Vestibular (Balance) System – Information and Anatomy

To best understand balance, we should first look at the ear. The outer ear consists of the visible ear, the ear canal, and the outside of the eardrum. Sound waves travel through the outer ear to the eardrum to get to the middle ear. The middle ear is just behind the eardrum. It is a hollow chamber that contains three tiny bones called the ossicles. The bones carry sound to the inner ear. A small tube leading from the back of the throat to the middle ear is called the eustachian tube. It keeps the middle ear filled with air. The inner ear is filled with fluid. It contains the cochlea, the semicircular canals, the saccule and utricle. The cochlea is the organ of hearing. The semicircular canals with the saccule and utricle are the organs of balance.

Sensors inside the three semicircular canals detect movements made by the head and rest of the body. Sensors inside the saccule and utricle detect whether the body is upright, upside-down or in between.

The semicircular canals are filled with fluid. At the base of each canal is a bulge called an ampulla. The ampulla contains sensory hair cells that send messages to the brain. As the position of your head changes, the fluid in the ear moves and bends the tiny hairs. This sends a message to the brain about the speed and direction that you are moving. In response to the message, the brain sends commands to move your eyes so you can see clearly as you move your head. The brain may also send commands to your muscles to help you keep your balance as you sit, stand, and move around.

All of the balance parts of both of your inner ears are called the vestibular system. If the vestibular organs are damaged or diseased, they may send too many or too few impulses to the brain. The brain interprets these abnormal messages as an imbalance of the body. The person then has a false feeling of motion, or dizziness. This condition is also called vertigo.

Inner Ear or Labyrinth

The information presented is intended for general information and educational purposes. It is not intended to replace the advice of your health care provider. Contact your health care provider if you believe you have a health problem.