VP 03
CHEAT SHEET

BPPV — All Canal Variants — Cheat Sheet for Physiotherapists

Diagnostic manoeuvres, repositioning by canal, post-care, recurrence, and treatment-resistant cases.

► Why BPPV matters

Most common cause of vertigo (20–30% of cases overall, up to 50% in adults over 60). Underdiagnosed and undertreated — still managed with vestibular suppressants in many settings. 80–90% of cases resolve with mechanism-based repositioning manoeuvres and >95% with 2–3 sessions. Mean time to resolution: 2–3 weeks.

Canal distribution & pathophysiology — pick the variant before you treat

Canal variant	Frequency	Mechanism	Hallmark nystagmus
Posterior	80–90%	Canalithiasis	Up-beat torsional, 3–10 s latency, fatigues, 10–30 s duration
Horizontal geotropic	5–10%	Canalithiasis	Horizontal beating to undermost ear; reverses with roll
Horizontal apogeotropic	1–5%	Cupulolithiasis	Horizontal beating away from undermost ear; persistent
Anterior	1–2%	Canalithiasis (rare)	Down-beat with torsion; provoked by deep head extension
Multi-canal	5–10%	Mixed; trauma-related	Two or more positive provocation tests at same visit

► Pearl — canalithiasis vs cupulolithiasis

Canalithiasis = particles free in canal → transient, fatiguing nystagmus. Cupulolithiasis = particles adherent to cupula → sustained, direction-changing nystagmus. The pattern dictates the manoeuvre.

Diagnostic manoeuvres — confirm the canal before repositioning

Test	Patient position	Positive finding	Performance
Dix-Hallpike (gold standard)	45° head turn, supine head-hanging 20° below horizontal	Up-beat torsional nystagmus, 3–10 s latency, fatigues	Sn 80–90%, Sp >95% for posterior canal
Supine roll	Supine, neutral, rapid ear-to-ear rotation	Horizontal nys; geotropic vs apogeotropic	Use whenever Dix-Hallpike negative + positional sx
Deep head-hanging	Supine, head extended over edge	Down-beat ± torsion	Confirms anterior canal (rare; consider VNG)

► Pearl — what makes a Dix-Hallpike truly positive

Latency (3–10 s) + fatigue + direction-appropriate up-beat torsional nystagmus = posterior canal BPPV. Immediate vertigo without nystagmus is anxiety, not BPPV. No nystagmus does not exclude BPPV — re-test with the supine roll.

Repositioning manoeuvres — first-line by canal

Canal	First-line	Alternative / next step	1st-attempt cure
Posterior	Epley — 5–10 min total, 30–60 s pause per position	Semont (rapid swing)	85–90%
Horizontal geotropic	BBQ roll — 360°, 10–15 s per 90° turn	Gufoni (lateral side-lying)	85–95%
Horizontal apogeotropic	Convert to geotropic first (head-shake or Gufoni variant)	Repeat in 7–10 d if persists	60–75%
Anterior	Reverse Epley	Deep head-hanging variants	60–75%
Multi-canal	Treat dominant canal first, re-test before next	Sequential, never simultaneous	Variable

► Red flags — pause manoeuvre, refer to vestibular physician

- ► Vertical or direction-changing nystagmus persisting beyond 60 seconds — central mimic.
- ► Truncal ataxia, new focal neurology, occipital headache, sudden hearing change.
- ► Acute severe vertigo with abnormal HINTS exam — image and refer same day.
- ► Patient under 40 with no trauma history and recurrent BPPV — consider underlying pathology.

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Post-manoeuvre care, outcomes, recurrence, treatment-resistant BPPV, pitfalls, references.

Post-manoeuvre management — what the evidence says about restrictions

Post-manoeuvre advice	Outcome benefit	Recommendation
Strict 30° upright + bend avoidance × 24–48 h	No additional benefit (Herdman 2020 SR)	Not required
Avoid lying on affected side × 1 night	Equivocal — small possible benefit	Optional patient choice
Continue normal activity	Comparable success vs strict restriction	Reassure: routine activity OK
Brief VRT, head-eye drills, graded motion	Helpful for residual de-conditioning (30–40% of patients)	Add when symptoms persist beyond manoeuvre

► Insight — reassurance is part of the treatment

Removing strict positional restrictions does not reduce manoeuvre success and reduces patient anxiety + activity avoidance. Counsel that 30–40% will have brief residual de-conditioning settled by graded motion, not bed rest.

Outcomes & recurrence — set realistic expectations

Variant	Manoeuvre	1st-attempt	After 2–3 sessions	5-yr recurrence
Posterior	Epley	85–90%	95–99%	30–40%
Posterior	Semont	75–85%	95–98%	28–38%
Horizontal geotropic	BBQ	85–95%	98–99%	35–45%
Horizontal apogeotropic	Variable	60–75%	85–95%	50–65%
Anterior	Reverse Epley	60–75%	80–90%	40–50%

► Recurrence — what to flag, what to do

- ► 30–50% of patients recur within 5 years — counsel at first visit.
- ► Risk factors: vitamin D deficiency, female, age over 50, head trauma, post-vestibular neuritis.
- ► Treat recurrence the same as initial presentation — diagnostic test, then manoeuvre. Recurrence is not chronic disease.
- ► Sustained vitamin D supplementation reduces recurrence in deficient patients.

► Treatment-resistant BPPV (10–15%) — reassess, do not repeat blindly

- ► Most common cause: misdiagnosis (central vertigo, vestibular migraine) or missed multi-canal involvement.
- ► Re-examine in multiple positions; consider VNG, vHIT, MRI if central pathology suspected.
- ► Apogeotropic that fails standard BBQ — convert to geotropic first, then re-treat.
- ► Conversion between canals is common days to weeks after first manoeuvre — re-test, do not assume failure.

► Common pitfalls — and how to avoid them

- ► Treating positional vertigo with habituation alone — repeat Dix-Hallpike + supine roll first, every visit.
- ► Misreading anterior canal nystagmus as posterior — get torsion direction right or use VNG.
- ► Inadequate head extension during Epley — most common technique error; aim for 20° below horizontal.
- ► Long courses of vestibular suppressants — slow central compensation; wean within 3–5 days.
- ► Standard BBQ rolling for apogeotropic horizontal BPPV — usually fails; convert to geotropic first.

Communication & onward referral

► **Patient scripts:** "This is positional, mechanical, and treatable — most people are settled in two to three sessions." | "Some residual unsteadiness for a few days is expected — keep moving normally; bed rest slows recovery." | "Roughly one in three has it back within five years — same fix when it does."

► **Refer onward when:** persistent symptoms after 3 sessions; suspected central mimic; sudden / fluctuating hearing change; paediatric presentations; recurrent falls; or any red-flag feature on this sheet.

► References / further reading

- ► Bhattacharyya N et al. AAO-HNS Clinical Practice Guideline (Update): BPPV. Otolaryngol Head Neck Surg 2017;156(3 Suppl):S1–S47.
- ► von Brevern M et al. Epidemiology of BPPV: population-based study. J Neurol Neurosurg Psychiatry 2007;78(7):710–715.
- ► Epley JM. The canalith repositioning procedure. Otol Neurotol 1992;13(5):290–293.
- ► Gufoni M et al. Horizontal SCC BPPV: diagnosis and treatment. Ann N Y Acad Sci 2001;942:440–455.
- ► Roberts RA, Gans RE. Diagnostic accuracy of supine roll & side-lying tests for horizontal canal BPPV. J Am Acad Audiol 2011;22(10):658–664.
- ► Herdman SJ et al. Vestibular Rehabilitation Clinical Practice Guideline. J Neurol Phys Ther 2022;46(2):118–177.