

## Doctor, Please Explain

### Dizziness and Motion Sickness

Insight into causes and prevention

- What is dizziness?
- What causes dizziness?
- How will my dizziness be treated?
- and more...

Feeling unsteady or dizzy can happen due to poor circulation, vertigo, injury, infection, allergies, or neurological disease. Dizziness is treatable but it is important for your doctor to help you determine the cause so that the correct treatment is used. While each person will be affected differently, symptoms that warrant a visit to the doctor include a high fever, severe headache, convulsions or ongoing vomiting, chest pain, heart palpitations, shortness of breath, inability to move an arm or leg, a change in vision or speech, or hearing loss.

What is dizziness?

Dizziness can be described in many ways, such as feeling lightheaded, unsteady, or giddy. Vertigo is a type of dizziness experienced as an illusion of movement of self or the environment and is usually unpleasant. Others experience dizziness associated with motion sickness, a nauseating feeling brought on by the motion of riding in an airplane, on a roller coaster, or aboard a boat. Dizziness, vertigo, and motion sickness all relate to the sense of balance and equilibrium. Your sense of balance is maintained by a complex interaction of the following parts of the nervous system:

- The inner ears (also called the labyrinth), which monitor the directions of motion, such as turning, rolling, forward-backward, side-to-side, and up-and-down motions.
- The eyes, which monitor where the body is in space (i.e., upside down, right side up, etc.) and also directions of motion.
- The skin pressure receptors in the joints and spine, which tell what part of the body is down and touching the ground.
- The muscle and joint sensory receptors, which tell what parts of the body are moving.
- The central nervous system (the brain and spinal cord), which processes all the bits of information from the four other systems to make some coordinated sense out of it all.

The symptoms of motion sickness and dizziness appear when the central nervous system receives conflicting messages from the other four systems.

What causes dizziness?

**Circulation:** If your brain does not get enough blood flow, you feel lightheaded. Almost everyone has experienced this on occasion when standing up quickly from a lying down position. But some people have lightheadedness from poor circulation on a frequent or chronic basis. This could be caused by arteriosclerosis or

hardening of the arteries, and it is commonly seen in patients who have high blood pressure, diabetes, or high levels of blood fats (cholesterol). It is sometimes seen in patients with inadequate cardiac (heart) function, hypoglycemia (low blood sugar), or anemia (low iron).

Certain drugs also decrease the blood flow to the brain, especially stimulants such as nicotine and caffeine. Excess salt in the diet also leads to poor circulation. Sometimes circulation is impaired by spasms in the arteries caused by emotional stress, anxiety, and tension.

If the inner ear fails to receive enough blood flow, the more specific type of dizziness occurs, that is, vertigo. The inner ear is very sensitive to minor alterations of blood flow and all of the causes mentioned for poor circulation to the brain also apply specifically to the inner ear.

**Vertigo:** Benign paroxysmal positional vertigo (BPPV), labyrinthitis, and Ménière's syndrome (fluctuating hearing usually in one ear, pressure in the ear, ringing in one ear, and attacks of spinning), and some forms of migraine are all causes of vertigo. BPPV occurs when you change the position of your head (typically lying down or sitting up), while inner ear infections can cause labyrinthitis.

**Injury:** A skull fracture that damages the inner ear produces a profound and incapacitating vertigo with nausea and hearing loss. The dizziness will last for several weeks, and then slowly improve as the normal (other) side takes over.

**Infection:** Viruses can attack the inner ear and its nerve connections to the brain. This can result in severe vertigo, but hearing is usually spared. However, a bacterial infection such as mastoiditis that extends into the inner ear will completely destroy both the hearing and the equilibrium function of that ear. The severity of dizziness and recovery time will be similar to that of a skull fracture.

**Allergy:** Some people experience dizziness and/or vertigo attacks when they are exposed to foods or airborne particles (such as dust, molds, pollens, dander, etc.) to which they are allergic.

**Neurological diseases:** A number of diseases of the nerves can affect balance, such as multiple sclerosis, syphilis, tumors, etc. These are uncommon causes, but your doctor will think about them during the examination.

When should I seek medical attention?

Call 911 or go to an emergency room if you experience:

- a head injury,
- fever over 101°F, headache, or very stiff neck,
- convulsions or ongoing vomiting,
- chest pain, heart palpitations, shortness of breath, weakness, a severe headache, inability to move an arm or leg, or change in vision or speech, or
- fainting and loss of consciousness for more than a few minutes.

Consult your doctor if you:

- have never experienced dizziness before,

- experience a difference in symptoms you have had in the past,
- suspect that medication is causing your symptoms, or
- experience hearing loss.

How will my dizziness be treated?

The doctor will ask you to describe your dizziness and answer questions about your general health. Along with these questions, your doctor will examine your ears, nose, and throat. Some routine tests will be performed to check your blood pressure, nerve and balance function, and hearing. Possible additional tests may include a CT or MRI scan of your head, special tests of eye motion after warm or cold water or air is used to stimulate the inner ear (ENG—electronystagmography or VNG—videonystagmography), and in some cases, blood tests or a cardiology (heart) evaluation. Your doctor will determine the best treatment based on your symptoms and the cause of them.

Prevention tips

- Avoid rapid changes in position.
- Avoid rapid head motion (especially turning or twisting).
- Eliminate or decrease use of products that impair circulation, e.g., tobacco, alcohol, caffeine, and salt.
- Minimize stress and avoid substances to which you are allergic.
- Get enough fluids
- Treat infections, including ear infections, colds, flu, sinus congestion, and other respiratory infections

If you are subject to motion sickness:

- Do not read while traveling.
- Do not sit in a seat facing backward.
- Do not watch or talk to another traveler who is having motion sickness.
- Avoid strong odors and spicy or greasy foods immediately before and during your travel.
- Talk to your doctor about medications.

Remember: Most cases of dizziness and motion sickness are mild and self-treatable. But, severe cases and those that become progressively worse deserve the attention of a doctor with specialized skills in diseases of the ear, nose, throat, equilibrium, and neurological systems.