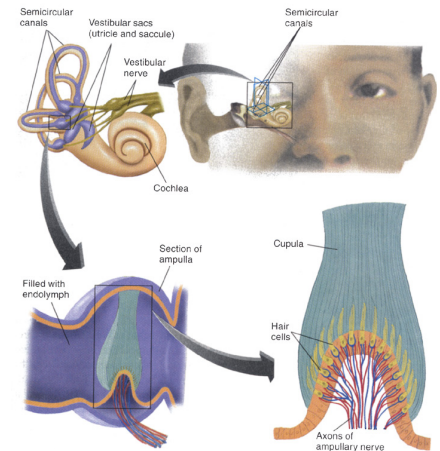


## ORIENTING SENSE

### 1) Vestibular Sacs

#### a) Saccule and Utricule

- i) Located at start of cochlea
- ii) Lined with hair cells like cochlea
- iii) Otoconia (otoliths)



### 2) Semicircular canals

#### a) 3 somewhat circular canals

#### b) Contain endolymph

#### c) Connected to utricle and saccule

#### d) Cupula

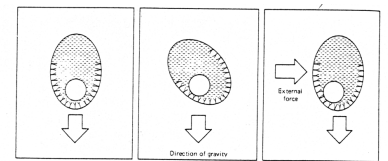


Figure 15.2 The statocyst in three conditions. Movement causes the statolith to stimulate different hair cells and, accordingly, register changes in position and linear acceleration.

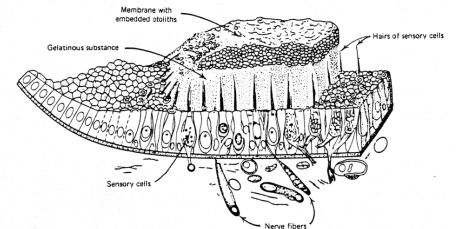


Figure 15.5 Structure of the macula of otocyst in cross section.

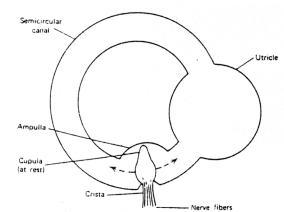


Figure 15.7 Schematic of a semicircular canal with ampulla, cupula, and crista. The dashed arrows indicate the potential deflection of the cupula by displacement of the endolymph fluid produced by appropriate rotation of the head.

3) Pathway

- a) Vestibular ganglion
- b) Vestibular nerve
- c) Medulla (vestibular nuclei)
- d) Cerebellum
- e) Spinal cord
- f) Pons
- g) Vestibular cortex

4) Nystagmus

5) Vestibulo-Ocular Movements

6) Vestibular Habituation

7) Motion Sickness

a) Sensory conflict theory

b) Simulator sickness

c) Ranges

8) Other Orientation Senses

a) Electric fields

b) Lateral line

c) Magnetic sense