CONDITION

Benign positional vertigo

Learn how benign positional vertigo causes brief spinning with head movement, how it is diagnosed, and how repositioning maneuvers can help.

WHAT IT IS
Inner-ear balance disorder causing positional vertigo

BODY SYSTEM
Inner ear and balance

MAIN SYMPTOMS
Brief spinning, nausea, imbalance, involuntary eye movements

WHAT CAUSES IT
Displaced inner-ear calcium crystals

HOW IT IS DIAGNOSED
Dix-Hallpike or supine roll test

MAIN TREATMENT
Canalith repositioning procedures

CAN IT BE CURED?
Sometimes - repositioning works, but recurrence occurs

IS IT AN EMERGENCY?
Sometimes - with new weakness or speech changes

LONG-TERM OUTLOOK
Often improves with treatment but may recur

Overview

Benign positional vertigo is usually called benign paroxysmal positional vertigo, or BPPV. It is an inner-ear condition that causes sudden, brief episodes of vertigo when the head changes position. Vertigo is the false feeling that you or your surroundings are spinning or moving.

"Benign" means the condition is not usually life-threatening. "Paroxysmal" means symptoms start suddenly and come in short bursts. "Positional" means certain head positions trigger the symptoms.

BPPV develops when tiny calcium carbonate crystals in the inner ear move out of their usual location. These crystals normally help the brain detect gravity and straight-line movement. When they enter one of the inner ear's fluid-filled balance canals, head movement can shift them and send a false motion signal to the brain.

Common triggers include rolling over in bed, looking up, bending down, or getting in and out of bed. The spinning usually lasts less than a minute after the head stops moving, although nausea or unsteadiness may continue longer.

BPPV matters because it can affect walking, driving, work, sleep, and confidence with daily movement. It can also increase the risk of falling. However, it can often be treated with specific head and body movements that return the loose crystals to an area where they no longer cause symptoms.

Not all dizziness is BPPV. New vertigo can also come from other inner-ear, neurological, heart, or medication-related problems. A clinician can assess the pattern and check for signs that point to another cause.

Symptoms

The main symptom is a brief spinning sensation triggered by a change in head position. An episode often begins after a short delay and settles within seconds after the head becomes still. Symptoms may return each time the triggering movement is repeated.

Other possible symptoms include:

Some people feel mildly off balance between attacks. This may last longer than the spinning itself, especially in older adults or after repeated episodes.

BPPV does not usually cause hearing loss, ringing in the ear, ear pressure, fainting, weakness, numbness, speech trouble, or a constant severe headache. Symptoms such as these may suggest a different or additional condition.

Seek emergency help for new vertigo accompanied by facial drooping, one-sided weakness or numbness, difficulty speaking, severe trouble walking, loss of coordination, double vision, confusion, fainting, or a sudden severe headache. These can be signs of a stroke or another emergency.

Prompt medical assessment is also appropriate for sudden hearing loss, persistent rather than brief vertigo, repeated vomiting that prevents fluid intake, or symptoms after a significant head injury. Brief positional episodes without these warning signs usually can be assessed through routine medical care, although fall precautions remain important.

- Nausea and, less often, vomiting
- Temporary imbalance or unsteadiness
- A floating, tilting, or tumbling sensation

- Rapid, involuntary eye movements called nystagmus
- Anxiety about moving the head or triggering another episode

Causes and risk factors

The balance system in each inner ear contains three loop-shaped semicircular canals. These canals sense head rotation. Nearby structures called the utricle and saccule contain tiny calcium carbonate crystals known as otoconia.

In BPPV, some crystals become dislodged from the utricle. Most often, they float within a semicircular canal. Less commonly, they attach to a structure that senses fluid movement. When the head moves into a certain position, the misplaced crystals disturb the canal fluid and activate balance sensors at the wrong time. The eyes then make a characteristic movement while the person feels vertigo.

The posterior semicircular canal is affected most often, but BPPV can involve the horizontal or anterior canal. The involved canal and ear determine which movements trigger symptoms and which treatment maneuver is appropriate.

In many cases, there is no clear reason the crystals became displaced. Factors associated with BPPV include:

BPPV is not caused by high blood pressure, anxiety, or poor circulation alone. However, these and other health issues may contribute to different forms of dizziness or may exist at the same time.

- Increasing age
- A recent head injury, including a minor injury
- Migraine
- Previous inner-ear inflammation or disease
- Prior ear surgery
- Long periods with the head in one position, such as during an operation or bed rest
- A previous episode of BPPV

Diagnosis

Diagnosis begins with a detailed description of the symptoms. A clinician may ask what "dizzy" feels like, which movements trigger it, how long each episode lasts, and whether there are

hearing changes, headaches, neurological symptoms, falls, or recent injuries.

The examination usually includes eye movements, balance, walking, hearing-related findings, blood pressure, and a basic neurological assessment.

For suspected posterior-canal BPPV, a clinician may use the Dix-Hallpike test. During this test, the head is turned to one side while the person is moved from sitting to a reclined position with the head supported. The clinician watches for vertigo and a specific pattern of nystagmus. The brief symptoms can be uncomfortable, but they usually settle quickly.

A supine roll test may be used when horizontal-canal BPPV is suspected. The person lies on their back while the clinician turns the head from side to side and observes the eye response.

These tests help identify the affected ear and canal. That information is important because repositioning maneuvers are selected according to the BPPV pattern.

Brain imaging is not usually needed when the history and examination clearly match BPPV and there are no additional concerning findings. Imaging or other testing may be appropriate when symptoms are unusual, neurological signs are present, the diagnosis remains uncertain, or treatment does not produce the expected response.

Blood tests generally do not confirm BPPV. Hearing tests may be considered if hearing loss, ringing, or ear pressure is present.

Treatment and management

The main treatment is a canalith repositioning procedure. "Canalith" refers to the loose crystals. The procedure uses a sequence of controlled head and body positions to guide the crystals out of the affected semicircular canal.

The Epley maneuver is commonly used for posterior-canal BPPV. Other maneuvers, such as the Semont maneuver or roll maneuvers, may be used depending on which canal is involved. Improvement may occur after one treatment, but some people need the procedure repeated.

A trained clinician can confirm the BPPV pattern, choose the correct maneuver, and support the head and body safely. This is particularly important for people with neck or back problems, limited mobility, blood vessel disorders, severe balance impairment, or a recent injury.

Home repositioning exercises may be appropriate after a clinician has identified the affected side and explained the correct technique. Performing the wrong maneuver may not help and can provoke symptoms. Online instructions cannot determine which ear or canal is involved.

Medicines do not move the crystals back into place. Drugs that reduce nausea or suppress balance signals may occasionally be used for severe short-term symptoms, but they are not

recommended as routine treatment for BPPV. Some can cause sleepiness and may increase fall risk. A clinician or pharmacist can review whether a medicine is suitable and whether another medication could be contributing to dizziness.

After a maneuver, strict limits on sleeping position or head movement are not routinely required for most people. Follow the treating clinician's instructions, since individual mobility or safety needs may differ.

Until symptoms improve:

Surgery to block an affected canal is rarely considered. It is generally reserved for confirmed, disabling BPPV that continues despite correctly performed repositioning treatments and specialist assessment.

- Sit down promptly if spinning begins.
- Rise slowly and pause before walking.
- Use handrails and keep pathways well lit.
- Ask for help on stairs or in situations where a fall could cause injury.
- Avoid driving, climbing ladders, or operating machinery while vertigo is active or unpredictable.

Complications

BPPV itself does not usually damage the brain or cause hearing loss. Its main complications come from sudden vertigo and loss of balance.

Falls can cause fractures, head injuries, and other harm. Risk may be higher when an episode occurs on stairs, in a bathroom, outdoors on uneven ground, or while getting out of bed in the dark.

Repeated nausea can interfere with eating and drinking. Severe vomiting may lead to dehydration, although this is not typical of brief, uncomplicated episodes.

Some people begin avoiding normal movement because they fear triggering vertigo. Reduced activity can contribute to stiffness, weakness, and lower confidence with walking. Ongoing imbalance may benefit from vestibular rehabilitation, a form of physical therapy focused on balance, eye-head coordination, and safe movement.

BPPV can return after successful treatment. Recurrence does not necessarily mean treatment was performed incorrectly or that a dangerous disorder has developed. However, a fresh assessment may be needed to confirm that the new symptoms are again caused by BPPV.

Follow up

A follow-up assessment is useful if symptoms continue after treatment, return frequently, or no longer follow the usual brief positional pattern. The clinician may repeat positional testing, treat a different canal, or look for another cause of dizziness.

Arrange routine follow-up if you still have mild imbalance, are limiting activity because of fear of falling, or are unsure whether a home maneuver is being performed correctly. A vestibular physical therapist, audiologist, ear specialist, or neurologist may be involved when symptoms are persistent or the diagnosis is unclear.

Seek prompt care if episodes become prolonged, vomiting makes it difficult to drink, you develop sudden hearing changes, or you fall and may have been injured.

Call emergency services for vertigo with new weakness, numbness, facial drooping, speech or vision changes, severe loss of coordination, confusion, fainting, chest pain, or a sudden severe headache. Do not drive yourself for emergency evaluation.

Sources

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