Nonpharmacologic treatments for chronic vertigo

Clinical Policy ID: CCP.1159

Recent review date: 4/2023

Next review date: 8/2024

Policy contains: Dynamic posturography; particle (canalith) repositioning maneuvers; transtympanic micropressure; vestibular rehabilitation.

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Coverage policy

Particle repositioning maneuvers (either the Epley maneuver or the Semont maneuver) for treatment of benign paroxysmal positioning vertigo may be clinically proven and, therefore, medically necessary when all of the following criteria are met (Hilton, 2014; Hunt, 2012; Reinink, 2014; Wegner, 2014):

- **Diagnosis of benign paroxysmal positioning vertigo has been confirmed by a positive Hallpike test.**
- **Member has had symptoms of benign paroxysmal positioning vertigo for at least one month.**
- **Maneuver is performed by a physical therapist or occupational therapist as part of a therapy plan of care.**

Vestibular rehabilitation is clinically proven and, therefore, medically necessary when all of the following criteria are met (McDonnell, 2015; Porciuncula, 2012; Wegner 2014):

- **Diagnosis of vestibular hypofunction has been confirmed by vestibular function tests.**
- **Symptoms of vestibular hypofunction have existed for at least one month.**
- **Rehabilitation is performed by a physical therapist or occupational therapist as part of a therapy plan of care.**

Dynamic posturography and tympanic micropressure for treatment of vestibular disorders are investigational/not clinically proven and, therefore, not medically necessary (Ahsan, 2015; Syed 2014, 2015).

Limitations

All other uses of particle repositioning maneuvers (the Epley maneuver or the Semont maneuver) or vestibular rehabilitation are not medically necessary, including:

- **For particle repositioning maneuvers, benign paroxysmal positioning vertigo is usually in remission within two visits. Beyond two visits, there should be justification in the medical record for continued treatment. Beyond four visits with no remission, there should be consideration of referral back to the attending physician.**
- **For vestibular rehabilitation:**
    - **Members with certain comorbidities may not be appropriate candidates or may need specialized, individually tailored vestibular rehabilitation protocols. Examples of such comorbidities include cervical stenosis, Down syndrome, severe rheumatoid arthritis, cervical radiculopathies, Paget's disease, morbid obesity, ankylosing spondylitis, low back dysfunction, and spinal cord injuries (Bhattacharyya, 2017).**
    - **One visit per week for six weeks is considered medically necessary. Six additional visits are considered medically necessary if, upon medical review, there is evidence of clinically significant improvement. If there is no evidence of improvement after 12 visits, additional visits are not considered medically necessary.**

Alternative covered services

- **Surgical treatment.**
- **Medical treatment such as antiepilepsy pharmacologics, antivertigo drugs, beta-receptor blockers, betahistine, ototoxic antibiotics, corticosteroids, calcium-channel blockers, carboanhydrase inhibitors and serotonin reuptake inhibitors.**

Background

The vestibular system uses sensory input from the eyes, muscles and joints, and inner ear to maintain balance and stable vision (Vestibular Disorders Association, 2023). Vestibular disorders can result from disease or injury that damages the processing areas in the inner ear and brain. The most common causes of vestibular disorders in adults are head trauma and age-related degeneration of the otolithic membrane, but in many cases the cause is unknown (Vestibular Disorders Association, 2023). In children, the most common disorders known to cause dizziness and vertigo are benign paroxysmal vertigo of childhood, migraine, trauma, vestibular neuritis and otitis media (Gioacchini, 2014, McCaslin, 2011).

Common symptoms of vestibular disorders include imbalance or unsteadiness, dizziness, blurred or bouncing vision, nausea, hearing changes, problems with coordination, and vertigo (Vestibular Disorders Association, 2023). Symptoms of vestibular dysfunction may be mild, lasting perhaps only seconds or minutes, or they may be severe, resulting in total disability.

There is no consensus on the precise definition of vertigo, but it is generally recognized as a distinct type of dizziness with the sense of rotation, rocking, or of the world spinning, even when the person is perfectly still, also known as illusion of motion (Strupp, 2013). In the United States, 1.7% of ambulatory medical care visits recorded vertigo or dizziness among the chief complaints (Nguyen-Huynh, 2012).

The most common vestibular disorder is benign paroxysmal positioning vertigo (Vestibular Disorders Association, 2023). Subtypes of benign paroxysmal positioning vertigo are distinguished by the particular semicircular canal involved (anterior, posterior, or horizontal) and whether the detached otoconia are free-floating within the affected canal (canalithiasis) or attached to the cupula (cupulolithiasis). Benign paroxysmal positioning vertigo is typically unilateral, and the most common form is canalithiasis in the posterior semicircular canal.

In most cases, the symptoms diminish or disappear without treatment as the vestibular system heals or the nervous system learns to compensate for the disorder (Strupp, 2013). Watchful waiting may be preferred, but the time to resolution of symptoms varies considerably across diagnoses. Some patients or providers may wish to expedite recovery and avoid further risk of injury. When symptoms persist, treatment can provide a complete cure or only control the symptoms. Treatment for vestibular disorders varies according to the diagnosis and may consist of positional head maneuvers, dietary changes, vestibular rehabilitation therapy, prescribed drugs or equipment, or, in some cases, surgery.

Findings

Seven systematic reviews (Hilton, 2014; Hunt 2012; McDonnell, 2015; Porciuncula, 2012; Reinink 2014; Syed, 2014; Wegner, 2014) and two evidence-based guidelines (Bhattacharyya, 2017; Fife, 2008) examined the evidence for vestibular rehabilitation, particle repositioning maneuvers, and transtympanic micropressure therapy. No systematic reviews examined dynamic posturography as a treatment modality. There was marked heterogeneity across studies with respect to minimum symptom duration prior to treatment, diagnosis, treatment administration, and outcome measures. Most studies were carried out in specialty settings.

There is sufficient evidence to support the use of vestibular rehabilitation for treatment of chronic vertigo. There is moderate- to strong-quality evidence that vestibular rehabilitation is a safe, effective treatment for persons with unilateral peripheral vestibular dysfunction based on a number of high-quality randomized controlled trials (McDonnell, 2015). There is moderate-quality evidence that vestibular rehabilitation resolves symptoms and improves functioning in the medium term (standardized mean difference -0.83, 95% confidence interval -1.02 to -0.64). Minimum symptom duration prior to treatment ranged from at least one week to at least 12 months. The optimal treatment protocol could not be determined from the evidence base.

For persons with benign paroxysmal positioning vertigo, the evidence for improved outcomes with vestibular rehabilitation is less conclusive (McDonnell, 2015; Porciuncula, 2012 Wegner, 2014). Vestibular rehabilitation may be more appropriate as adjunctive therapy rather than as a primary treatment modality for benign paroxysmal positioning vertigo. However, subsets of patients with preexisting balance deficit, central nervous system disorders, or risk for falls may derive more benefit from vestibular rehabilitation than the patient with isolated benign paroxysmal positioning vertigo (Bhattacharyya, 2017). Persons with certain comorbidities may not be appropriate candidates for vestibular rehabilitation or may need specialized, individually tailored vestibular rehabilitation protocols. Examples of such comorbidities include cervical stenosis, Down syndrome, severe rheumatoid arthritis, cervical radiculopathies, Paget's disease, morbid obesity, ankylosing spondylitis, low back dysfunction and spinal cord injuries.

There is sufficient evidence to support particle repositioning maneuvers as a first-line treatment for the specific diagnosis of benign paroxysmal positioning vertigo (Hilton, 2014; Hunt, 2012; Reinink, 2014; Wegner, 2014). There is moderate to strong evidence from multiple randomized controlled trials that the Epley maneuver is a safe and effective therapy for posterior canal benign paroxysmal positioning vertigo. There is less convincing evidence supporting the use of the Semont maneuver in persons with posterior canal benign paroxysmal positioning vertigo (Hilton, 2014), and guidelines provide weaker recommendations as a "possibly effective" treatment (Bhattacharyya, 2017; Fife, 2008).

Although benign paroxysmal positioning vertigo is likely to remit spontaneously in a few months, evidence-based guidelines recommend particle repositioning maneuvers as initial therapy to expedite recovery (Bhattacharyya, 2017; Fife, 2008). Guidelines made no recommendations for or against other particle repositioning maneuvers for treatment of either horizontal or anterior canal benign paroxysmal positioning vertigo due to very limited evidence from uncontrolled studies (Bhattacharyya, 2017; Fife, 2008).

Evidence of improved health benefit with the addition of mastoid vibration or oscillation or post-treatment postural restrictions (e.g., cervical collar, sleeping upright) is inconclusive. There is no consensus for recommending or refuting post-maneuver postural restrictions (Bhattacharyya, 2017; Fife, 2008).

In most cases, one treatment sufficiently resolves symptoms and improves functioning, but, in approximately one-third of cases, symptoms do not fully clear. However, there is no conclusive evidence that supports improved outcomes with the use of multiple sessions of particle repositioning maneuvers for persistent symptoms. The repeated application of particle repositioning is likely to be determined by the severity of the symptoms, clinician availability and the clinician's historical success with the maneuvers (Bhattacharyya, 2017).

There is insufficient evidence to support the use of transtympanic micropressure therapy for treatment of vertigo associated with Ménière's disease (Syed, 2014). There is low-quality evidence that suggests transtympanic micropressure therapy using the Meniett® Low-Pressure Pulse Generator (Medtronic Inc.; Minneapolis, Minnesota) is safe when used for persons with Ménière's disease who are refractory to medical therapy, but the evidence of any health benefit is inconclusive.

There is insufficient evidence to support the use of computerized dynamic posturography for treatment of vestibular disorders. One small, low-quality study randomized 24 patients with chronic unilateral peripheral vestibular disease to either computerized dynamic posturography or optokinetic stimulation (Rossi-Izquierdo, 2007). The computerized dynamic posturography group showed greater benefits in visual and vestibular input and limits of stability, but these results need to be confirmed in larger prospective studies.

In 2016, we updated a systematic review (Syed, 2015) of four randomized controlled trials (n = 123) that compared the efficacy of the Meniett device versus a placebo device in patients with Ménière's disease as defined by American Academy of Otolaryngologists-Head and Neck Surgeons criteria. There was a significant overall 61% reduction in the frequency of vertigo in both groups (mean no vertigo days per month of eight versus three). The reduction was not significantly different between the two groups in any study or on meta-analysis (mean difference in vertigo-free days between Meniett and placebo device of 0.77 days over a one-month period, 95% confidence interval 0.82 to 1.83, *P* = .45). There was no substantive data to support a greater reduction in the severity of the vertigo or any other outcome with the Meniett device compared with the placebo device.

In 2017, we added a systematic review (van den Berge, 2017) of 572 patients with longstanding tinnitus and/or vertigo found microvascular decompression of the cochleovestibular nerve was modestly

effective in patients who underwent treatment. A low rate of complication (11%) was noted. The quality of the evidence presented, however, was low and the authors urged further study of this modality.

In 2018, we found no new information published regarding non-pharmacologic treatments for chronic vertigo to add to the policy.

In 2019, we identified no newly published, relevant literature to add to the policy. The policy ID was changed from CP# 10.02.03 to CCP.1159.

In 2020, we added one Centers for Medicare & Medicaid Services local coverage article (A56566) (Centers for Medicare & Medicaid Services, 2020) and two systematic reviews (Melo, 2019; Sim 2019), which do not change previous conclusions in this policy. No policy changes are warranted.

In 2021, we updated the American Academy of Otolaryngology—Head and Neck Surgery Foundation guideline (Bhattacharyya, 2017, update of 2008) and added a meta-analysis, both of which address the effectiveness of unique repositioning procedures for horizontal semicircular canal benign paroxysmal positional vertigo. These procedures are called the "barbeque roll" and the Gufoni maneuver. Bhattacharyya (2017) stated that variations of these procedures appear moderately effective for the geotropic form of the condition, but there was insufficient evidence of support for their use with the apogeotropic form or for other methods.

Results of a meta-analysis (Fu, 2020) of four randomized controlled trials (n = 714 participants) found the immediate recovery rate of the Gufoni maneuver was higher than that of sham maneuver (risk ratio = 2.68, 95% confidence interval 1.54 to 4.65, *P* < .01) and was similar to that of other maneuvers (risk ratio = 1.18, 95% confidence interval 0.99 to 1.41, *P* = .06). The otolith switch rate was similar among all maneuvers (*P* = .27). Because 36% to 88% of cases resolve spontaneously within several days to months, its long-term efficacy requires additional study. The new information requires no policy changes.

In 2022, we added a systematic review/network meta-analysis of 41 randomized controlled trials that found benign paroxysmal positioning vertigo was effectively treated (eliminated nystagmus) after one month using only the Semont (76.1%) and Epley maneuvers (65.3%) were effective, of 12 treatment studied (Li, 2022).

A systematic review of 25 randomized controlled trials (n = 1,248) concluded no effective and well-tolerated treatment – positive pressure therapy, medicinal, or surgical - exists for Meniere's disease (van Esch, 2021).

In 2023, we removed the Centers for Medicare & Medicaid Services article and reference. We added a systematic review of nine studies (n = 325) that found a 95.2% success rate for canalith repositioning maneuvers to treat benign paroxysmal positional vertigo. The mean number of treatments was 2.9 and the recurrence rate was 19.8% (Karamy, 2022).

References

On January 30, 2023, we searched PubMed and the databases of the Cochrane Library, the U.K. National Health Services Centre for Reviews and Dissemination, the Agency for Healthcare Research and Quality, and the Centers for Medicare & Medicaid Services. Search terms were "transtympanic micropressure treatment" (MeSH), "physical therapy modalities" (MeSH), "vestibular diseases" (MeSH), "Dizziness" (MeSH). We included the best available evidence according to established evidence hierarchies (typically systematic reviews, meta-analyses, and full economic analyses, where available) and professional guidelines based on such evidence and clinical expertise.

Ahsan SF, Standring R, Wang Y. Systematic review and meta-analysis of Meniett therapy for Meniere's disease. *Laryngoscope.* 2015;125(1):203-208. Doi: 10.1002/lary.24773.

Bhattacharyya N, Gubbels SP, Schwartz SR, et al. Clinical practice guideline: Benign paroxysmal positional vertigo (update). *Otolaryngol Head Neck Surg.* 2017;156(3_suppl):S1-s47. Doi: 10.1177/0194599816689667.

Fife TD, Iverson DJ, Lempert T, et al. Practice parameter: Therapies for benign paroxysmal positional vertigo (an evidence-based review). Report of the Quality Standards Subcommittee of the American Academy of Neurology. *Neurology.* 2008;70(22):2067-2074. Doi: 10.1212/01.wnl.0000313378.77444.ac.

Fu W, Han J, Chang N, et al. Immediate efficacy of Gufoni maneuver for horizontal canal benign paroxysmal positional vertigo (HC-BPPV): A meta-analysis. *Auris Nasus Larynx.* 2020;47(1):48-54. Doi: 10.1016/j.anl.2019.05.002.

Gioacchini FM, Alicandri-Ciufelli M, Kaleci S, Magliulo G, Re M. Prevalence and diagnosis of vestibular disorders in children: A review. *Int J Pediatr Otorhinolaryngol.* 2014;78(5):718-724. Doi: 10.1016/j.ijporl.2014.02.009.

Hilton MP, Pinder DK. The Epley (canalith repositioning) manoeuvre for benign paroxysmal positional vertigo. *Cochrane Database Syst Rev.* 2014;12:CD003162. Doi: 10.1002/14651858.CD003162.pub3.

Hunt WT, Zimmermann EF, Hilton MP. Modifications of the Epley (canalith repositioning) manoeuvre for posterior canal benign paroxysmal positional vertigo (BPPV). *Cochrane Database Syst Rev.* 2012;4:CD008675. Doi: 10.1002/14651858.CD008675.pub2.

Karamy B, Zhang H, Archibald J. Systematic review of bilateral benign paroxysmal positional vertigo. *Laryngoscope*. 2022;132(3):640-647. Doi: 10.1002/lary.29603.

Li D, Cheng D, Yang W, et al. Current therapies in patients with posterior semicircular canal PPPV, a systematic review and network meta-analysis. *Otol Neurotol*. 2022;43(4):421-428. Doi: 10.1097/MAO.0000000000003464.

McCaslin DL, Jacobson GP, Gruenwald JM. The predominant forms of vertigo in children and their associated findings on balance function testing. *Otolaryngol Clin North Am.* 2011;44(2):291-307, vii. Doi: 10.1016/j.otc.2011.01.003.

McDonnell MN, Hillier SL. Vestibular rehabilitation for unilateral peripheral vestibular dysfunction. *Cochrane Database Syst Rev.* 2015;1:CD005397. Doi: 10.1002/14651858.CD005397.pub4.

Melo RS, Lemos A, Paiva GS, et al. Vestibular rehabilitation exercises programs to improve the postural control, balance and gait of children with sensorineural hearing loss: A systematic review. *Int J Pediatr Otorhinolaryngol.* 2019;127:109650. Doi: 10.1016/j.ijporl.2019.109650.

Nguyen-Huynh AT. Evidence-based practice: management of vertigo. *Otolaryngol Clin North Am.* 2012;45(5):925-940. Doi: 10.1016/j.otc.2012.06.001.

Porciuncula F, Johnson CC, Glickman LB. The effect of vestibular rehabilitation on adults with bilateral vestibular hypofunction: A systematic review. *J Vestib Res.* 2012;22(5-6):283-298. Doi: 10.3233/VES-120464.

Reinink H, Wegner I, Stegeman I, Grolman W. Rapid systematic review of repeated application of the Epley maneuver for treating posterior BPPV. *Otolaryngol Head Neck Surg.* 2014;151(3):399-406. Doi: 10.1177/0194599814536530.

Rossi-Izquierdo M, Santos-Perez S, Soto-Varela A. What is the most effective vestibular rehabilitation technique in patients with unilateral peripheral vestibular disorders? *Eur Arch Otorhinolaryngol.* 2011;268(11):1569-1574. Doi: 10.1007/s00405-011-1532-z.

Sim E, Tan D, Hill K. Poor treatment outcomes following repositioning maneuvers in younger and older adults with benign paroxysmal positional vertigo: A systematic review and meta-analysis. *J Am Med Dir Assoc.* 2019;20(2):224.e221-224.e223. Doi: 10.1016/j.jamda.2018.11.019.

Strupp M, Dieterich M, Brandt T. The treatment and natural course of peripheral and central vertigo. *Dtsch Arztebl Int*. 2013;110(29-30):505-515; quiz 515-506. Doi: 10.3238/arztebl.2013.0505.

Syed MI, Rutka J, Hendry J, Browning GG. Positive pressure therapy for Meniere's syndrome/disease with a Meniett device: A systematic review of randomised controlled trials. *Clin Otolaryngol.* 2014. Doi: 10.1111/coa.12344.

Syed MI, Rutka J, Hendry J, Browning GG. Positive pressure therapy for Meniere's syndrome/disease with a Meniett device: A systematic review of randomised controlled trials. *Clin Otolaryngol.* 2015;40(3):197-207. Doi: 10.1111/coa.12344.

van den Berge MJ, van Dijk JM, Posthumus IA, Smidt N, van Dijk P, Free RH. Microvascular decompression of the cochleovestibular nerve for treatment of tinnitus and vertigo: A systematic review and meta-analysis of individual patient data. *J Neurosurg.* 2017;127(3):588-601. Doi: 10.3171/2016.8.jns16992.

van Esch BF, van Zaag-Loonen H, Bruintjes T, Buijpers T, van Benthem PPg. Interventions for Meniere's disease: An umbrella systematic review. *BMJ Evid Based Med*. 2022;27(4):235-245. Doi: 10.1136/bmjebm-2020-111410.

Vestibular Disorders Association. Types of Vestibular Disorders. https://vestibular.org/article/diagnosis-treatment/types-of-vestibular-disorders/. Published 2023.

Wegner I, Niesten ME, van Werkhoven CH, Grolman W. Rapid systematic review of the Epley Maneuver versus vestibular rehabilitation for benign paroxysmal positional vertigo. *Otolaryngol Head Neck Surg.* 2014;151(2):201-207. Doi: 10.1177/0194599814534940.

Policy updates

2/2015: initial review date and clinical policy effective date: 6/2015

3/2016: Policy references updated.

3/2017: Policy references updated.

3/2018: Policy references updated.

3/2019: Policy references updated. Policy ID changed.

4/2020: Policy references updated.

4/2021: Policy references updated.

4/2022: Policy references updated.

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