

Balance Therapy in Your Practice

Michael J Koch

It is a relatively unknown fact that the average human loses .5 of 1 percent of their vestibular functioning every year after the age of 20; this equates to 5 percent loss per decade. Therefore, by age 60, one loses approximately 20 percent of their balance and by the age of 80, approximately 30 percent or more. Very few, if any, can maintain much balance with that much loss.

It has been estimated that up to 40 percent of Americans - approximately 90 million people - will complain to their physician about dizziness. It is the second most common complaint made by seniors. The seemingly innocuous problem of vertigo and dizziness is actually the primary reason for falls, which are the number-one cause of traumatic death among seniors.

The unfortunate fact is that very few clinics or hospitals do much to treat vertigo and balance disorders. The good news is that the balance system can be restored, rebuilt, rejuvenated or rehabilitated - and chiropractors can play a major role.

Interestingly enough, the vestibular system does not actually atrophy, but simply goes to sleep; therefore, in most cases, it can be awakened rather quickly.

Balance Disorders

The general category or classification of "balance disorders" encompasses many different descriptions and diagnoses, including but not limited to: disequilibrium, disorientation, dizziness, falling, fear of falling, imbalance, Meniere's disease, motion sickness, nausea and vomiting, room or head-spinning, shuffling, stumbling, and vertigo. Many of these descriptions are used universally to describe various feelings and symptoms that lead to impairment, disability, falls and injury.

The primary contributors to balance disorders are inner ear and/or hearing weakness; medications; diabetic neuropathy; weak joints and joint sensors of the back, neck, hips, pelvis, feet and ankles; osteoporosis; arthritis; vision weakness; knee and hip replacement; Parkinson's; ALS; migraine headaches and light-headedness; multiple sclerosis; high blood pressure; mental confusion, anxiety, and depression; heart disease; stroke or lower extremity vascular deficiencies (poor circulation); orthostatic hypotension (low blood pressure upon standing); smoking; and alcoholism.

Benign Paroxysmal Positional Vertigo

Approximately 25 percent of all balance problems are benign paroxysmal positional vertigo (BPPV). The two most important words here are *positional vertigo*; that is, the patient experiences vertigo (dizziness / disorientation) with specific movement(s). While it can be any position, the most common ones are lying down, turning over in bed, bending forward or backward, and looking or reaching up.

The most telling differential diagnosis comes (as it does many times) from the patient's own mouth: "Doctor, I feel dizzy when I (fill in the blank - turn over in bed, put their head back in a beauty shop wash bowl, bend over to pet the dog, etc.)."

BPPV is easily diagnosed by this incredibly simplistic (no-tech) diagnostic technique. Other exam procedures, as well as high-tech vestibulo-videnystagmography (VNG) can confirm whether this is the primary diagnosis and/or whether there might be additional concomitant conditions at work.

It is important to note that rarely is there only one condition involved with abnormal balance. Our seniors are replete with multiple conditions affecting their balance. We must remember that muscular degradation is almost always preceded by fine sensory loss, mostly of the proprioceptive fibers. It is this loss of peripheral proprioception that affects the afferent signals to the brain, thereby affecting the motor output.

BPPV is primarily caused by an accumulation of microscopic, calcium-like particles in the lower levels of any one or more of the semi-circular canals (tubes). Similar to a clog in the "P" trap of a sink drain, these small "ear rocks" create a slowing of the normally free-flowing fluids in these tubes, thereby creating abnormal signals to the brain. Those abnormal signals are then "interpreted" by the brain as an imbalance, vertigo, dizziness, etc.

How Chiropractic Can Help

The best news about this disorder is that it can usually be corrected very quickly with one or two treatments by using one of several particle repositioning maneuvers, the most common of which is the "Epley maneuver." Many physical therapists, chiropractors, occupational therapists, audiologists and otolaryngologists know how to perform this procedure.

[pb]BPPV etiology can be traced to one or more sources: blows to the head by means of sports injuries; vehicular or work injuries; medications, especially gentamicin and other strong antibiotics over a prolonged period of time; and various chemotherapy drugs.

The Epley Maneuver

Begin with the patient seated on an exam table. The patient is first placed into a recumbent position, slowly and with great patience. *Note:* The patient may fight this position, as it can create considerable vertigo. If the patient begins to fight the positioning, let them sit up (while holding onto / steadying their shoulders) and regain control. Each trial should get easier.

It would be wise to have an emesis basin handy, as some patients may get nauseous when placed into a provoking position. Hold the head tilted at an angle of 30 degrees to 45 degrees downward (off the table), and turned to the provoking (bad) side. Maintain that position for a minimum of 15 seconds or until the nystagmus and/or vertigo passes.

At that point, gently and slowly (3-4 seconds) rotate the head to the opposite side. This will likely cause additional, yet reduced vertigo and nystagmus. Again hold for 15 seconds or until the dizziness passes. Continue to repeat this process until both sides are clear of vertigo and/or nystagmus. Then gently and slowly return the patient to an upright position, maintaining a firm grip on their shoulders (and keeping the emesis basin ready) in case the vertigo suddenly and/or aggressively returns at any point.

The patient should remain in a seated position for 5-10 minutes to ensure their stability. Blood pressure should be checked; if too high, keep the patient until it stabilizes. Also, offer them a cup of cold water. This can go a long way to ease them back to feeling well.

Following the procedure, fit the patient with a soft cervical collar and instruct them not to return to the provoking position, bend over or reach overhead for 48 hours. They should not lie flat in their bed, but rather should sleep or rest in a recliner chair or on a foam wedge no lower than a 45-

degree angle for 48 hours.

Most patients respond positively almost immediately following the procedure; however, some take a day or two for the vertigo to clear. A small percentage (5 percent to 10 percent) will require a second or even a third procedure. Some patients will have adapted to the aberrant proprioceptive input and will show a (learned) maladaptive gait and/or posture, which may require 2-6 weeks of gait and posture corrective rehab.

If the vertigo does not clear immediately, it does not necessarily mean the initial diagnosis was incorrect, but rather that there are concomitant vestibular and/or brain conditions present. Testing with a VNG or ENG (electronystagmography) and/or MRI / CT is prudent at this juncture, but not necessary at the onset of diagnosis and treatment if no other central nervous symptoms (CNS) are present and the cranial nerves test within normal limits.

Follow-Up

As noted earlier, there are a number of exercises that do an excellent job of restoring balance following the Epley maneuver. The "Brandt-Daroff" maneuver described below can be done at home. Correction of BPPV takes a little longer if only using these as home balance exercises exclusive of the Epley maneuver, but they are almost always effective if done twice daily for one to three weeks.

Brandt-Daroff for BPPV or Positional Vertigo

Begin by sitting on the edge of your bed, extend your arms and lie on your side with your head turned toward the opposite shoulder and ceiling; rest in that position for 15-30 seconds or until any dizziness subsides. Continue by sitting up and lying down on your opposite side with your head turned toward the ceiling (opposite shoulder); rest in that position for 15-30 seconds or until any dizziness subsides. Repeat.

Start with 3-5 repetitions of the above, three times per day (morning, afternoon and evening). When you can perform 3-5 repetitions, three times per day, easily with no dizziness, vertigo or imbalance, advance to 10 repetitions, three times per day. When you can perform 10 repetitions, three times per day with no dizziness, vertigo or imbalance, advance to 20 repetitions three times per day.

If the CNS has adapted to abnormal input from the vestibular system and/or the peripheral proprioceptors, then the entire CNS / PNS system needs to be reprogrammed through simple, easy exercises specifically designed for this purpose.