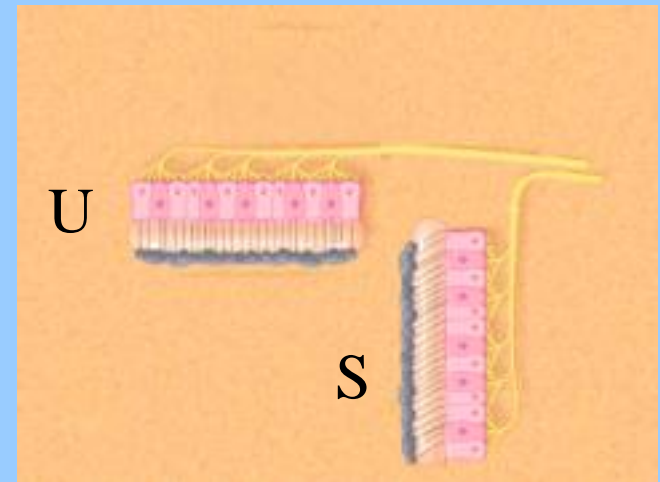


VESTIBULAR SYSTEM

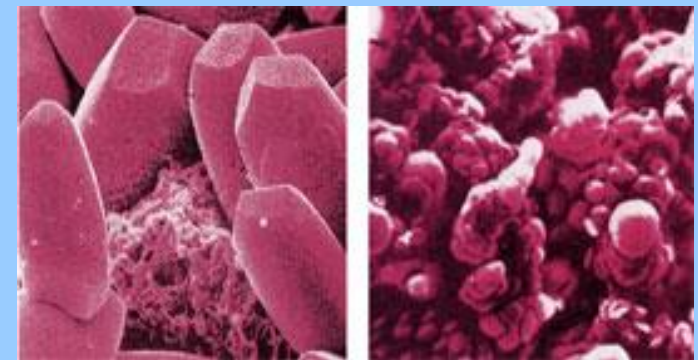
Static Labyrinth Apparatus (linear acceleration)

- macula utriculi – horizontal position
- macula sacculi - vertical position



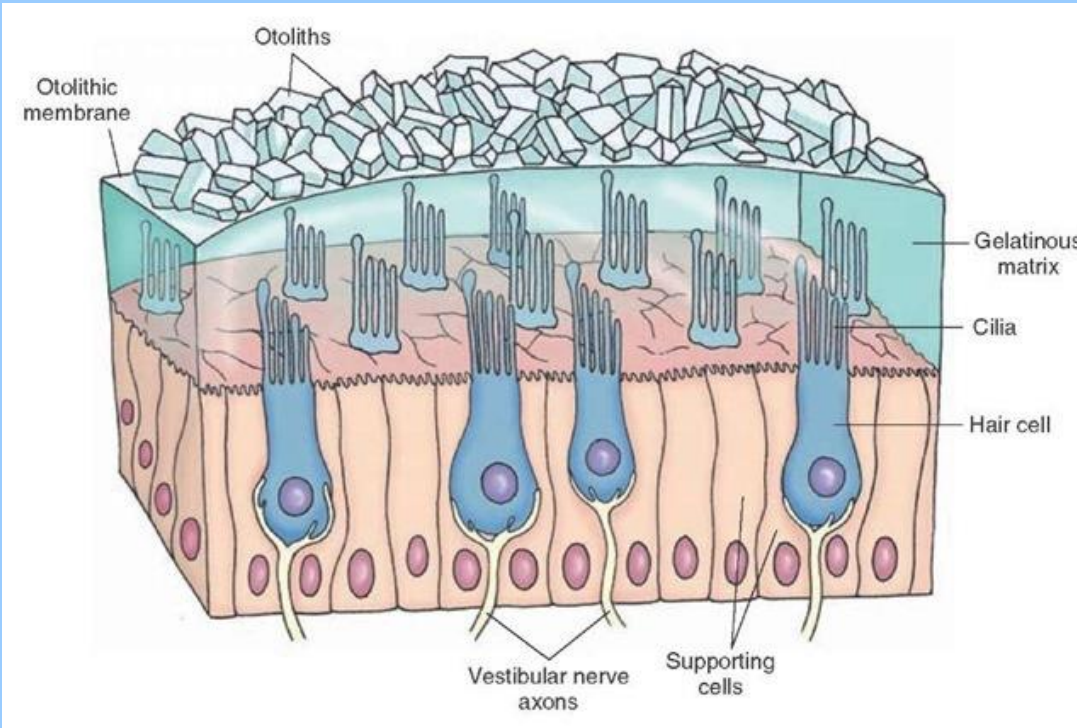
A. Normal otoliths

B. Otoliths of patient suffering from Ménière's disease



A

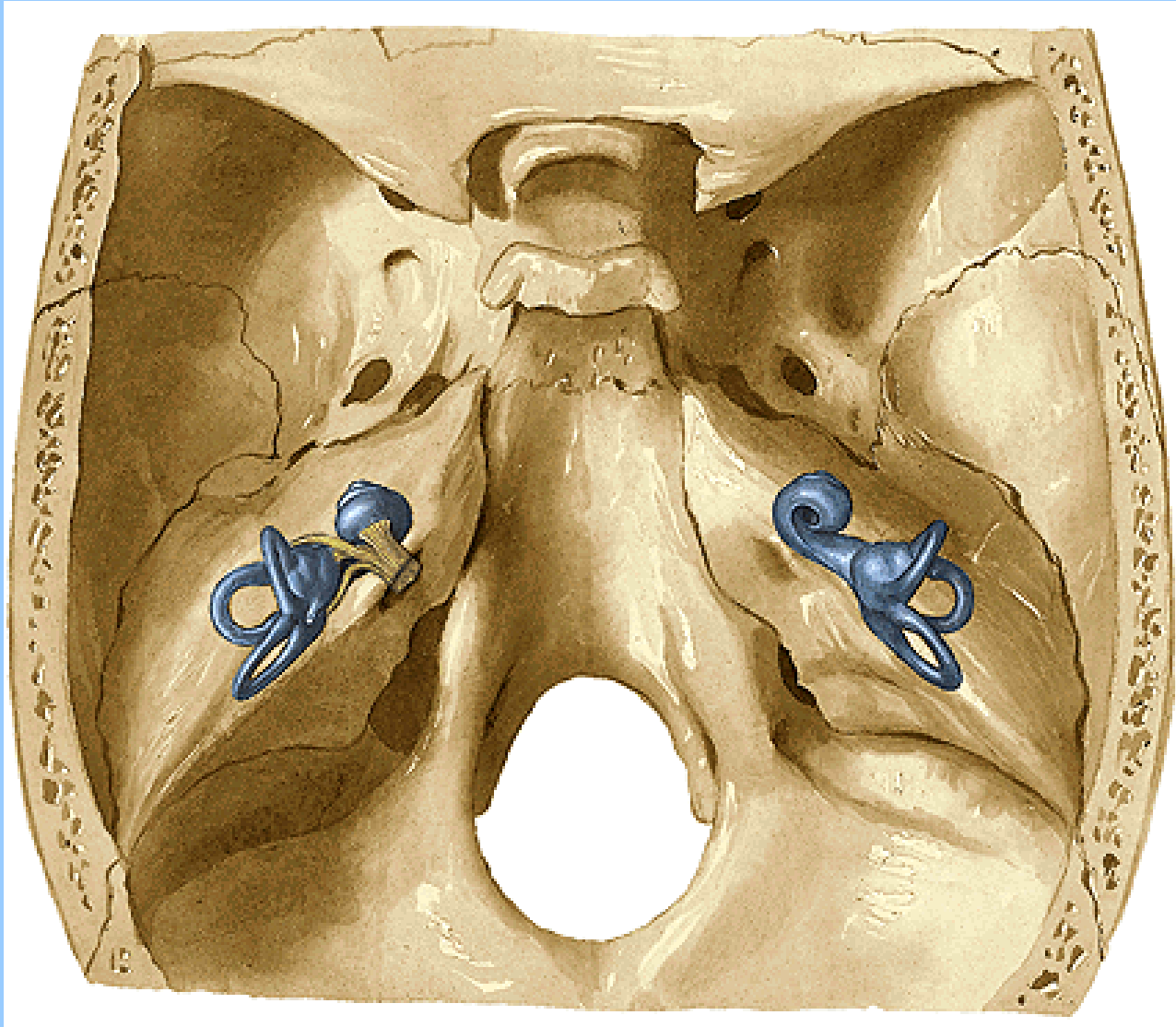
B

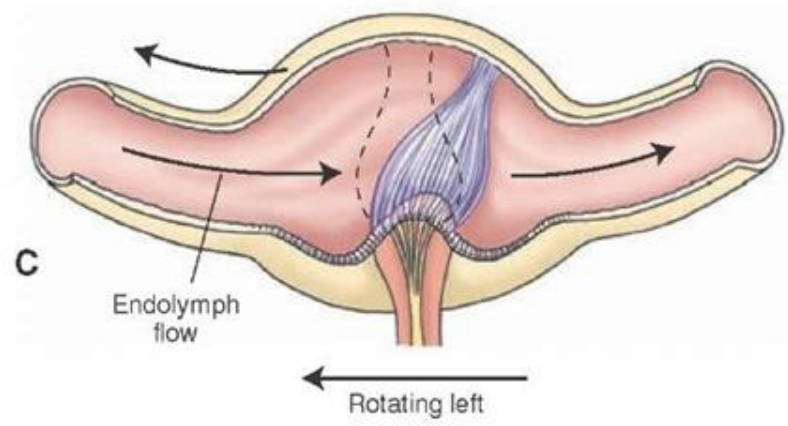
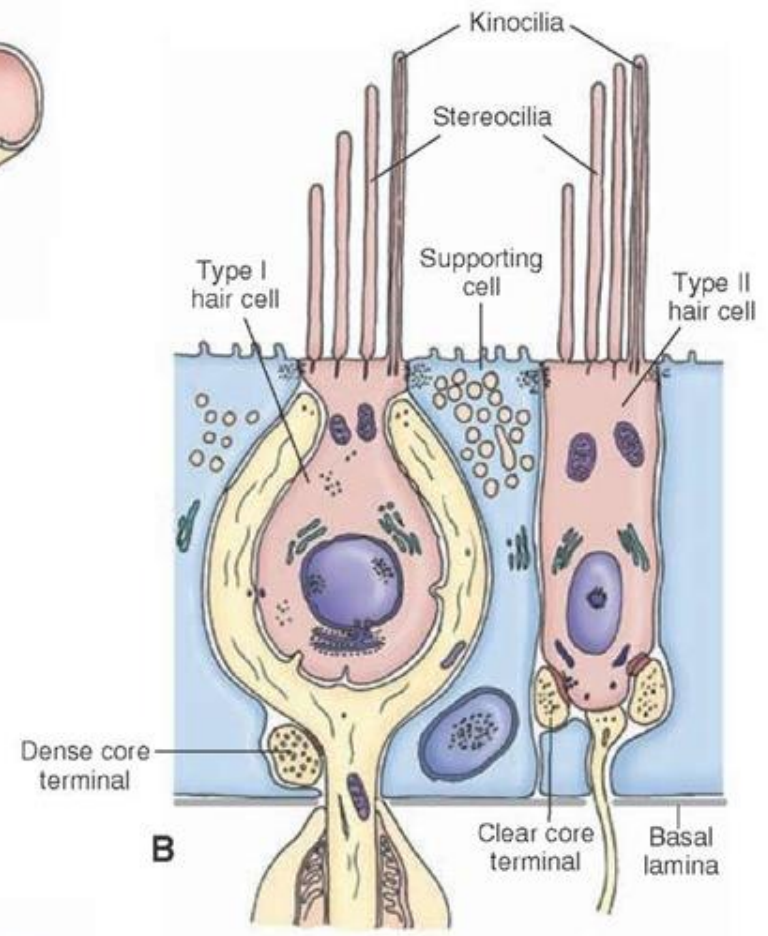
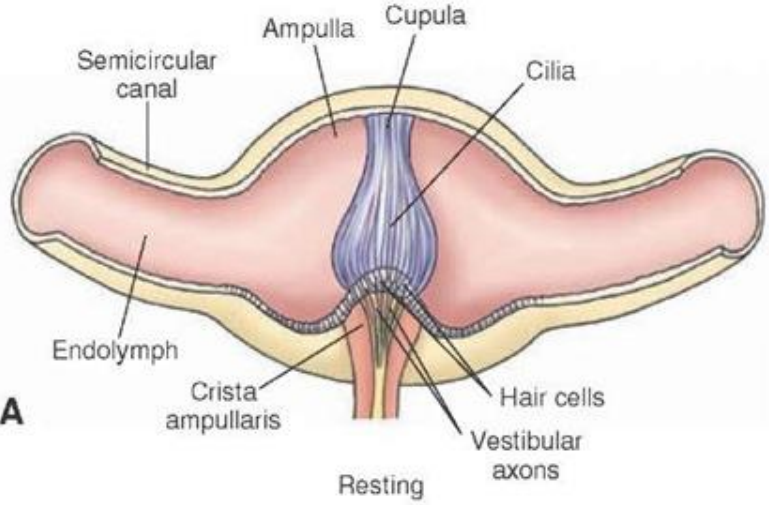


VESTIBULAR SYSTEM

Kinetic Labyrinth Apparatus (angular acceleration)

- cristae ampullares





VESTIBULAR SYSTEM

Static Labyrinth Apparatus (linear acceleration)

- macula utriculi – horizontal position
- macula sacculi - vertical position

Kinetic Labyrinth Apparatus (angular acceleration)

- cristae ampullares

Ist order neuron

Ganglion vestibulare – axons of pars vestibularis n. VIII

IInd order neuron

Ncll. vestibulares

- superior (Bechtěrev)
- inferior (Roller)
- lateralis (Deiters)
- medialis (Schwalbe)

CONNECTION WITH THE SPINAL CORD

vestibulospinal trr. terminate to γ and α motoneurones,

lateral vestibulospinal tr. – lateral vestibular ncl. (Deiters)

- facilitation and maintenance of muscle tonus of extensor and back muscles with reciprocal inhibition of flexors
- upright posture

medial vestibulospinal tr. – medial vestibular ncl. (Schwalbe)

- decreases bilaterally to C and Th lower motor neurons
- control of neck muscles to drive movements of head at keeping of balance

CONNECTION WITH THE BRAIN STEM

- **ascending part of FLM**
 - **To motor ncll. of oculomotor nerves (n. III, IV, VI)
movement coordination of head and eyes**
 - **To Cajal's ncl.: control of vertical eye position**

CONNECTION WITH THE CEREBELLUM

- **Vestibular ncll. (sup., inf. and med.)**
→ axons through cerebellar inf. peduncles to pars flocculonodularis (vestibular cerebellum)

cerebello-spinal trr. – motor neurones for trunk muscles - maintenance balance

Cajal's ncl.
To control vertical eye position

Vestibular ggl.

