

The Epley manoeuvre

For benign paroxysmal positional vertigo

The Epley manoeuvre (canalith repositioning) can be used to treat posterior canal benign paroxysmal positional vertigo (BPPV). BPPV is characterised by brief episodes of vertigo related to rapid changes in head position. BPPV can be confirmed by the Dix-Hallpike positional test. The Epley manoeuvre is easily performed in the clinic, or by the patient, and is described in detail in this article. It has NHMRC Level I evidence of efficacy and no serious adverse effects have been reported.

This article forms part of a series on non-drug treatments, which summarise the indications, considerations and the evidence, and where clinicians and patients can find further information.

The condition

What is BPPV?

Benign paroxysmal positional vertigo (BPPV) is a syndrome characterised by episodes of vertigo, which last for approximately 1–60 seconds, are related to rapid changes in head position, particularly movements related to gravity and those involving neck extension (eg. lying down in bed, reaching up for high objects, bending over) and may be associated with nausea and vomiting, which can last for up to several hours.

Benign paroxysmal positional vertigo is believed to be due to debris (canaliths) in the semicircular canals of the ear. Canaliths may continue to move after the head stops moving, with stimulation of the vestibular nerve leading to vertigo.

Symptoms of BPPV usually resolve spontaneously within 1–2 weeks, but may persist for up to several months. Attacks tend to occur in clusters and symptoms may recur, following periods of apparent remission.

What causes BPPV?

Although most cases are unexplained, BPPV is associated with head trauma, vestibular neuritis, vertebrobasilar ischaemia, labyrinthitis, middle ear surgery and periods of prolonged bed rest.

How is BPPV confirmed?

Posterior canal BPPV is confirmed by a positive Dix-Hallpike positional test (the 'Hallpike manoeuvre'), with unequivocal features of positional nystagmus. The test is not positive in patients with anterior and horizontal semicircular canal BPPV, both of which are much less common.

A positive Dix-Hallpike positional test provokes vertigo and nystagmus when the patient is moved from a sitting position to lying down, with the head tipped 45 degrees below the horizontal, 45 degrees to the side and with the side of the affected ear (and semicircular canal) downward. The nystagmus typically has a latency of a few seconds before onset and fatigues after approximately 30–40 seconds. The nystagmus is rotatory with the fast phase beating toward the lower ear (geotropic) and adapts with repeated testing. Optic fixation (when the eyes are fixed on a specific object) may reduce the severity of the nystagmus.

Are there any key differentials to consider?

Benign paroxysmal positional vertigo needs to be distinguished from central positional vertigo, which may occur with:

- multiple sclerosis
- cerebellar disease
- brainstem ischaemia
- migraine.

BPPV is typically associated with intense vertigo, which is usually less marked in central positional vertigo. Furthermore, nystagmus often persists in central positional vertigo when the head is maintained in the same position.

The intervention

How to do the Epley manoeuvre

General practitioners, patients, other medical practitioners and physiotherapists can administer the Epley manoeuvre.

Requirements: a bed or table that can be accessed from both sides and which allows for the patient's head to be positioned off the end of the table. A bowl is advisable in case of vomiting.

Figure 1 illustrates the Epley manoeuvre for treating left-sided posterior semicircular canal disease.

What should I consider?

Considerations

Special care should be taken with both the Dix-Hallpike test and the Epley manoeuvre in patients with neck pain, stiffness or discomfort and in those with neck injury, severe cervical spondylosis or severe positional dizziness or vertigo. Infrequently patients are unable to tolerate the manoeuvre because of cervical pain, stiffness or discomfort.

Adverse effects

No serious adverse effects have been reported. Common side effects include vertigo and nausea (and sometimes vomiting) during the manoeuvre.

Evidence

National Health and Medical Research Council (NHMRC) Level I evidence (systematic review of randomised controlled trials) that the Epley manoeuvre is safe and effective for the treatment of posterior semicircular canal BPPV, until symptoms resolve.

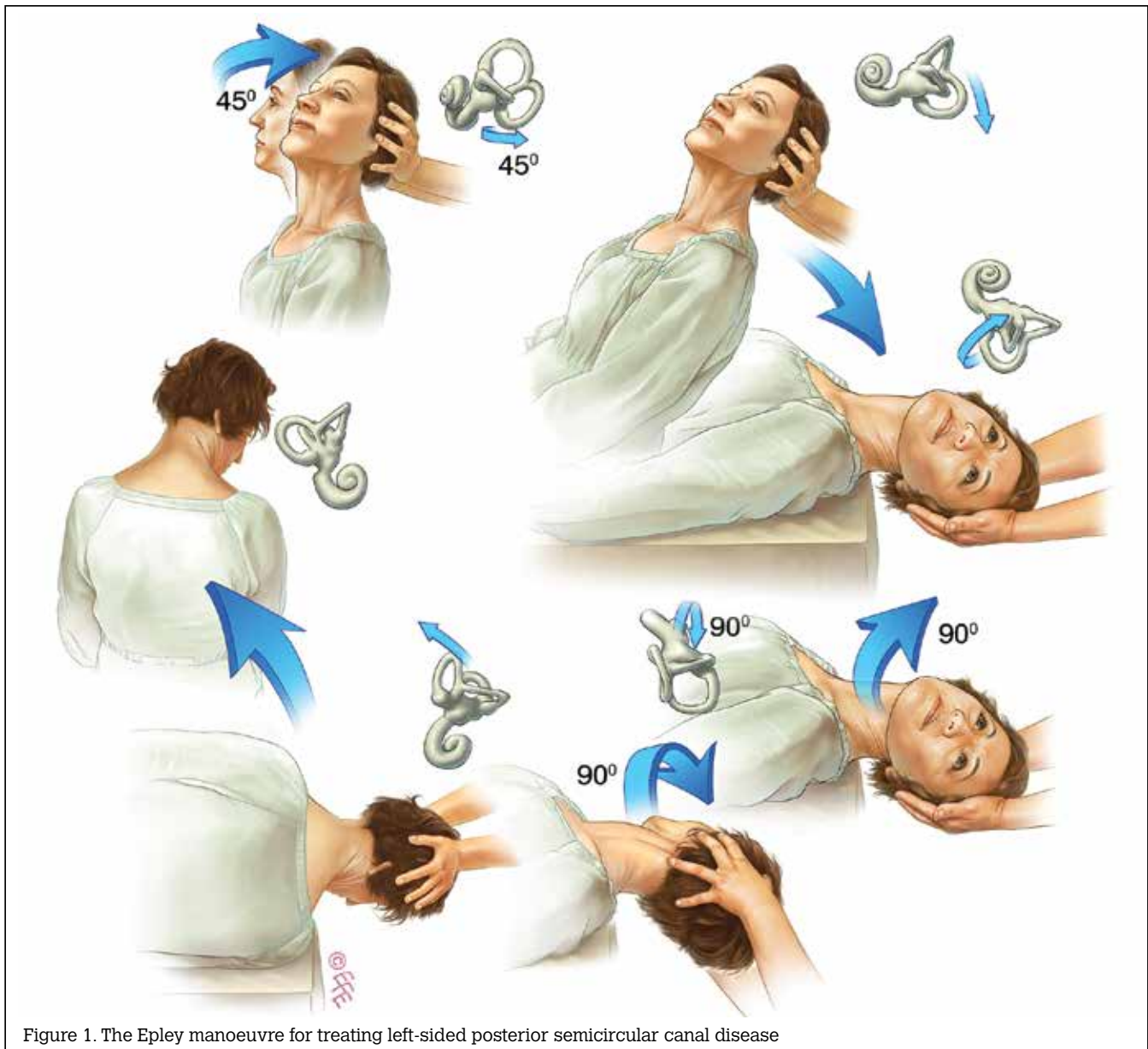


Figure 1. The Epley manoeuvre for treating left-sided posterior semicircular canal disease

Anything else?

In patients refractory to the Epley manoeuvre, diagnoses such as central positional vertigo and anterior and horizontal semicircular canal BPPV should be re-considered. Formal vestibular function testing is sometimes required to confirm the diagnosis.

Resources

Key references

- von Brevern M, Radtke A, Lezius F, et al. Epidemiology of benign paroxysmal positional vertigo: a population based study. *J Neurol Neurosurg Psychiatry* 2007;78:710–5
- Furman JM, Cass SP. Benign, paroxysmal positional

vertigo. *Figure 3. N Engl J Med* 1999;341:1590–6

- Hilton MP, Pinder DK. The Epley (canalith repositioning) manoeuvre for benign paroxysmal positional vertigo. *Cochrane Database Syst Rev* 2004;2:CD003162.

Clinician resource

Video links to the Epley manoeuvre and the Dix-Hallpike test can be found at <http://ent.cochrane.org/tools-support-reviews>.

Patient resource

The Better Health Channel has consumer information about BPPV at www.betterhealth.vic.gov.au/bhcv2/bhcarticles.nsf/pages/Vertigo_benign_paroxysmal_positional_vertigo?open.

Authors

HANDI Project Team.

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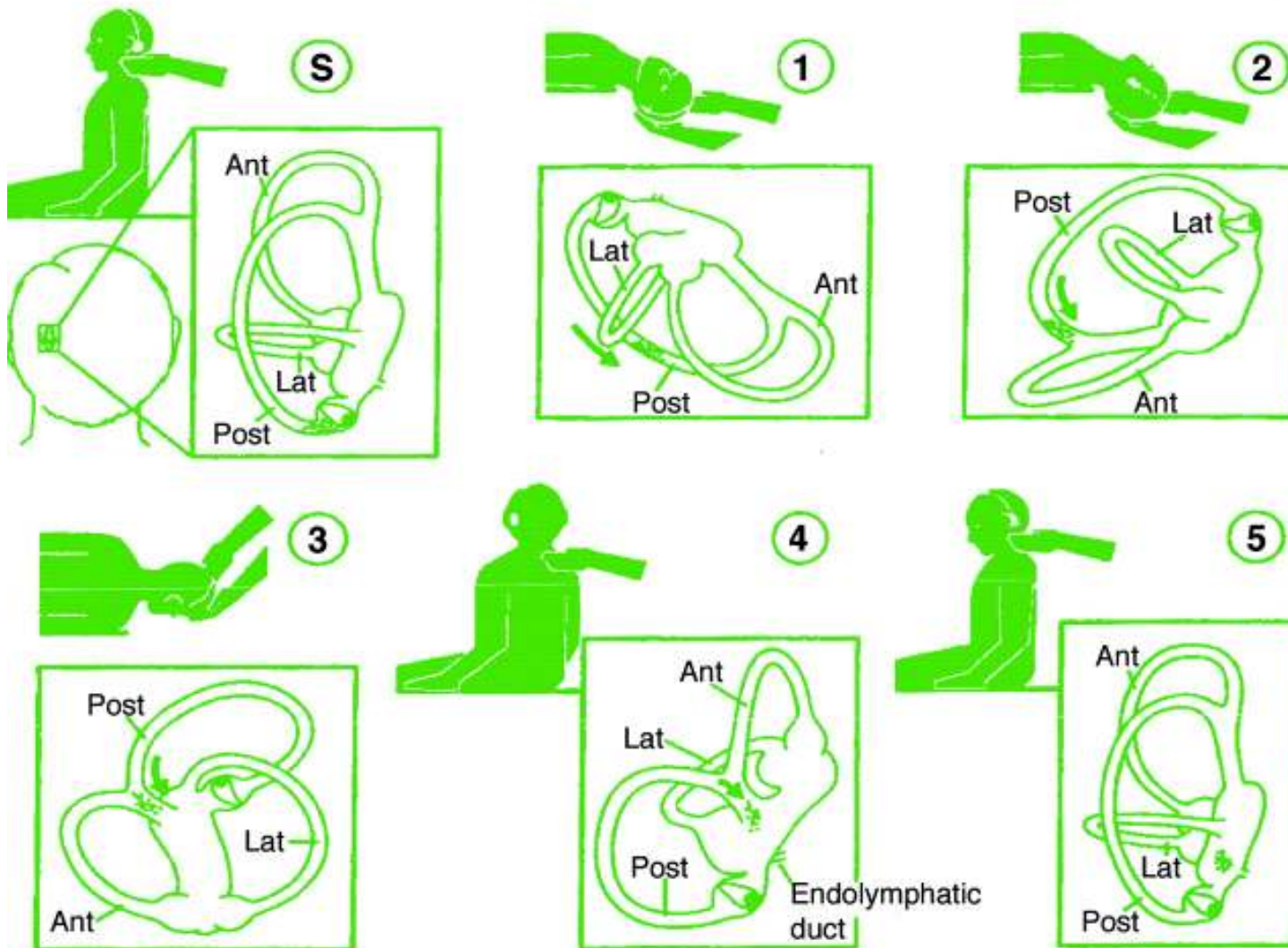
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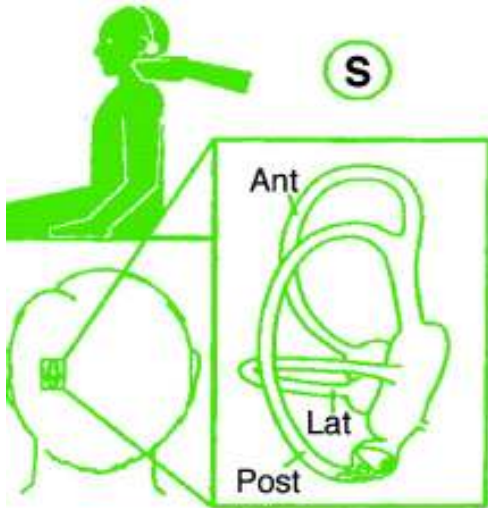
correspondence afp@racgp.org.au

Epley manoeuvre

- 80% quoted success rate
- Easy to perform
- Repositions “crystals”
- Explain to patient beforehand
- Some post-manoevre instructions also
 - See separate patient handout also



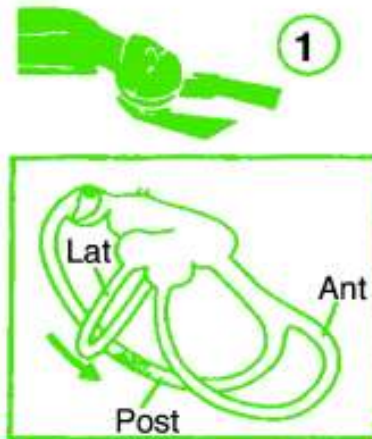
EPLBY Manoeuvre – see following slides



Start with patient sitting on couch.
Same position as for Dix Hallpike testing

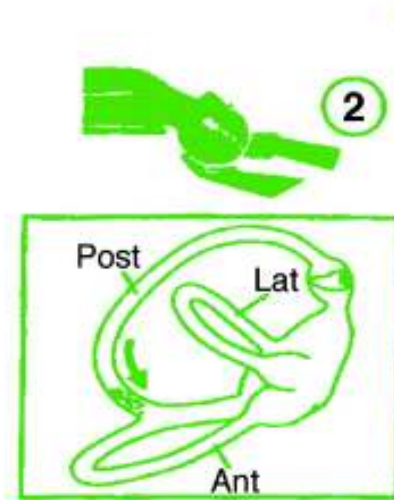
Turn patient's head toward affected side.
Pause in this position for 30 seconds

EPLÉY Manoeuvre



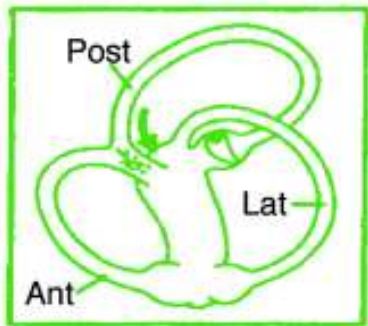
Lie patient flat, as for Dix-Hallpike but not as rapidly
This and all parts of Epley are undertaken slowly and smoothly
Support the head throughout
Head remains turned to affected side and is hanging off end of couch
Pause in this position for 30 seconds

EPLEY Manoeuvre



Turn the patient's head towards the good ear
This and all parts of Epley are undertaken slowly and smoothly
Pause in this position for 30 seconds

EPLEY Manoeuvre



Keeping head looking in same direction, ask patient to gently move to lie on hip and shoulder of good side.

Then turn head toward good ear. Will now be looking at floor, with chin close to shoulder

All parts of Epley are undertaken slowly and smoothly

Pause in this position for 30 seconds

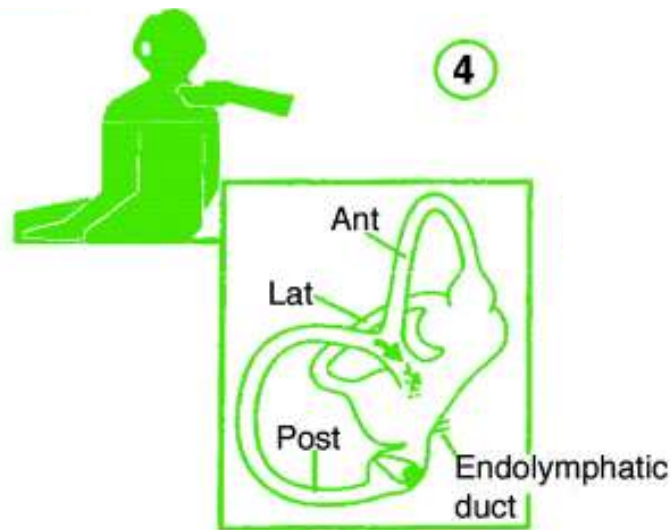
EPLEY Manoeuvre

Gently bring patient to sitting position.

Ensure head position does not change relative to trunk (chin still on shoulder of good side)

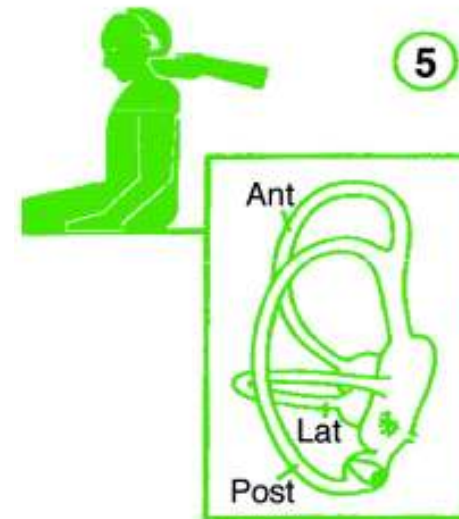
This and all parts of Epley are undertaken slowly and smoothly

Pause for 30 seconds



EPLEY Manoeuvre

Finally, turn head to centre and flex neck to put chin on chest in one movement
Pause for 30 seconds



EPLÉY Manoeuvre

Epley manoeuvre

Post-manoeuvre instructions

- Patient not to drive home after Epley
- Patient to avoid lying flat for 2 nights after
- For a further 5 nights, avoid lying on bad side:
 - Sleep on good side with pillow behind back to act as a barrier to rolling over
- See also separate patient handout

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 repositions itself immediately after the maneuver. Don't drive yourself home.

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2. *Sleep semi-recumbent for the next night.* 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 (see figure 3). 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 eye drops are required, try to put them in without tilting the head back. Shampoo only under the shower. Some authors suggest that no special sleeping positions are necessary (Cohen, 2004; Massoud and Ireland, 1996). We, as do others, think that there is some value (Cakir et al, 2006)

3. For at least one week, *avoid provoking head positions* that might bring BPPV 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 affected side. This means be cautious at the beauty parlor, dentist's office, and while undergoing minor surgery. Try to stay as upright as possible. Exercises for low-back pain should be stopped for a week. No "sit-ups" should be done for at least one week and no "crawl" swimming. (Breast stroke is OK.) Also avoid far head-forward positions such as might occur in certain exercises (i.e. touching the toes). Do not start doing the Brandt-Daroff exercises immediately or 2 days after the Epley or Semont maneuver, unless specifically instructed otherwise by your health care provider.

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.