

Balance and Vestibular Rehabilitation Therapy

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What is Balance and Vestibular Rehabilitation Therapy

This information discusses current ideas about physical therapy for dizziness and imbalance, also called vestibular rehabilitation, or more generally, balance rehabilitation. While there is some data regarding the efficacy vestibular rehabilitation (for example, Cowand et al, 1998 and Morozetti et al., 2011), much remains to be done. Accordingly, this review is opinionated, based on 15 years of clinical experience of the author who is a specialist in the diagnosis and treatment of dizziness. The main message is that therapy is often worthwhile, but selection of the best type depends on both the diagnosis and health care situation. This page is primarily intended to be a reference for patients who have been referred for therapy.

What are the Indications for Therapy

There are three clear indications for vestibular rehabilitation referrals:

- Specific interventions for benign paroxysmal positional vertigo (BPPV)
 - The Epley and Semont maneuvers
 - The Brandt-Daroff exercises
 - Log roll exercises (for lateral canal BPPV)
- General interventions for vestibular loss
 - Unilateral loss, such as for vestibular neuritis or acoustic neuroma
 - Bilateral loss, such as for gentamicin toxicity and related conditions
- Empirical treatment for common situations where the diagnosis is unclear
 - Post-traumatic vertigo
 - Multifactorial disequilibrium of the elderly

Individuals not likely to benefit from vestibular therapy include:

- Persons without a vestibular problem, for example
 - low blood pressure
 - medication reactions (other than ototoxicity)
 - anxiety, malingerers, depression (although T'ai Chi may be helpful for anxiety)
 - migraine associated vertigo (although it has been reported to be helpful nonetheless)
 - transient ischemic attacks (TIA)
- Persons with fluctuating vestibular problems
 - Meniere's disease
 - perilymphatic fistula

There are some conditions where it is not entirely clear whether rehabilitation is helpful, but it seems likely at this writing that it is not.

- Mal de débarquement (MDD)
- cerebellar degenerations
- idiopathic motion intolerance

How Can the Success of Rehabilitation be Measured

Measuring success is more difficult than it sounds. There are several fallacies:

- Tincture of time: Most disorders have a tendency to get better on their own, so one possible fallacy is to attribute improvement to physical therapy, without controlling for passage of time.
- What is important? Most people limit their activities by their overall risk. As they feel more stable, they move around more. Measurement of falls or trips is related to activity and objective risk. Given that people want to increase their activity, they may keep their number of falls constant, as they improve.
- What is balance? There presently is no method of measuring “balance.” There are numerous methods of measuring things that are associated with balance.
- How do you separate psychological aspects (that is, fear of falling) from objective aspects (that is, risk of falling)?

Probably the most valid measures right now are subjective measures (questionnaires). Examples include the dizziness handicap inventory (DHI) and the activities-specific confidence scale (ABC). Nevertheless, these measures are greatly handicapped by their intrinsic variability, and tendency for people to scale their responses according to what they think they should be doing, rather than actual performance.

Other measures of “balance” include posturography, rotatory chair testing, ENG testing; and mobility oriented scales, such as the timed “get up and go” test, and the Berg balance scale.

A Medline search performed in September 2012 found numerous clinical reports supporting the use of vestibular rehabilitation therapy. A very thorough review (Hillier & McDonnell 2011) found that vestibular rehabilitation resulted in significant improvement in patients with unilateral peripheral vestibular dysfunction. Another, less thorough study corroborated these findings (Morozetti et al 2011). The exception to this finding was in patients with BPPV, who benefited more from specific interventions (described below) than from general vestibular rehabilitation therapy.

Several individual clinical trials also showed patients to benefit from vestibular rehabilitation, including both genetic and individualized interventions. Patients showed improvement both on subject questionnaires and on clinical vestibular testing (Badaracco et al 2007, Badke et al 2005, Bittar et al 2007, Bittar et al 2005, Cohen 2011, Enticott et al 2008, Macias et al 2005, Meli et al 2006, Meli et al 2007, Nishino et al 2005, Venosa & Bittar 2007, Yardley et al 2004) Patients who experience anxiety or depression along with the vestibular symptoms may see improvement in their emotional state with vestibular rehabilitation (Meli et al 2007).

Many patients, particularly older ones, have additional medical problems that contribute to the vestibular symptoms. Treatment of these other problems significantly affects their response to rehabilitation therapy (Moreira, 2007).

Children with peripheral vestibular disorders probably benefit from rehabilitation (Medeiros, 2005), although clinical trials with children are rare.

Specific Interventions

At this writing, only BPPV has specific rehabilitation interventions.

How is BPPV Treated?

- Office Treatment
- Home Treatment (Brandt-Daroff Exercises)

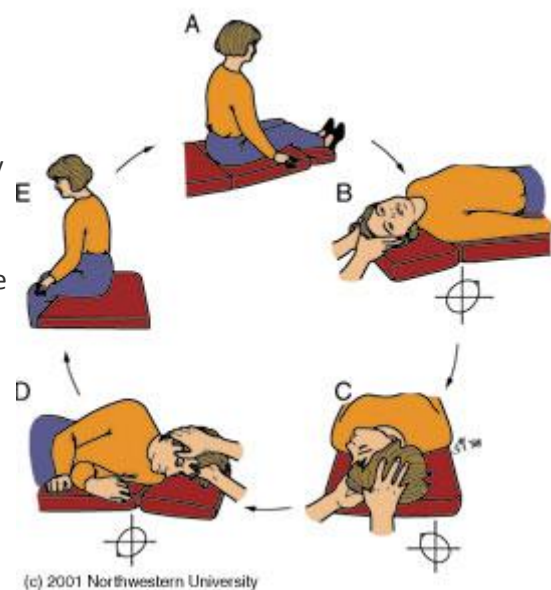
Office Treatment of BPPV: The Epley and Semont Maneuvers

There are two treatments of BPPV that are usually performed in the doctor's office. Both treatments are very effective, with roughly an 80% cure rate, according to a study by Smouha and others (1997).

The maneuvers, named after their inventors, are both intended to move debris or "ear rocks" out of the sensitive part of the ear (posterior canal) to a less sensitive location. Each maneuver takes about 15 minutes to complete. The Semont maneuver (also called the liberatory maneuver) involves a procedure whereby the patient is rapidly moved from lying on one side to lying on the other. It is a brisk maneuver that is not currently favored in the United States.

The Epley maneuver is also called the particle repositioning, canalith repositioning procedure, and the modified liberatory maneuver. It is illustrated in Figure 1. It involves sequential movement of the head into four positions, staying in each position for roughly 30 seconds. The recurrence rate for BPPV after these maneuvers is about 30% at one year, and in some instances a second treatment may be necessary. While some authors advocate use of vibration in the Epley maneuver, we have not found this useful in a study of our patients.

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.



Instructions For Patients After Office Treatment (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.

The combination of psychological counseling, such as cognitive behavioral therapy, with vestibular rehabilitation may be helpful in patients who have a significant emotional disorder that aggravates their vestibular problems (Andersson, 2006; Holmberg, 2006).

Empirical Treatment

Anywhere between 15 and 50% of patients evaluated by tertiary care “dizziness” clinics go undiagnosed. In this situation, rather than giving up all hope, it is often useful to have an organized approach to try out all reasonable interventions. In the author’s practice, this includes both medications as well as a one- or two-month enrolment in a balance/vestibular rehabilitation program, for patients who have chronic symptoms. Studies have suggested that vestibular rehabilitation reduces severity of agoraphobia in persons with agoraphobia and vestibular dysfunction (Mira, 2007; Jacob et al, 2001).

Similarly, patients with central vestibular problems (for example, a cerebellar cerebrovascular accident) are highly unlikely to benefit from medication or therapy. Nevertheless, these patients are usually so impaired that it seems ill advised not to try out all possible modalities.

Acknowledgments & References

Acknowledgments

Illustrations are courtesy of Northwestern University.

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