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ASSIGNMENT: EXPLAIN PHYSIOLOGY OF BALANCE

PHYSIOLOGY OF BALANCE

The semicircular canals and the vestibule(utricle and saccule) are concerned with balance. Any change of position of the head causes movement in the perilymph and endolymph, which bends the hair cells and stimulates the sensory nerve endings in the utricle, saccule and ampulla. The resultant nerve impulses are transmitted by the vestibular nerve which joins the cochlear nerve to form the vestibulocochlear nerve. The vestibular branch passes first to the vestibular nucleus, then to the cerebellum.

The cerebellum also receives nerve impulses from the eyes and proprioceptors(sensory receptors) in the skeletal muscles and joint. Impulses from these three sources are coordinated and efferent nerve impulses pass to the cerebrum and to skeletal muscles. This results in awareness of body position, maintenance of upright posture and fixing of the eyes on the same point, independently of head movements

THE SEMICIRCULAR CANALS AND VESTIBULE

The semicircular canals have no auditory function although they are closely associated with the cochlea. They provide information about the position of the head in space, contributing to maintenance of posture and balance.

There are three semicircular canals, one lying in each of the three planes of space. They are situated above and behind the vestibule of the inner ear and open into it. The semicircular canals, one lying in each of the three planes of spaces. They are situated above and behind the vestibule of the inner ear and open into it.

The semicircular canals, like the cochlea, are composed of an outer bony wall and

inner membraneous tubes or ducts. The membraneous ducts contain endolymph and are seperated from the bony wall by perilymph.

The utricle is a membraneous sac which is part of the vestibule and the three membraneous ducts open into it at their dilated ends. The ampullae. The saccule is part of the vestibule and communicates with the utricle and the cochlea.