

A common cause of vertigo, visual disturbance, and loss of balance is vestibular hypofunction.

Vestibular: inner ear balance system.

Hypofunction: it is not functioning at 100%. In other words it is underperforming so it is not sending balance signals to your brain correctly.

The Inner Ear Balance System:

The inner ear system, cochlea (hearing) and vestibular (balance) apparatus, is encased in bone inside the skull and consists of delicate membranes filled with fluid.

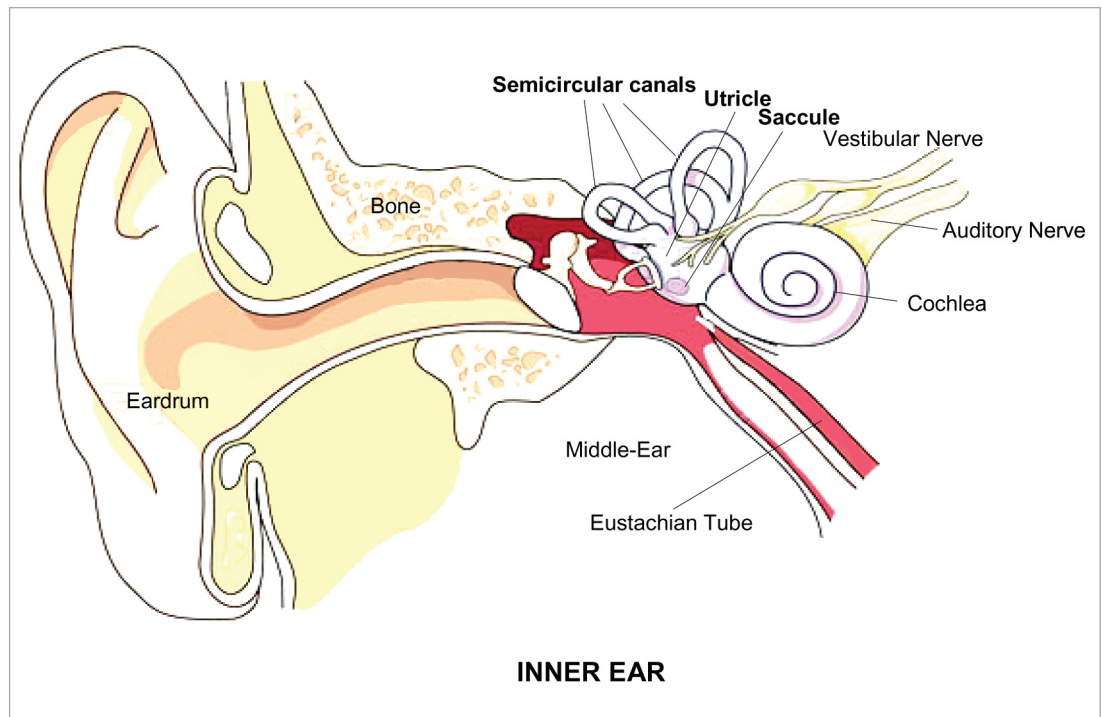
The inner ear consists of five balance organs:

- three motion sensors called the semi-circular canals (horizontal, posterior and anterior canals). These canals are filled with fluid and contain motion sensitive cells
- two structures which sense gravity and tilt called the utricle and saccule.

All five balance organs help you sense your head and body position and the speed at which your body and head moves. The most important job they need to perform is the Vestibular Ocular Reflex (VOR). The balance organs adjust your eye movements at a rate of speed that equals the speed of your head movement. This enables you to see things clearly when you are moving your head or your body in any direction. This function is very important in maintaining balance in standing or walking and stabilizing your eyes during head movements.

What happens in Vestibular Hypofunction?

For some reason your balance organs are damaged. The damage can be complete or partial. It can be on one side or both sides. The sensory cells in the organs are



not sending signals correctly to the brain. The brain is confused therefore movement of your head or body results in vertigo, visual disturbance, and loss of balance.

Common Causes of Vestibular Hypofunction:

Your doctor may have mentioned these terms to you before:

- **Vestibular neuritis** - the nerve connecting to the balance organ is damaged so signals are blocked before they can be transmitted to the brain
- **Labyrinthitis** - the balance organs themselves are damaged
- **Acoustic neuroma** - following surgery to remove the benign tumor
- **Ramsay Hunt Syndrome** - also comes with facial paralysis
- **Gentamycin Ototoxicity** – a specific antibiotic has the ability to kill the sensory cells in inner ear
- **Meningitis**
- **Trauma or head injuries**
- **Menieres Disease or hydrops** - also comes with low pitched tinnitus or “fullness” in the ear

Characteristics of Vestibular Hypofunction

Damage to one side (unilateral vestibular loss)

- initial vertigo (spinning sensation), nausea and loss of balance that can persist constantly for up to 3-4 days.

Followed by:

- dizziness and visual blurring on rapid head movement
- feeling off balance
- dizziness (feeling light headed, disorientated, “spacey”) that can last for hours.

Damage to both sides (bilateral vestibular loss)

- because signals are lost from both sides, the brain does not receive signals from both balance organs
- no dizziness or vertigo is usually experienced
- severe oscillopsia. This is apparent movement of a still environment, induced by head movement
- general mild light headedness
- severe walking impairment
- severe problems with standing balance.

Due to the complexity of balance organs a mixture of the above symptoms or signs can be presented.

Treatment of Vestibular Hypofunction

There are several treatment options. Your therapist will tailor your treatment to suit your specific needs. This may include visual stability exercises, exercises to decrease motion sensitivity, balance exercises and/or functional task retraining.

The aim of treatment is to improve your visual stability. It means that your eyes should be able to track your environment while you are moving your head or body. This will reduce vertigo and enhance your overall balance and mobility.

The treatments are designed to MOVE and CHALLENGE your brain and your inner ear system. **You will have to get dizzy to improve.** Most of us, on becoming dizzy, avoid the activity that causes the dizziness. However the problem is that the brain gets used to us moving slowly and forgets what signals to send out to help us keep our balance when we do need to move quickly. The only way to improve this is to teach the brain to pay more attention to the remaining signals and/or other body systems. This allows us to maintain body reactions and postural balance at normal moving speeds. Basically, you are reprogramming your whole balance system including your brain.

Remember that treatments are progressed gradually at each step to accommodate your tolerance level. It doesn't have to be a painful experience.

You will be given a vestibular exercise programme to do at home. Detailed instructions and safety issues will be given.

You will practice the programme with your therapist. Remember your therapist is there to answer your questions and to help you in any way they can.

As you improve, functional tasks will be added to enhance the effect of the programme.

Remember even simple physical activity such as standing from sitting or lying can help a great deal. **The key concept is that you must move to get better.**

Reminders

In many cases the damage is permanent. Physiotherapy helps the brain learn to compensate for the damage.

Damage to one side

Most people will not be aware of any ongoing symptoms. The more active you are the better your recovery will be.

Damage to both sides

Most people always have some problems with their balance. You will need to be particularly careful when walking in the dark and swimming. Driving in the dark can be very difficult.

Treatment aims to:

- decrease symptoms
- improve postural balance
- maximise your function so you can do your normal daily activities
- improve mobility
- reduce falls risk

Therapist:

Phone:

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