



### Key points

- Vestibular neuritis causes a sudden, severe attack of vertigo (spinning sensation), usually with nausea and vomiting.
- Hearing loss is not a symptom of vestibular neuritis.
- Vestibular neuritis does not come and go – it is a single, major event.
- The acute phase usually lasts 2 or 3 days.
- Balance problems and unsteadiness may persist for several weeks or months.
- Proper treatment and rehabilitation are important for recovery.

### What is vestibular neuritis?

Vestibular neuritis is a condition that causes a sudden, severe attack of dizziness, usually with nausea and vomiting. This attack may last for days. Vestibular neuritis does not come and go; it is a single, major event. But after the attack, people may still have balance problems and unsteadiness for weeks or months.

Vestibular neuritis is sometimes called vestibular neuronitis, acute unilateral vestibular paralysis, epidemic vertigo or acute vestibular syndrome. Vestibular neuritis is sometimes confused with another condition called labyrinthitis, but they are not the same thing.

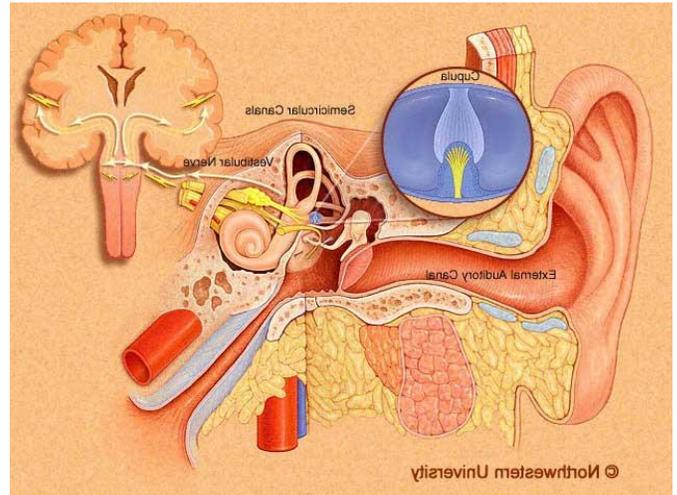
Vestibular neuritis is most common in people aged 30 to 50, but it can happen at any age.

### What causes it?

Vestibular neuritis happens when part of the vestibular system suddenly stops working on one side of the body.

The vestibular system includes the semicircular canals and otoliths in the inner ear. These structures sense head movement, for example when your head tilts, turns or changes speed. Information from these structures travels through the vestibular nerve (also called the 8<sup>th</sup> cranial nerve or vestibulocochlear nerve) to centres in the

brain. Your brain uses these signals from the inner ear vestibular system, together with signals from your eyes, bones, muscles and joints, to help keep you balanced while standing or moving.



*Cutaway of the inner ear. Movement of the head is detected by the semicircular canals and sent to the brain by the vestibular nerve. <sup>1</sup>*

In vestibular neuritis, the inner ear structures are fine. But there is a problem with part of the vestibular nerve. This means that signals from the inner ear vestibular system do not reach the brain. As a result, part of your balance system is missing and you feel severely dizzy and nauseated.

Researchers are not sure what causes the problem with the vestibular nerve. There are several theories:

- The nerve may be attacked by a dormant (inactive) virus that is reactivated for some reason. Some viruses cause an infection and then, instead of leaving the body, hide in the nerve cells and go dormant. They can be reactivated months or years later by stress. Some examples are varicella (chickenpox), which can reactivate as shingles, and herpes simplex virus.
- Inflammation from a viral infection may cause tiny blood clots in the blood vessels around the vestibular nerve and damage it.

- An immune system imbalance may cause the immune system to attack the vestibular nerve, in a process that is like multiple sclerosis.
- Presence of fatty deposits (plaques) in the blood vessels that deliver blood to the brain and head (carotid arteries).

Researchers are still studying all these possibilities.

## What are the symptoms?

The first signs of vestibular neuritis, known as the acute phase, usually include the following symptoms:

- a sudden, severe attack of vertigo (the sensation that you or your surroundings are spinning)
- nausea and vomiting
- balance problems

The acute phase usually lasts for 2 or 3 days, but it can last for a week or longer. It is often severe and disabling: people in the acute phase of vestibular neuritis often cannot stand up or walk, and usually have uncontrollable vomiting.

After the acute phase, people with vestibular neuritis may still have balance problems and unsteadiness. Movement makes these symptoms worse. Some people may be sensitive to visually busy environments (visually induced dizziness). Some people have feelings of ear fullness or tinnitus (ringing in the ears). This is known as the chronic phase. It may continue for weeks or months.

Hearing loss is not a symptom of vestibular neuritis.

## How is it diagnosed?

Vestibular neuritis may be diagnosed by a primary care doctor, an emergency doctor or a specialist, such as a neurologist.

Your doctor will ask about your symptoms and your medical history, including any infections, headaches or migraines you have had in the past.

Your doctor will also do a thorough physical and neurological exam, including looking at eye movements. In the acute stage, the eyes will move spontaneously (nystagmus) towards the healthy ear.

After the acute phase is over, you may have some of the following diagnostic tests:

- hearing tests
- otoscopic exam (using a device called an otoscope to look into your ears)
- imaging (CT or MRI scans)
- vestibular function tests

Vestibular neuritis has some of the same symptoms as stroke, so your doctor needs to carefully rule out more serious conditions.

## How is it treated and managed?

The acute phase of vestibular neuritis normally clears up on its own. Treatment during this phase is aimed at reducing the symptoms and making you as comfortable as possible.

Supportive treatment during the acute phase may include:

- medication to reduce dizziness, either by mouth or through an intravenous (IV) line, such as dimenhydrinate (Gravol<sup>®</sup>) or ondansetron (Zofran<sup>®</sup>)
- IV fluids to replace the fluids lost through vomiting
- steroids to reduce inflammation in the vestibular nerve

People who are at higher risk of dehydration may need to be admitted to a hospital for a short time. Giving antiviral medication does not seem to have any effect.

When the acute phase is over, further treatment is aimed at helping you get back to normal. Between 40 to 60 % of people affected by vestibular neuritis may partially or completely recover nerve function in the first 4 to 6 weeks.

The first recommendation after the acute phase has passed is to begin moving the head and body as naturally as possible. The Cawthorne Cooksey set of exercises, for example, may be done on your own. The goal of these exercises is to encourage compensation.

Compensation is when the brain gets used to not having input from both inner ear vestibular systems. The brain readjusts by using only the healthy side as a reliable source of information to keep the body in balance.

For many, compensation occurs naturally over time, but for people whose symptoms do not reduce and who continue to have difficulty returning to daily activities, vestibular rehabilitation can help with recovery by promoting compensation.

In some people, vestibular neuritis can lead to a problem called persistent postural-perceptual dizziness (PPPD). Part of the goal of treatment is to avoid developing PPPD.

## Vestibular rehabilitation

Vestibular Rehabilitation is a type of exercise therapy. Its goal is to help your brain relearn how to balance and how to respond to signals from the vestibular and visual systems. You may do these exercises on your own, or you may work with a vestibular therapist.

Vestibular rehabilitation may include:

- balance training, first while standing still and then while moving
- walking and other aerobic activities
- exercises to help improve the vestibulo-ocular reflex

Ideally, you should start vestibular rehabilitation as soon as the acute phase is over. The sooner you begin, the sooner you will start to get better. It is important to start slowly and then steadily do more.

Remember that vestibular rehabilitation takes time and effort. Your therapist will teach you the exercises you need to do, but you are the one who needs to do them on schedule.

Medication to reduce dizziness may interfere with recovery at this stage, so do not use it if possible.

## Other treatments

In rare cases, vestibular therapy does not help. If you still have severe symptoms after several months of therapy, your doctor will likely order tests to see if something else is causing the symptoms.

More invasive medical or surgical treatments may be suggested as a last resort when a patient remains debilitated by symptoms despite prolonged therapy.

## What to expect in the future

In some patients the damaged vestibular nerve returns to normal function within four to six weeks. Others may experience unsteadiness for several months.

It is very rare for someone to have more than one attack of vestibular neuritis, and most people recover completely.

But some studies suggest that as many as 1 in 4 people who have vestibular neuritis may go on to develop PPPD (post postural perceptual dizziness). Proper treatment and rehabilitation are very important to give you the best chance of avoiding problems in the future.

## Sources

View sources used for this handout:

<https://bit.ly/2Y00SZM>

Handout updated January 2021.

If you find the information in this handout helpful, we ask for your help in return. The cause of supporting those affected by balance and dizziness disorders with ad-free, up-to-date, evidence-based information written for Canadians needs you. Please become its champion – donate to Balance & Dizziness Canada.

This handout is intended as a general introduction to the topic. As each person is affected differently, speak with your health care professional for individual advice.

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