

(utricle) where these particles don't cause trouble. Each step is held for about 30 seconds. The success rate for this procedure is as high as 90 percent.

After the procedure, you must keep your head upright for 48 hours, even as you sleep. This allows time for the particles floating in your labyrinth to settle into your utricle. You may need to wear a neck collar to prevent tilting your head. It may be necessary to repeat the procedure several times.

Your Doctor may also suggest some exercises you can perform at home, the modified Epley maneuvers. There is one set of exercises for the left side and one for the right side, depending on which side provokes your symptoms (illustrated at the end of this pamphlet).

Self-care

If you experience dizziness associated with BPPV, consider these tips:

- Be aware of the possibility of losing your balance, which can lead to falling and serious injury.
- Sit or lie down immediately when you feel dizzy.
- Avoid driving a car or operating heavy machinery if you experience frequent episodes of BPPV.
- Avoid sleeping on the side of your affected ear.
- When getting out of bed, do so slowly. Sit on the edge of the bed for a minute.
- Avoid bending down to pick something up. Don't extend your head back, such as when getting something from an upper cabinet.
- Be careful when getting up from lying back at the dentist's office, beauty parlour or barbershop, or during activities such as yoga or massage.
- Use two or more pillows at night to avoid lying completely flat.
- Use good lighting if you get up in the night.

- Walk with a cane for stability.
- Avoid using caffeine, alcohol and tobacco. Excessive use of these substances can constrict your blood vessels and worsen your symptoms.
- Work closely with your doctor to manage your symptoms effectively.

Coping skills

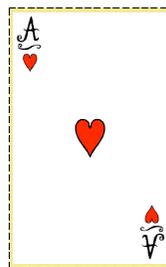
Living with BPPV can be challenging. It may affect your interaction with friends and family, your productivity at work, and the overall quality of your life. You may find encouragement and understanding in a support group. Although support groups aren't for everyone, they can be good sources of information. Group members often know about unique coping skills and tend to share their own experiences. If you're interested, your doctor may be able to recommend a group in your area.

By Mayo Clinic staff

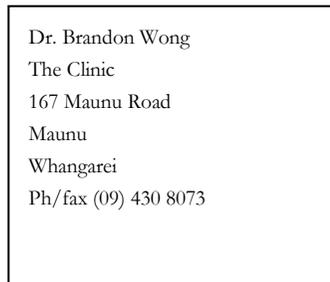
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Benign Paroxysmal Positional Vertigo (BPPV)

(from Dr. Brandon Wong FRACP)

Overview

If you've ever peered down from a scenic mountain overlook or from the balcony of a tall building, you may have experienced vertigo — the sudden, unsteady sensation that you or your surroundings are moving. It feels like you're spinning around on a merry-go-round.

Benign paroxysmal positional vertigo (BPPV) is the most common form of vertigo. The condition is characterized by brief episodes of intense dizziness associated with a change in the position of your head. It may occur when you move your head in a certain direction, lie down from an upright position, turn over in bed or sit up in the morning. Moving your head to look up also can bring about an episode of BPPV.

Vertigo usually results from a problem with the nerves and the structures of the balance mechanism in your inner ear (vestibular labyrinth) that sense movement and changes in the position of your head. BPPV occurs when tiny particles in your inner ear that help maintain your balance break loose and fall into the wrong part of the canals of your inner ear. When these particles shift, they stimulate sensors in your ear, producing an episode of vertigo.

Although BPPV can be a bothersome problem, it's rarely serious. You can receive effective treatment during a doctor's office visit.

Signs and symptoms

The signs and symptoms of BPPV may include:

- Dizziness
- A sense that you or your surroundings are spinning or moving (vertigo)
- Lightheadedness
- Unsteadiness
- A loss of balance
- Blurred vision following quick head movements

- Nausea
- Vomiting

The signs and symptoms of BPPV can come and go, with episodes commonly lasting only a few seconds. Episodes of BPPV can disappear for some time, then recur at a later date. Activities that bring about the signs and symptoms of BPPV can vary from person to person, but are almost always brought on by a change in the position of your head. Abnormal rhythmic eye movements (nystagmus) usually accompany BPPV. Although possible, it's unlikely to have BPPV in both ears (bilateral BPPV).

Causes

The organ of balance in your inner ear is the vestibular labyrinth. It includes loop-shaped structures (semicircular canals) that contain fluid and fine, hair-like sensors that monitor the rotation of your head. Near the semicircular canals is the utricle, which contains tiny granules or crystals of calcium carbonate (otoconia). These particles are attached to sensors that help detect back-and-forth motion.

BPPV occurs when the particles within the labyrinth loosen and float in the fluid. In certain positions they can irritate the nerve endings associated with balance, giving a false signal of movement and causing a brief sensation of spinning.

BPPV most often is a natural result of aging. It also can occur after a blow to the head. Less common causes of BPPV include a virus affecting your ear, or the combination of trauma to your ear during ear surgery and prolonged positioning on your back (supine) during the procedure.

Doctors usually can determine the cause of BPPV. It may require a consultation with an ear, nose and throat (ENT) specialist or a neurologist. However, sometimes no cause can be determined.

Risk factors

Aside from natural aging, there are no significant factors that may increase your risk of BPPV. However, a prior head injury or an infection of the balance organs of your ear (labyrinthitis) may make you slightly more susceptible to BPPV.

When to seek medical advice

Generally, see your doctor if you experience any unexplained, recurrent or severe dizziness. Although it's uncommon for dizziness to signal a serious illness, see your doctor immediately if you experience dizziness or vertigo along with any of the following:

- A new, different or severe headache
- Double vision or loss of vision
- Hearing loss
- Speech impairment
- Leg or arm weakness
- Loss of consciousness
- Falling or difficulty walking
- Numbness or tingling
- Chest pain or rapid or slow heart rate

These signs and symptoms may signal a more serious problem, such as stroke, brain tumor, Parkinson's disease, multiple sclerosis or diseases of your heart or blood vessels (cardiovascular disease).

Screening and diagnosis

Your doctor may conduct a series of tests to determine what form of vertigo you have and whether your positional disorientation is a symptom of a different disorder. During a physical examination, your doctor will likely look for:

- Signs and symptoms of vertigo that generally decrease in less than one minute
- Vertigo that occurs when you tip your head back or lie on a particular side
- Involuntary movements of your eyes from side to side (nystagmus)

If the cause of your signs and symptoms is difficult to diagnose, your doctor may order additional testing, such as:

- **Electronystagmography (ENG).** The purpose of this test is to detect abnormal rhythmic eye movement often characteristic of BPPV. ENG can help determine if dizziness is due to inner ear disease by measuring involuntary eye movements while your balance is stimulated in different ways.
- **Rotatory chair test.** This test determines if dizziness is caused by a disorder of your inner ear or brain. The movements of your eye are recorded as you focus on various lights while you turn slowly in a motorized chair.
- **Magnetic resonance imaging (MRI).** This technique uses a magnetic field and radio waves to create cross-sectional images of your head and body. Your doctor can use these detailed, clear images to identify and diagnose a wide range of conditions. MRI may be performed to rule out acoustic neuroma (a noncancerous brain tumor of the acoustic nerve, which carries sound from the inner ear to the brain) or other lesions that may be the cause of vertigo.

Complications

Dizziness due to BPPV can increase your risk of falling. Accidents while driving a car or operating heavy machinery are more likely. You may also experience long-term consequences if an existing health condition that may be causing your dizziness goes untreated.

Treatment

To help relieve BPPV, your doctor may instruct you in a series of movements known as the canalith repositioning procedure. Performed in your doctor's office, this procedure consists of several simple maneuvers for positioning your head. The goal is to move particles from the fluid-filled semicircular canals of your inner ear (vestibular labyrinth) back into a tiny bag-like structure