PHYSIOLOGY OF BALANCE

Balance refers to an individual’s ability to maintain their line of gravity within their Base of support (BOS). It can also be described as the ability to maintain equilibrium, where equilibrium can be defined as any condition in which all acting forces are cancelled by each other resulting in a stable balanced system.

The ear is a sensory organ that picks up sound waves, allowing us to hear. It is also essential to our sense of balance: the organ of balance (vestibular system) is found inside the inner ear.

It is made up of three semi-circular canals and two otolith organs known as the utricle and saccule.

Balance is mediated by the Vestibular nuclei in the brain stem. The labyrinth, which is a part in the inner ear, is a major organ of our vestibular system (balance).

The three semi-circular canals of the labyrinth are associated with sensing rotary motion.

The brain senses the direction and speed of rotation of the head by the movement of fluid in the semi-circular canals.

The balance is maintained by the interactions between the labyrinth and other systems in the body, such as; the visual system and the skeletal system.

Inputs into the balance system include;

-Vestibulo-ocular: It permits reflex eye movements related to posture.

-Vestibulo-spinal: It supplies anti-gravity muscles in the lower limbs and also supplies reflex arcs which control gait.