was admitted to the pediatric intensive-care unit because of skull fractures and subarachnoid hemorrhage."*

In another case reported in the Archives of Pediatrics and Adolescent Medicine, a 15-year-old boy with no known medical problems fainted several minutes after receiving the third dose of hepatitis B vaccine.[30] He fell backward onto a concrete floor covered by a thin carpet, striking the back of his head.

He regained consciousness but had convulsions, went into cardiopulmonary arrest and died. An autopsy revealed he suffered from traumatic brain injury, including frontal lobe contusions, along with brain swelling and bleeding, even though he had no skull fracture.

Due to these risks, the CDC recommends patients sit or lie down while receiving a vaccine, and be observed for 15 minutes afterward, as 70% of fainting episodes typically occur within that timeframe.[31] However, this means 30% may occur outside of this window. And with many shots given at pharmacies and other non-doctors' office settings, these observation periods are often neglected.

What to Do if You Feel Like You're Going to Faint

If you start to feel dizzy, lightheaded and clammy, and your vision gets blurry or filled with spots, sit or lie down immediately. Not only does this reduce your chances of getting hurt by falling, but the horizontal position helps get blood flowing to your head.[32]

Using applied tension can also help reduce symptoms and lower the risk of fainting. In a study of adult blood donors — a population that often experiences fainting symptoms and fainting — applied tension helped reduce symptoms and lowered the risk of a vasovagal reaction consistent with fainting.[33] This can be as simple as:[34]

- Making a fist
- Crossing your legs
- Squeezing your thighs together
- Tightening the muscles in your arms

The National Institute of Neurological Disorders and Stroke recommends lying down for 10 to 15 minutes in a cool, quiet spot. If this isn't an option, sit with your head between your knees, and sip cold water. Typically, recovery occurs within a few minutes to a few hours,[35] but you should seek medical care to rule out potentially serious complications and underlying causes.

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