

# The Epley Manoeuvre

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## Benign Positional Vertigo (BPV)

**BPV** is the most common cause of vertigo originating from the inner ear. It can affect male and female, young and old alike. BPV can be accurately diagnosed simply by talking to the patient and listening to their history. The suffering individual describes recurrent 'attacks of head-spinning' lasting for seconds and is typically triggered by a change of head positions such as looking up rapidly, rolling over in bed, or bending over. There are usually no associated symptoms of hearing loss or other problems.

**What Generates BPV?** Perhaps it is caused by organic debris (*canalith*) accumulating in sensitive parts of the inner ear after a cold or sudden temperature or climate change. The most frequently affected part is the posterior semicircular canal. When the patient steadies him/herself, some rebalancing takes place. This process may involve endolymphatic fluid, settling of

debris and recalibration of the sensory neurolymphatic signals traveling to the brain. However, a recurrent rapid movement will cause this canal or other canals to (over)respond again and a sensation of vertigo will return.

This is the most important aspect of the diagnosis. During the physical assessment, one tries to reproduce the symptoms by placing the head in a position that might provoke the vertigo. This is done so that the malfunctioning ear can be accurately identified and treated.

While most people with **BPV** will ultimately improve without any treatment, the **Epley Manoeuvre** has been shown in various trials to be an effective method to hasten the recovery and to return patients quickly to normal functioning.

## Anatomy and Pathophysiology of the Ear

The ear is the organ of hearing. With the exception of the auricle, its structures are encased within the petrous portion of the temporal bone. The ear is divided into three parts:

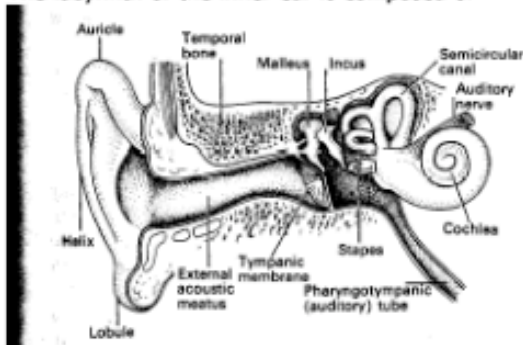
- External ear
- Middle ear (tympanic cavity)
- Internal ear

Every sound produces *sound waves* or disturbances in the air, which travel at about 332 metres (1088 feet) per second. The auricle, because of its shape, concentrates the waves and directs them along the auditory meatus causing the tympanic membrane to vibrate. Tympanic membrane vibrations are transmitted through the middle ear by movement of the ossicles. At their medial end, the footplate of the stapes rocks to and fro in the oval window, setting up fluid

waves in the perilymph. These indent the membranous labyrinth, causing a wave

the neuroepithelial cells of the organ of Corti. The nerve impulses produced pass to the brain in the cochlear portion of the *vestibulocochlear nerve* (8th cranial nerve). The fluid wave is finally expended into the middle ear by vibration of the membrane of the round window. The vestibulocochlear nerve transmits the impulses to the hearing area in the cerebrum where sound is perceived and to various nuclei in the pons varolii and the midbrain.

The labyrinth of the inner ear is composed of



the vestibule (made up of the sac-like utricle and saccule) and the 3 semicircular canals. These structures are interconnected and are

### The Epley Manoeuvre

Named after its inventor Dr Epley and also known as **The Canalith Repositioning Manoeuvre**, it was first described in 1992 and consists of a test sequence whereby the patient is placed into different positions which are meant to restimulate or recreate the previously experienced transient vertigo attacks. The manoeuvre is performed relatively quickly and easily and there are no medications administered. Modifications of the manoeuvre may also involve vibrating devices which can be placed on the back of the ear to help in dislodging the debris or readjusting pathological fluid levels.

The simple positioning maneuver is often successful in particular when repeated for any milder reoccurrences. It takes approximately 5 minutes to perform and the patient should be warned that it is likely that

motion in the endolymph, which stimulates

filled with endolymph. Receptors are located in each structure which informs the brain about the head's position in space. In addition to endolymph, there are the denser and heavier calcium oxalate crystals called otoliths. These, under the influence of gravity or acceleration such as head movements, exert a bending effect on the hair cells and trigger a series of nerve receptors, which inform the brain about the new head-tilted position in space. Once the head stops turning, the endolymph stops moving, the receptors stop firing, and the brain now knows that the head has stopped turning.

In BPV, the otoliths seem to become dislodged from the hair cells and membrane to which they were attached. They migrate to inadequate positions of the semicircular canals triggering misfired nerve signals. In particular, the angular acceleration receptors in the semicircular canal of the ear, giving delayed or inappropriate signals which are not in-phase with the optic signals from the eyes.

This conflicting information is seemingly resolved by the brain by rationalizing 'that the room must be spinning' – normally in the oppositedirection.

a repetition of the disturbing symptoms with each turn of the head is experienced.

It is carried out in the following sequence:

All vertigo patients should receive a **Hallpike** - also known as **Nylan-Barany - Test**. In this diagnostic test, the patient is sat upright with the head turned 45 degrees to either side. The examiner grasps the patient's head and gently lays the patient down to the supine position with the head hanging over the edge of the bed. The patient is told to keep his eyes open. The examiner looks for signs of torsional or rotatory nystagmus and asks the patient if his symptoms recur. The patient is returned to the upright position and the test is repeated with the head turned in the opposite direction. Only one side is usually symptomatic, and it is this side that

increased our success rate to 90-95%. This was not only measured by me using the Otoscope, but by the Audiology tests and not still being referred for surgery.

What has certainly been of interest over the years is the way that we perceive the main aetiology of Otitis Media. The accepted norm is that it is viral or bacterial, hence the widespread use of antibiotics. We found that the consistent use of antibiotics has a role to play in antagonising the Vagus Nerve, (CN10), which in turn antagonises the auricular fibres at the superior end of the Vagus Nerve. By palpating the Ileocecal valve one can bring about the symptom of pain to the right ear.

As an Osteopath, I also take into consideration a mechanical/structural dysfunction, as well as a congestive dysfunction. The former of these can be broken down into traumatic births i.e. forceps, caesarean, prolonged labour etc, where the primary spinal curve is lesioned.

The second cause is that of congestion, whether dietary or viral from mucus membrane irritation to the Goblet Cells within the epithelium. Over 40% of children and adults have a problem digesting cows milk, cheese and yoghurt, hence the over production of mucus. Bananas are also mucus forming.

The manual treatment deals with the lymphatic system, mucus membranes, and sinus areas using massage, articulation, (not manipulation) and reverberation techniques.