UBA AMALACHUKWU

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PHARMACOLOGY

Discuss the physiology of balance

The sense of balance or equilibrioception is the perception of balance and spatial orientation. It helps prevent humans and nonhuman animals from falling over when standing or moving. The vestibular system is the sensory apparatus of the inner ear that helps the body maintain its postural equilibrium. The information furnished by the vestibular system is also essential for coordinating the position of the head and the movement of the eyes. There are two sets of end organs in the inner ear, or labyrinth: the semicircular canals, which respond to rotational movements (angular acceleration); and the utricle and saccule within the vestibule, which respond to changes in the position of the head with respect to gravity (linear acceleration). Functionally these organs are closely related to the cerebellum and to the reflex centres of the spinal cord and brainstem that govern the movements of the eyes, neck, and limbs.

The vestibular system, the region of the inner ear where three semi-circular canals converge, works with the visual system to keep objects in focus when the head is moving. This is called the vestibulo-ocular reflex (VOR).[2] The balance system works with the visual and skeletal systems (the muscles and joints and their sensors) to maintain orientation or balance.

When the sense of balance is interrupted it causes dizziness, disorientation and nausea. Balance can be upset by Meniere’s disease, superior canal dehiscence syndrome, an inner ear infection, by a bad common cold affecting the head.