



What is BPPV?

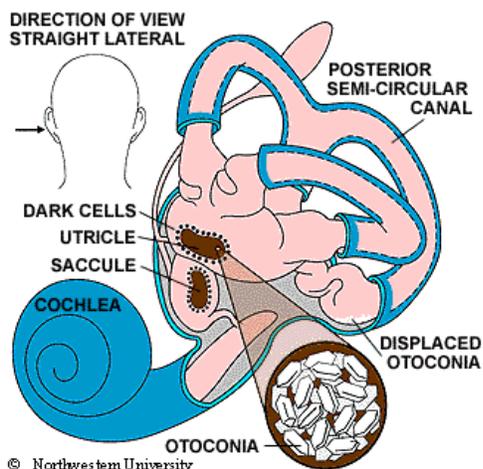
BPPV is short for benign paroxysmal positional vertigo. That is quite a mouthful, but knowing the meaning of each word helps in understanding this condition:

- **Benign** – it is not a life-threatening health problem
- **Paroxysmal** – it comes and goes in short attacks
- **Positional** – it occurs with certain head positions
- **Vertigo** – a spinning sensation

BPPV is the most common inner ear balance problem. It is defined as sudden attacks of vertigo (spinning sensation) that last for less than a minute, always triggered by certain head movement. Triggering movements include: lying flat, sitting up from lying flat; looking up or bending down, especially if also looking to the side; or rolling from one side to the other in bed. Symptoms range from mildly annoying to severe enough to cause vomiting and difficulty standing or walking without losing balance. BPPV affects about 2.5% of people at some point in their lives and becomes progressively more common with age, accounting for 50% of older patients presenting with dizziness.

What causes BPPV?

BPPV is caused by a problem in the balance organs of the inner ear (*see diagram below*). Tiny calcium carbonate crystals (**otoconia**) detach from the **utricle** (gravity receptor organ) where they normally belong and float into one or more of the fluid-filled **semi-circular canals**. It most commonly affects one of the posterior (rear) semi-circular canals. When enough of these crystals clump together normal fluid motion in the canal is disrupted. This causes a false message to be sent to the brain when the head is moved in a certain way. The result is brief spells of **vertigo** (spinning sensation) each time that specific head movement is repeated.



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Are there different types of BPPV?

There are two types of BPPV: In the first and more common variant, **canalithiasis**, the crystals become free-floating particles; in the second, **cupulolithiasis**, the crystals get stuck on a little hinged area of a canal. BPPV can be caused by trauma to the head or viral infections of the inner ear, but it most commonly occurs without any apparent cause. If you get BPPV once, you are likely to get it again, but when is not known.

What are the risk factors?

The following make you prone to having BPPV:

- head injuries
- aging
- jarring activities such as heading a soccer ball
- ear infections
- ear surgery
- other ear disorders such as Ménière's disease
- medications that damage the ear
- unusual head positions, for example leaning your head back for a long time at the dentist or hairdresser.

How is BPPV diagnosed?

Most family doctors or an audiologist or physiotherapist with advanced training in vestibular disorders can diagnose a problem with crystals in the posterior semi-circular canal, the most common type of BPPV.

Following a series of questions about your vertigo, your head will be moved in a series of motions called the **Dix-Hallpike manoeuvre**. The examiner will closely observe your eye movements as the manoeuvre is done and ask how you are feeling. The direction of your eye movements is used as a clue to diagnosing which canal contains the crystals. As the eye movement is sometimes very rapid, you may be asked to put on special goggles; these connect to a monitor that clearly graphs the movement. Otolaryngologists (ENTs) or highly specialized neuro-otolaryngologists may need to be consulted to diagnose BPPV affecting a lateral or anterior semicircular canal, several canals at once, cupulolithiasis, or BPPV that is resistant to treatment or recurring.

How is BPPV treated?

Most cases of BPPV can be successfully treated by the **Epley manoeuvre**, a procedure done in a doctor, audiologist, occupational therapist or physiotherapist's office. The head is moved through a series of motions to return the crystals to where they belong. Symptoms usually subside immediately after the manoeuvre and the crystals reabsorb over the coming days.

Repositioning manoeuvres for BPPV are about 80 to 90 percent successful and one treatment is often enough. Sometimes, however, more than one manoeuvre or treatment is needed. If the Epley manoeuvre is not done perfectly or if the head is lifted up, for example, some of the particles will fall backwards or into another canal. Sometimes the examiner sees a different and unexpected eye movement; this indicates that the particles have moved into another canal requiring a different manoeuvre to fix the problem. And sometimes the Epley manoeuvre moves some of the particles but not all, requiring another treatment. Very rarely, surgery may be considered if the repositioning manoeuvres are unsuccessful or if the BPPV recurs.

Can medication help?

BPPV is essentially a mechanical disorder and there are no medications that will cure it. Some medications, such as antihistamines and sedatives, act as **vestibular suppressants** and reduce the spinning sensation of vertigo – using them for a short period of time can help control severe nausea and vomiting. However because vestibular suppressants slow down the brain's ability to adjust to the abnormal signals triggered by the particles in the inner ear, they should not be taken for an extended period of time.

What are less common variants of BPPV?

A minority of patients have less common variants of BPPV. They may have crystals stuck in a canal, in more than one canal, or on both sides of their head. These patients are difficult to diagnose and treat. Their eye movements are complicated and it takes a specialist lot of time, expertise and patience to figure out the problem.

- **Cupulolithiasis** is challenging to treat. The eye movements last longer and can be quite pronounced. Usually Epley manoeuvres alone will not move the clump of particles stuck on the hinged area of the canal. In these cases, a skull vibrator is sometimes successfully applied to convert them to free-floating particles, which are easier to treat.
- **Particles in the horizontal canal** are very troublesome for most patients; again, the symptoms can be quite pronounced. They are diagnosed by simply watching eye movements as a patient rolls from one side to the other while lying down. It is, however, very complicated to determine which ear is impacted. By analyzing a graph of the rapid eye movements, a neuro-otologist can figure out if the left or right ear is involved. The treatment consists of the aptly named “barbecue roll”; the patient is turned round and round as though on a spit, causing dizziness and discomfort for many individuals.
- The patient frequently inadvertently treats **particles in the anterior canal**. Because the stones usually are at the top of the head, lying down or sitting up causes them to fall back where they belong. Often patients make themselves better even before they reach the specialist’s office. In some patients, the particles get stuck on the hinged joint and that can be a problem. However the Dix-Hallpike manoeuvre usually fixes this, so many health

professionals are are coincidentally fixing the problem during testing.

What if the manoeuvres don’t work?

Some people with BPPV, no matter how many times they are treated, continue to have vertigo. Surgery is very occasionally done to plug a canal; however, particles may fall into the other two canals and start causing dizziness. Blocking a canal is not a common procedure and is only done after every other treatment has been tried as patients are at risk of hearing loss in that ear.

Do you have questions?

Take a few minutes to write your questions for the next time you see your health-care provider.

My questions:

This is one in a series of **BC Balance & Dizziness** information sheets written and reviewed by vestibular specialists.

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