

Alberta Health Services





Advice options 📀



EXPANDED DETAILS

Dizziness is a non-specific term and the sensations described by a dizzy patient should be further defined. Vertigo is type of dizziness where one experiences an illusory sensation of motion of either the self or surroundings. The illusion of movement in patients with vertigo may be described as spinning, swaying or tilting. These symptoms help differentiate vertigo from other types of dizziness which may be described as light-headedness, disorientations, fainting and disequilibrium.

Vertigo may be a symptom of a large range of diagnoses from benign (most common e.g. Benign Paroxysmal Positional Vertigo - BPPV) to immediately life threatening (e.g. brainstem/cerebellar stroke - see alarm features). In most cases, the clinical history and examination help distinguish those patients that require immediate neurological attention. BPPV and vestibular neuritis are two of the most common peripheral causes of vertigo that will be seen in a Primary Care setting.

BPPV is a common benign peripheral vestibulopathy characterized by mechanical stimulation of the vestibular receptors by detached otoconia (calcium crystals). The hallmark of BPPV include positionally induced vertigo and a nystagmus evoked by Dix-Hallpike test that is upbeating (fast phase towards forehead) and torsional with upper poles of eyes beating towards the dependent ear (or shoulder). The nystagmus begins several seconds after positioning the head and is accompanied by vertigo. It usually lasts for 15-30 seconds, after which time the vertigo also stops. The preferred treatment for BPPV is particle repositioning exercise called Epley maneuver. The Epley maneuver is highly successful and provides complete relief in nearly all patients. Brandt-Daroff exercise is an alternative option if the affected side is unclear.

Vestibular neuritis is a condition caused by acute unilateral loss of vestibular function. It is characterized by vertigo, nausea, vomiting, blurred vision and unsteadiness. The condition is thought to result from a selective inflammation of the vestibular nerve, presumably of viral origin and symptoms subside in a course of few weeks. Exam typically reveals a unidirectional horizontal/torsional nystagmus beating away from the affected side. Steroids can improve outcome of vestibular neuritis if given within 3 days from onset (see table). Betahistine (Serc) administered at a dose of 16 mg three times a day can be effective for symptomatic relief. Vestibular rehabilitation treatment should begin as early as possible, since there is robust evidence that early intervention with exercises reduces symptoms and improves gait stability. Vestibular rehabilitation includes exercises designed to improve ocular stability and balance.

Feature	BPPV	Vestibular Neuritis
Onset	Acute (usually upon awakening)	Acute to subacute
Duration of vertigo	Episodic	Constant
Provoking factors	Rolling in bed, bending, looking up etc. Patients are asymptomatic between episodes.	Any head motion will exacerbate underlying vertigo
Nausea/vomiting	Nausea	Severe vomiting
Nystagmus	Dix-Hallpike shows upbeat, torsional beating to the dependent	Constant horizontal/torsional nystagmus beating away from affected side, seen in upright

Difference between BPPV and vestibular neuritis



	ear or shoulder, transient, fatigues in seconds	position without the need for special maneuvers
Hearing loss	Never	Can occur with labyrinthitis
Neurological red flags*	Never	Never
Romberg test	Negative	Positive
Prognosis	Resolves immediately with Epley exercise	Resolves completely in days to weeks
Treatment	Epley exercise	Steroids, betahistine and vestibular rehabilitation

***Red flags** include neurological exam suggestive of central cause, isolated vertical nystagmus, facial sensory or motor symptoms, diplopia, dysphagia, ataxia, head trauma and loss of consciousness.

Checklist to guide your in-clinic review of this patient with symptoms of BPPV or Vestibular Neuritis

□ Absence of red flag features (neurological exam suggestive of central cause, isolated vertical nystagmus, facial sensory or motor symptoms, diplopia, dysphagia, ataxia, head trauma and loss of consciousness)

□ BPPV cardinal symptoms/signs – episodic positional vertigo, positive Dix-Hallpike test (upbeat torsional nystagmus beating towards dependent ear or shoulder, lasts 15 – 30 seconds).

□ If Dix-Hallpike positive, then treat with Epley exercise (<u>https://www.youtube.com/watch?v=hq-IQWSrAtM</u>) or refer to vestibular physiotherapist for 2 - 3 sessions of Epley exercise or minimum treatment for a month.

□ Provide patients with handouts of Brandt-Daroff exercise (if side unknown) or Epley exercise (if side known).

□ Vestibular neuritis cardinal symptoms/signs – constant vertigo, nystagmus is unidirectional, horizontal/torsional beating away from the affected side, Romberg test is positive.

□ Consider prednisone (see table) if vestibular neuritis symptoms within 3 days from onset.

□ Betahistine (Serc) 16 mg three times a day for symptomatic relief in vestibular neuritis.

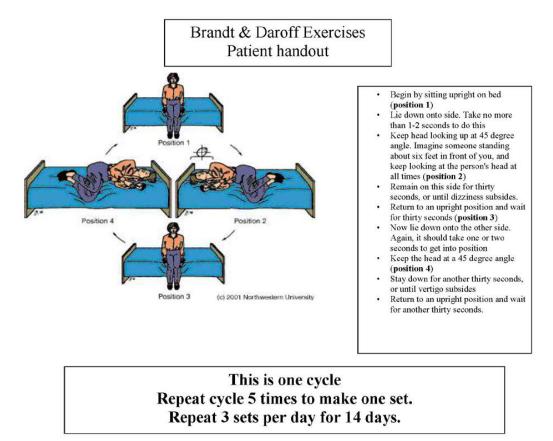
□ Refer vestibular neuritis patients for vestibular rehabilitation for a minimum of 3 months.

Prednisone	Dose
Day 1-5	60 mg
Day 6	40 mg
Day 7	30 mg
Day 8	20 mg
Day 9	10 mg
Day 10	5 mg then stop

Steroid treatment protocol in vestibular neuritis (to be given within 3 days from onset)

Betahistine use in peripheral vertigo

Clinical studies and meta-analyses have demonstrated that betahistine is effective and safe in the treatment of peripheral vertigo of unknown etiology. Betahistine is generally well tolerated with a low risk of adverse events. According to clinical studies, betahistine 48 mg daily for a minimum duration of 3 months, is an effective and safe option for the treatment of peripheral vertigo (Alcocer et al 2015, Murdin et al 2016).



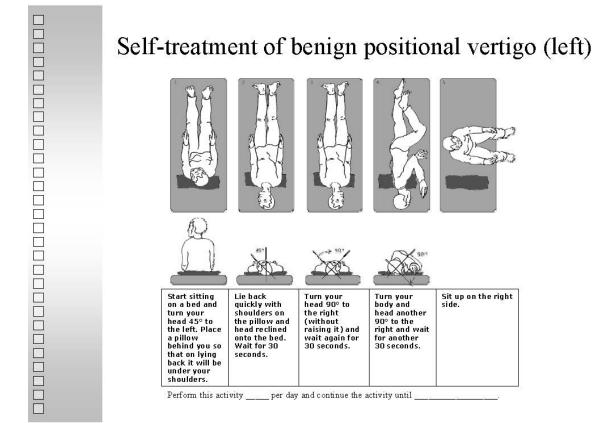
Benign positional paroxysmal vertigo (**BPPV**) is a mechanical problem in the inner ear. It occurs when some of the calcium carbonate crystals (otoconia) that are normally embedded in a gel in the inner-ear become dislodged and migrate into the fluid-filled canal, where they are not supposed to be. Home exercises are helpful in treating BPPV



and can be safely performed at home. These exercises move the crystals into another ear chamber, where they will be absorbed by the body.

If BPPV side is **unknown** (i.e. right or left), then perform Brandt-Daroff exercises. Please refer to the bottom of the exercise page for instructions on how many times to perform the Brandt-Daroff exercise per day.

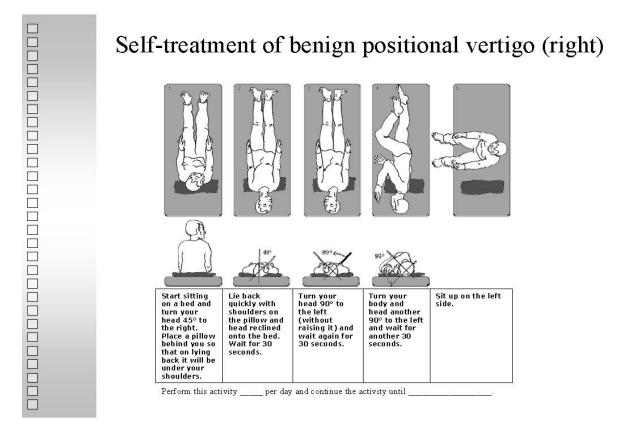
Epley home exercise for left-sided BPPV



Benign positional paroxysmal vertigo (**BPPV**) is a mechanical problem in the inner ear. It occurs when some of the calcium carbonate crystals (otoconia) that are normally embedded in a gel in the inner-ear become dislodged and migrate into the fluid-filled canal, where they are not supposed to be. Home exercises are helpful in treating BPPV and can be safely performed at home. These exercises move the crystals into another ear chamber, where they will be absorbed by the body.

- 1. If you are diagnosed with left sided BPPV, then perform the exercise shown in this handout. Perform Epley exercise **three** times a day.
- 2. Repeat this daily until free from positional vertigo for 24 hours. Best to do them at night rather than in the morning or mid-day. If patients become dizzy following the exercises, then it can resolve while sleeping.

Epley home exercise for right-sided BPPV



Benign positional paroxysmal vertigo (**BPPV**) is a mechanical problem in the inner ear. It occurs when some of the calcium carbonate crystals (otoconia) that are normally embedded in a gel in the inner-ear become dislodged and migrate into the fluid-filled canal, where they are not supposed to be. Home exercises are helpful in treating BPPV and can be safely performed at home. These exercises move the crystals into another ear chamber, where they will be absorbed by the body.

- 1. If you are diagnosed with right sided BPPV, then perform the exercise shown in this handout. Perform Epley exercise **three** times a day.
- 2. Repeat this daily until free from positional vertigo for 24 hours. Best to do them at night rather than in the morning or mid-day. If patients become dizzy following the exercises, then it can resolve while sleeping.

BACKGROUND

About this pathway

• The pathway is intended to provide evidence-based guidance to support primary care and specialty care providers in caring for adult patients with management of BPPV or Vestibular Neuritis within the medical home. Neurology tele-advice is available via <u>Specialist Link</u>.

Authors and conflict of interest declaration

• This pathway was developed by leveraging the collective knowledge, experience and expertise of many individuals. For more information, please email <u>info@calgaryareapcns.ca</u>.

Pathway review process, timelines

 Primary care pathways undergo scheduled review every three years, or earlier if there is a clinically significant change in knowledge or practice. This pathway was developed in April 2018 and was most recently updated in May 2024. The next scheduled review is May, 2026. We welcome feedback at any time. Please email comments to info@calgaryareapcns.ca with "Vertigo Pathway" in the subject line.

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DISCLAIMER

This pathway represents evidence-based best practice but does not override the individual responsibility of health care professionals to make decisions appropriate to their patients using their own clinical judgment given their patients' specific clinical conditions, in consultation with patients/alternate decision makers. The pathway is not a substitute for clinical judgment or advice of a qualified health care professional. It is expected that all users will seek advice of other appropriately qualified and regulated health care providers with any issues transcending their specific knowledge, scope of regulated practice or professional competence.

PROVIDER RESOURCES

Advice options

- Non-urgent telephone advice connects family physicians, nurse practitioners and specialists in real time via a tele-advice line. Family physicians, nurse practitioners and specialists can request non-urgent advice from a neurologist, at <u>specialistlink.ca</u> or by calling 403-910-2551. This service is available from 8 a.m. to 5 p.m. Monday to Friday (excluding statutory holidays). Calls are returned within two (2) hours.
- Non-urgent neurology electronic advice is available across the province via Alberta Netcare eReferral eConsult (responses are received within five calendar days). View the <u>eReferral Learning Centre</u> for more information.

Resource	Location
Video showing BPPV treatment	https://www.youtube.com/watch?v=hq-IQWSrAtM
American Academy of Neurology BPPV guidelines	https://www.aan.com/Guidelines/Home/GetGuidelineContent/290
American Academy of Neurology practice parameter for BPPV	https://www.aan.com/Guidelines/home/GuidelineDetail/848

PATIENT RESOURCES

Resource	Location
Information about BPPV	https://www.aan.com/Guidelines/home/GetGuidelineContent/291
Overview of dizziness	https://myhealth.alberta.ca/health/Pages/conditions.aspx?hwid=dizzi
Understanding vestibular disorders	http://vestibular.org/understanding-vestibular-disorder
Finding vestibular physiotherapist in Calgary	http://www.physiotherapyalberta.ca/
Patient information (the basics and beyond the basics)	https://www.uptodate.com/contents/dizziness-and-vertigo-beyond-the-basics
National Library of Medicine	https://medlineplus.gov/dizzinessandvertigo.html

