



# Vestibular Disorders Association

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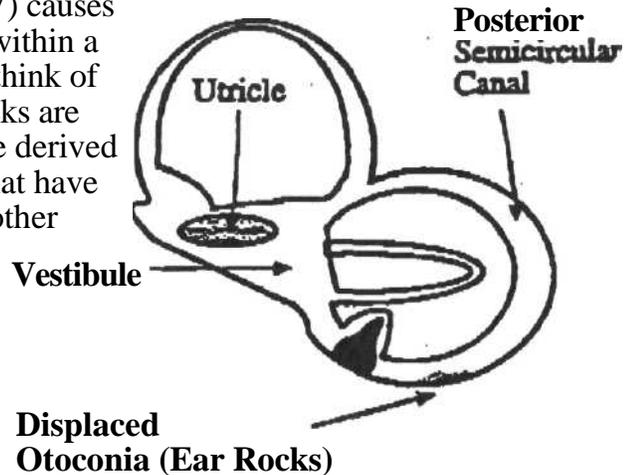
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## R-5: BENIGN PAROXYSMAL POSITIONAL VERTIGO

By Timothy C. Hain, MD Chicago, Illinois

Benign Paroxysmal Positional Vertigo (BPPV) causes dizziness due to debris which has collected within a part of the inner ear. (See picture.) You can think of this debris as "ear rocks." Chemically, ear rocks are small crystals of calcium carbonate. They are derived from structures in the ear called "otoliths" that have been damaged by head injury, infection, or other disorder of the inner ear, or degenerated because of advanced age.



The symptoms of BPPV include dizziness or vertigo, lightheadedness, imbalance, and nausea. Activities which bring on symptoms will vary in each person, but symptoms are almost always precipitated by a position change of the head with respect to gravity. Getting out of bed or rolling over in bed are common "problem" motions. Because people with BPPV often feel dizzy and unsteady when they tip their heads back to look up, sometimes BPPV is called "top shelf vertigo." Women with BPPV may find that the use of hair dryers in beauty parlors brings on symptoms. An intermittent pattern is the usual situation, BPPV may be present for a few weeks, then stop, then come back again.

**WHAT CAUSES BPPV?** The most common cause of BPPV in people under age 50 is head injury. In older people, the most common cause is degeneration of the vestibular system of the inner ear. However, in perhaps half of all cases, BPPV is called "idiopathic," which means it occurs for no known reason.

**HOW IS THE DIAGNOSIS OF BPPV MADE?** Your physician can make the diagnosis based on your history, findings on physical examination, and the results of vestibular and auditory tests. Blood pressure will be checked lying flat and standing. Other diagnostic studies may be required. An *ENG* may be needed to look for the

characteristic nystagmus (jumping of the eyes). An *MRI* scan will be performed if there is any possibility of a stroke or brain tumor. A *rotatory chair test* may be used for difficult diagnostic problems. It is possible to have BPPV in both ears (bilateral), which may make diagnosis and treatment more challenging.

**HOW MIGHT BPPV AFFECT MY LIFE?** Certain modifications in your daily activities may be necessary to cope with your dizziness. Use two or more pillows at night. Avoid sleeping on the "bad" side. In the morning, get up slowly and sit on the edge of the bed for a minute. Avoid bending down to pick up things, and extending the head, such as to get something out of a cabinet. Be careful when at the dentist's office, beauty parlor, or in sports activities or positions where the head is flat or extended.

**HOW IS BPPV TREATED?** BPPV has often been described as "self-limiting" because symptoms often subside or disappear within six months of onset. Symptoms tend to wax and wane. Motion sickness medications are sometimes helpful in controlling the nausea associated with BPPV but are otherwise rarely effective. However, various kinds of physical maneuvers and exercises have proved effective. Three varieties of conservative treatment, which involve exercises, and a treatment that involves surgery are described on the next page.

## **WHERE ARE BPPV EVALUATIONS AND TREATMENTS DONE?**

This list contains people who are known for treating BPPV.

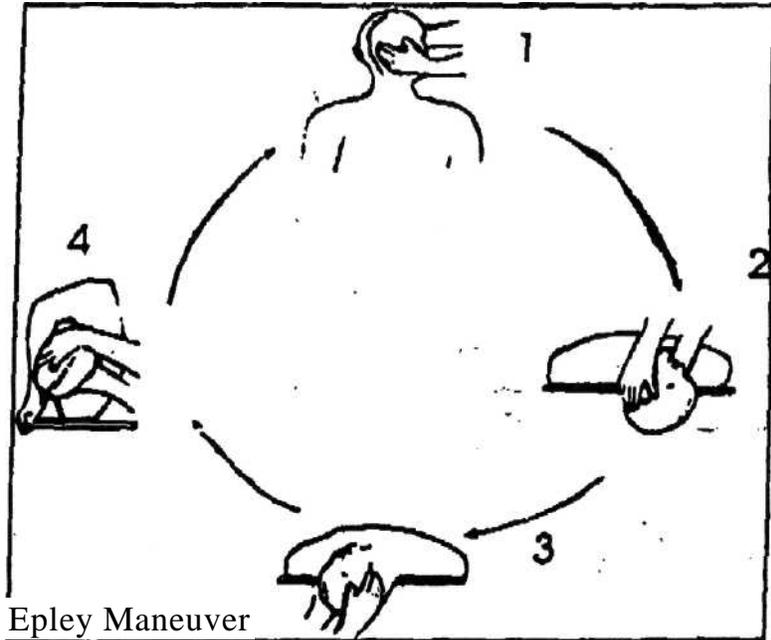
### Physical Treatments

Midwest:	Dr. T. Hain (Northwestern Memorial Hospital, Chicago, Illinois) Dr. N. Shepard (Taubman Medical Center, Ann Arbor, Michigan)
West Coast:	Dr. J. Epley (Portland Otologic Clinic, Portland, Oregon) Dr. F. Black (Dcw Neurological Institute, Portland, Oregon) Dr. R. Baloh (UCLA, Los Angeles, California)
Mountain States:	Dr. I. Arenberg (Denver, Colorado)
East Coast	Dr. D. Zee (Johns Hopkins Hospital, Baltimore, Maryland)
South:	Dr. S. Herdman (Miami, Florida) Dr. J. Li (Palm Beach Gardens, Florida) Dr. R. Steenerson (Atlanta, Georgia)
Canada:	Dr. L. Parnes (Toronto, Ontario)
Europe:	Dr. A. Semont (Paris, France)

# OFFICE TREATMENT OF BPPV (The Epley and Semont Maneuvers)

There are two treatments of BPPV that are usually performed in the doctor's office. Both are very effective, with roughly an 80% cure rate, according to a study by Herdman and others (1993).

The maneuvers are named after their inventors. They are both intended to move debris or "ear rocks" out of the sensitive back part of the ear (posterior canal) to a less sensitive location. Both maneuvers take about 15 minutes to accomplish. The Semont maneuver (also called the "liberatory" maneuver) involves a procedure whereby the patient is rapidly moved



from lying on one side to the other. The Epley maneuver (also called the particle repositioning, canalith repositioning procedure, and modified liberatory maneuver) is shown in the figure above. It involves sequential movement of the head into four positions. The recurrence rate for BPPV after these maneuvers is about 5 percent, and in some instances a second treatment may be necessary.

After either of these maneuvers, you should be prepared to follow the instructions below, which are aimed at reducing the chance that debris might fall back into the sensitive back part of the ear.

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# INSTRUCTIONS FOR PATIENTS AFTER OFFICE TREATMENTS

## (Epley or Semont Maneuvers)

1. *Wait for 10 minutes after the maneuver is performed before going home.* This is to avoid "quick spins," or brief bursts of vertigo as debris re-positions itself immediately after the maneuver. Don't drive home yourself; have someone else drive you.

2. *Sleep semi-recumbent for the next two days.* This means sleep with your head halfway between being flat and upright (a 45 degree angle). This is most easily done by using a recliner chair or by using pillows arranged on a couch. During the day, try to keep your head vertical. You must not go to the hairdresser or dentist. No exercise which requires head movement. When men shave under their chins, they should bend their bodies forward in order to keep their head vertical. If eyedrops are required, try to put them in without tilting the head back. Shampoo only under the shower.

3. For at least 1 week, *avoid provoking head positions* that might bring this on again.

Use two pillows when you sleep.

Avoid sleeping on the "bad" side.

Don't turn your head far up or far down.

Be careful to avoid head-extended position, in which you are lying on your back, especially with your head turned towards the bad side. This means be cautious at the beauty parlor, dentist's office, and if having minor surgery done. Ask them to keep you as upright as possible. If appropriate, exercises for low-back pain should be stopped for a week. No "sit-ups" for at least one week. No "crawl" swimming. (Breast stroke is OK.)

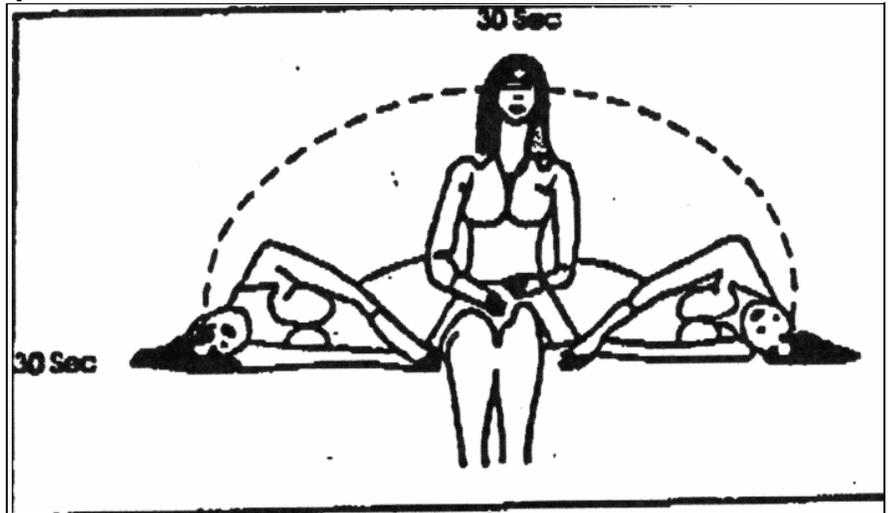
Avoid far head-forward positions such as might occur in certain exercises (i.e. touching the toes).

4. At one week after treatment, put yourself in the position that usually makes you dizzy. Position yourself cautiously and under conditions in which you can't fall or hurt yourself. Let your doctor know how you did.

**WHAT IF THE MANEUVERS DON'T WORK?** These maneuvers don't always work (only 80% of the time), and if they don't, then your doctor may wish you to proceed with the Brandt-Daroff exercises, as described below. If a maneuver works but symptoms recur or the response is only partial, another trial of the maneuver might be advised.

## HOME.TREATMENT OF BPPV (Brandt-Daroff Exercises)

The Brandt-Daroff Exercises are a second method of treating BPPV, usually used when the office treatment fails. They succeed in 95% of cases but are more arduous. These exercises are performed in three sets per day for two weeks. In each set, one performs the maneuver below five times.



Brandt-Daroff Exercises

1 rep = maneuver done to each side in turn (takes 2 minutes)

Suggested Schedule:

<u>Time</u>	<u>Exercise</u>	<u>Duration</u>
Morning	5 reps	10 min
Noon	5 reps	10 min
Evening	5 reps	10 min.

One starts upright. Then, one moves into the side-lying position, with the head angled upward about half way. An easy way to remember this is to imagine someone standing in front of you, and just keep looking at their head at all times. Stay in the side-lying position for 30 seconds, or until the dizziness subsides if this is longer, then *go* back to the sitting position. Stay there for 30 seconds, and then go to the opposite side in the same way.

If, during a session, the exercise fails to produce symptoms, stop the exercises for that day. If no symptoms can be produced during the first session of the next day, then stop the exercises entirely. In most persons, complete relief from symptoms is obtained by one week. The Brandt-Daroff exercises as well as the Semont and Epley maneuvers are compared in an article by Brandt (1994), listed in the reference section.

## SURGICAL TREATMENT OF BPPV (Posterior Canal Plugging)

If exercises are ineffective in controlling symptoms and they have persisted for a year or longer, a surgical procedure called "canal plugging" may be recommended. Canal plugging completely stops the posterior canal's function without affecting the functions of the other canals or parts of the ear. This procedure poses a small risk to hearing.

## REFERENCES CONCERNING BPPV:

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