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PHARMACOLOGY

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Write short note on the Physiology of balance:

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). The information these organs deliver is proprioceptive in character, dealing with events within the body itself, rather than exteroceptive, dealing with events outside the body, as in the case of the responses of the cochlea to sound. 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 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. Equilibrioception is the result of a number of sensory systems working together: the eyes (visual system), the inner ears (vestibular system), and the body's sense of where it is in space (proprioception) ideally need to be intact.

The vestibular system, the region of the inner ear where three semicircular 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).The balance system works with the visual and skeletal systems (the muscles and joints and their sensors) to maintain orientation or balance. Visual signals sent to the brain about the body's position in relation to its surroundings are processed by the brain and compared to information from the vestibular and skeletal systems.