

The Vestibular System

The vestibular system is a sensory system which helps keep a person's gaze and balance stable whenever the head is moved. The vestibular system works with other sensory systems like vision and joint position awareness to help maintain balance.

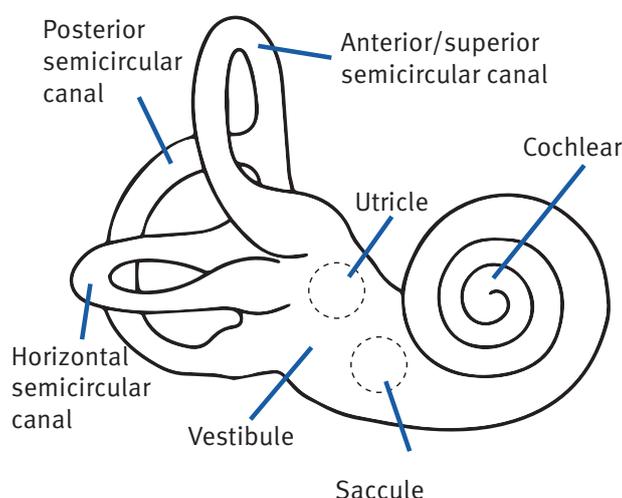
The vestibular system consists of a peripheral system in each ear and a central system in the brain.

The Peripheral System or inner ear

Consists of:

- 3 fluid-filled semicircular canals with sensory hair cells that detect rotational head movement.
- A sac-like structure, called the vestibule, which contains crystals embedded in a jelly-like substance. This structure responds to change of head position in relation to gravity.

These peripheral structures are motion sensors, which tell the brain about head movements. This information is sent to the brain via the vestibular nerve.



The Central System or brain

The brain uses the information from the peripheral parts in each ear together with other information like vision and sensory awareness. This information is used to coordinate reflex eye movements to maintain clear vision and also generate body movements in order to maintain balance while the head is moving.

Vestibular problems

Vestibular problems are common and in some cases are easily treated. Symptoms can include any or all of the following:

- Dizziness
- Blurred or jumpy vision
- Nausea
- Imbalance

Vestibular problems are divided into two main categories, peripheral or central depending on the location of the problem.

Peripheral vestibular problems

1. “Hypofunction” or loss of function

Vestibular hypofunction occurs when there is a loss of information from the inner ear to the brain. When this happens on one side only, nausea, dizziness and imbalance may be experienced due to the unequal information sent to the brain.

Possible causes of hypofunction could be age related, viral infection or surgery to the vestibular nerve. This problem can be due to medical conditions or as a side effect of certain medications.

2. Mechanical problems

Mechanical problems occur when particle like ‘crystals’ dislodge into a semicircular canal and cause disturbance to the flow of the fluid in the canal. This causes incorrect information about head movement to be sent to the brain causing dizziness. This condition is called Benign Paroxysmal Positional Vertigo (BPPV) and is a common cause of vertigo.

Central vestibular problems

Central vestibular problems can be caused by damage to the brain from a stroke or head injury. This affects how the brain uses the information from the inner ear. Symptoms experienced may include dizziness, visual and balance disturbances. Other neurological symptoms like poor coordination and muscle weakness can also occur.

Occasionally people can experience a combination of problems involving both the peripheral and central vestibular systems.

Management of vestibular problems

The following health professionals may be involved in the assessment and management of vestibular problems:

- Ear Nose and Throat specialists
- Neurologist or Neurosurgeon
- Audiologist
- Physiotherapist
- Psychologist

Role of the physiotherapist:

Physiotherapists are involved in the treatment of many vestibular problems. A physiotherapist will do a thorough assessment to find the cause of the vestibular problem in order to design a suitable treatment program. The goals of therapy generally include reducing symptoms and improving one’s ability to do everyday tasks. Treatment may involve specific exercises to retrain eye and head movement and balance exercises. In some cases, symptoms may initially increase before improving. Your physiotherapist will carefully monitor the treatment to avoid excessive worsening of symptoms.

Health professional: _____

Contact details: _____

Disclaimer: This health information is for general education purposes only. Please consult with your doctor or other health professional to make sure this information is right for you.

