Motion sickness

Description

Motion sickness is a common condition characterized by a feeling of unwellness brought on by certain kinds of movement. The usual symptoms include dizziness, pale skin (pallor), and sweating, followed by nausea and vomiting. Affected individuals may also experience rapid breathing (hyperventilation), headache, restlessness, and drowsiness. These symptoms can be triggered by many kinds of motion, particularly traveling in a car, bus, train, airplane, or boat. Amusement park rides, skiing, and virtual reality environments can also induce motion sickness.

Frequency

Motion sickness is very common. About 1 in 3 people are considered highly susceptible to motion sickness. However, almost everyone will become motion sick if exposed to motion that is intense enough.

Motion sickness is more common in some groups of people than in others, for reasons that are not fully understood. The condition is more common in women (particularly during menstruation or pregnancy) than in men, and more common in children than in adults. People who have migraine headaches, including a balance disorder called vestibular migraine, have a higher risk of motion sickness than those who do not have these conditions. People in some ethnic and geographic groups are more likely to report being susceptible to motion sickness; for example, studies suggest that there is a higher prevalence of motion sickness among Asians than among Europeans.

Causes

The factors that contribute to motion sickness are not well understood, but susceptibility to the condition does seem to be partly genetic. When motion sickness occurs, it likely results from a mismatch in signals about movement coming from different parts of the body. The brain senses movement by combining signals from the inner ears, eyes, muscles, and joints. When the eyes signal to the brain that the body is still (for example, a moving car appears stationary to the person riding in it), but the inner ears and other parts of the body signal that the body is in motion, a conflict occurs. Researchers believe it is this sensory conflict that triggers the symptoms of motion sickness. The mechanism by which a sensory mismatch could lead to dizziness, nausea, and related symptoms is unclear, and other explanations for motion sickness are also being

explored.
Common, complex conditions such as motion sickness are often polygenic, which means they involve variations in many genes. However, little is known about the specific genes involved in motion sickness because few studies have been done to identify them.

One study compared genetic variations in a large number of people with and without a susceptibility to motion sickness. The researchers found common genetic variations in or near 35 genes that may be associated with the condition. These genes play a wide variety of roles in the body: some are involved in eye and ear development, and others in the formation of otoliths, which are tiny structures in the inner ear that are involved in sensing gravity and movement. Still other identified genes play roles in the development and function of junctions between nerve cells (synapses) where cell-to-cell communication takes place, and in the way the body processes the simple sugar glucose and the hormone insulin, which helps regulate blood glucose levels. Additional research will be necessary to confirm the association between variations in specific genes and motion sickness susceptibility.

Inheritance

Motion sickness does not have a clear pattern of inheritance, although it does tend to cluster in families. People who have a first-degree relative (for example, a parent or sibling) who is highly susceptible to motion sickness are more likely than the general public to get motion sick themselves.

Other Names for This Condition

- Airsickness
- Carsickness
- Riders' vertigo
- Seasickness

Additional Information & Resources

Patient Support and Advocacy Resources

- National Organization for Rare Disorders (NORD) (https://rarediseases.org/)

Clinical Trials

- ClinicalTrials.gov (https://clinicaltrials.gov/search?cond=%22Motion sickness%22)

Catalog of Genes and Diseases from OMIM

- MOTION SICKNESS (https://omim.org/entry/158280)

Scientific Articles on PubMed

- PubMed (https://pubmed.ncbi.nlm.nih.gov/?term=%28Motion+Sickness%5BTIAB%5D%29+AND+%28%28genetic*%5BTIAB%5D%29+OR+%28genes%5BTIAB%5D%29+OR+%28gene%5BTIAB%5D%29%29+NOT+%28chemotherapy%5BTIAB%5D%29+AND+english%5Bla%5D+AND+human%5Bmh%5D)

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