

Equilibrium

The Anatomy of Static & Dynamic Balance

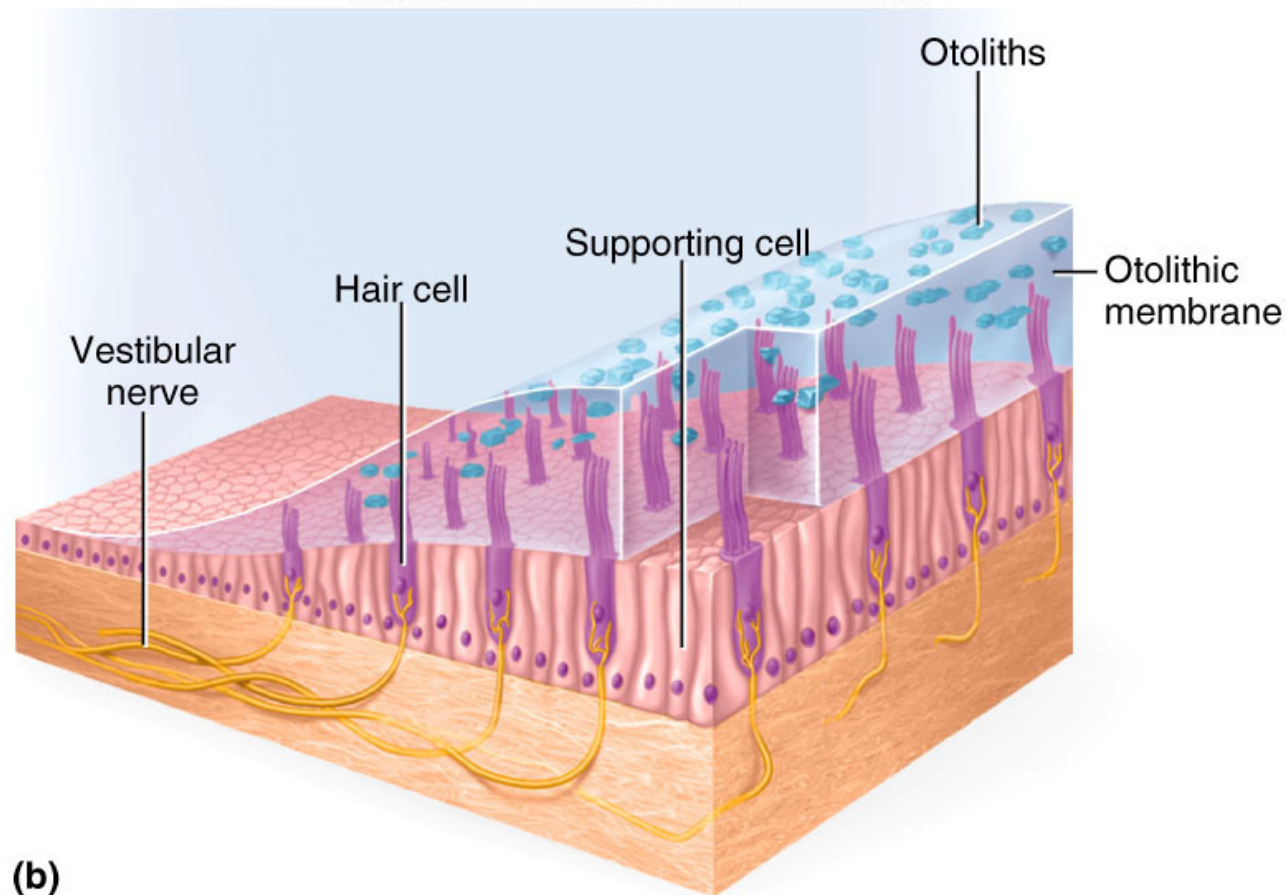
Equilibrium

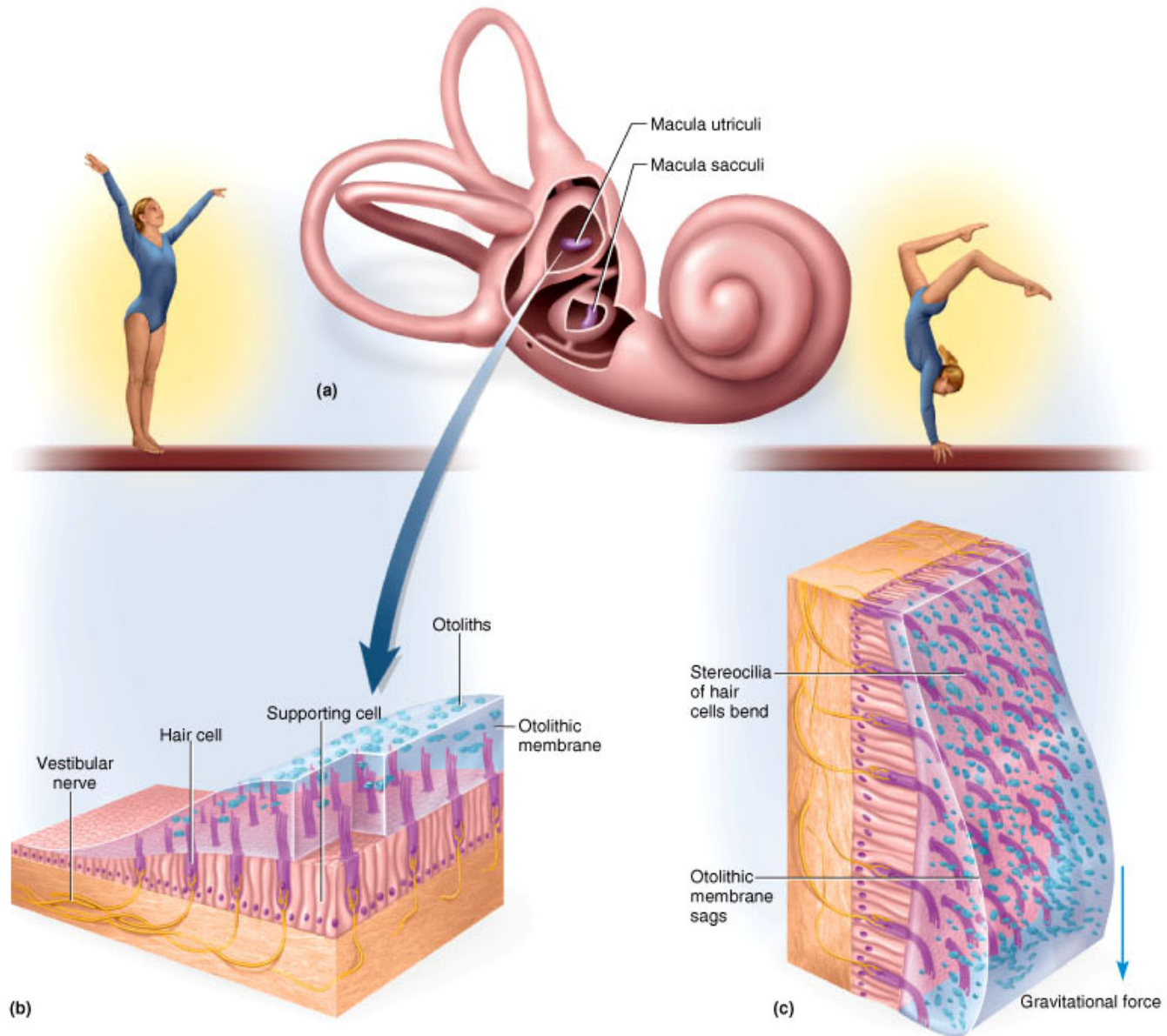
- The control of coordination and balance
- Receptors in vestibular apparatus
 - semicircular ducts contain **crista**
 - saccule and utricle contain **macula**
- Static equilibrium – perceived by macula
 - perception of head orientation
- Dynamic equilibrium
 - perception of motion or acceleration
 - linear acceleration perceived by macula
 - angular acceleration perceived by crista

Sacculle and Utricle

- **Contain macula**
 - hair cells with stereocilia and one kinocilium buried in a gelatinous otolithic membrane
 - otoliths add to the density and inertia and enhance the sense of gravity and motion

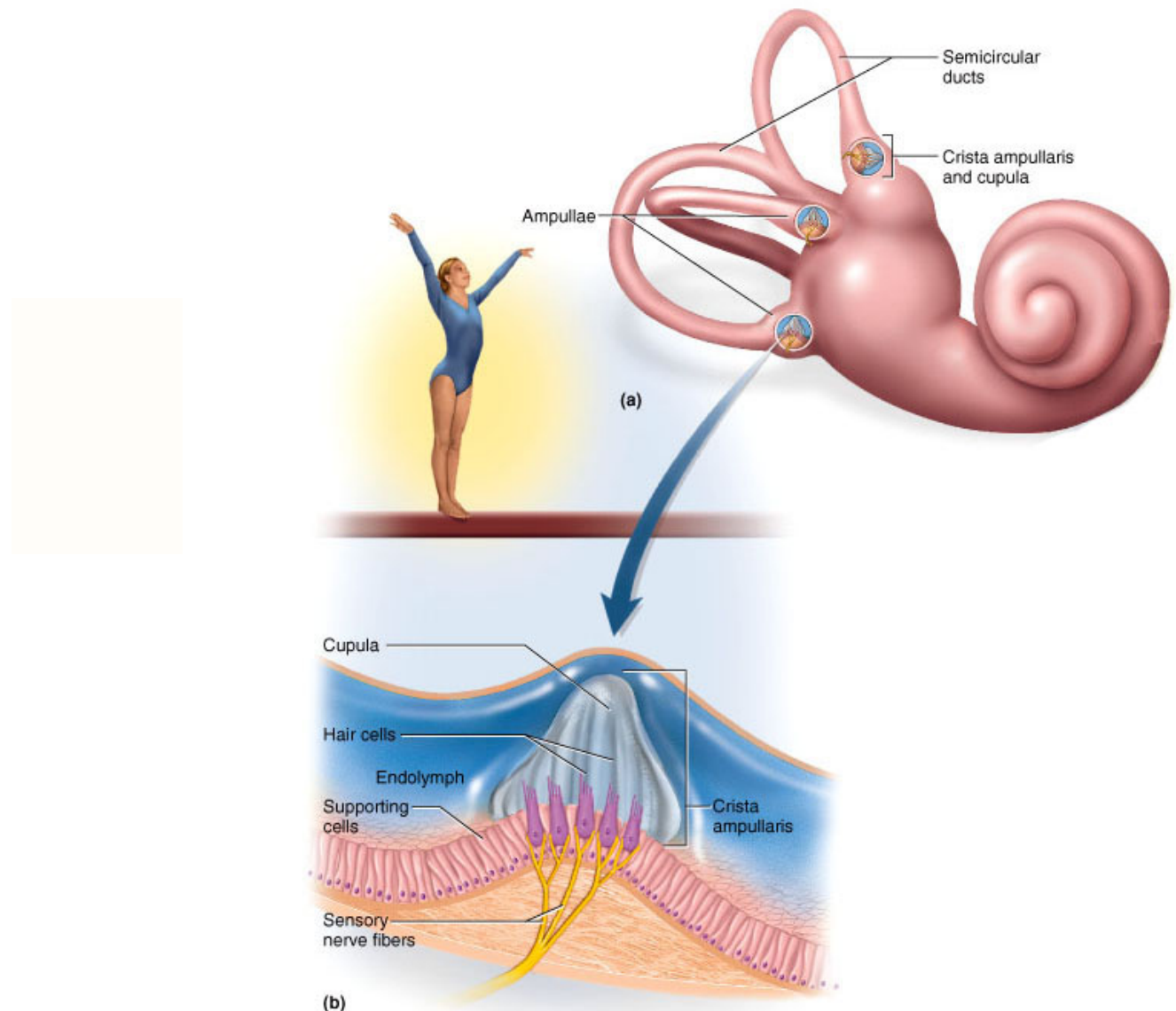
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Macula

- **Static equilibrium** - when head is tilted, weight of membrane bends the stereocilia
- **Dynamic equilibrium** – in car, linear acceleration detected as otoliths lag behind

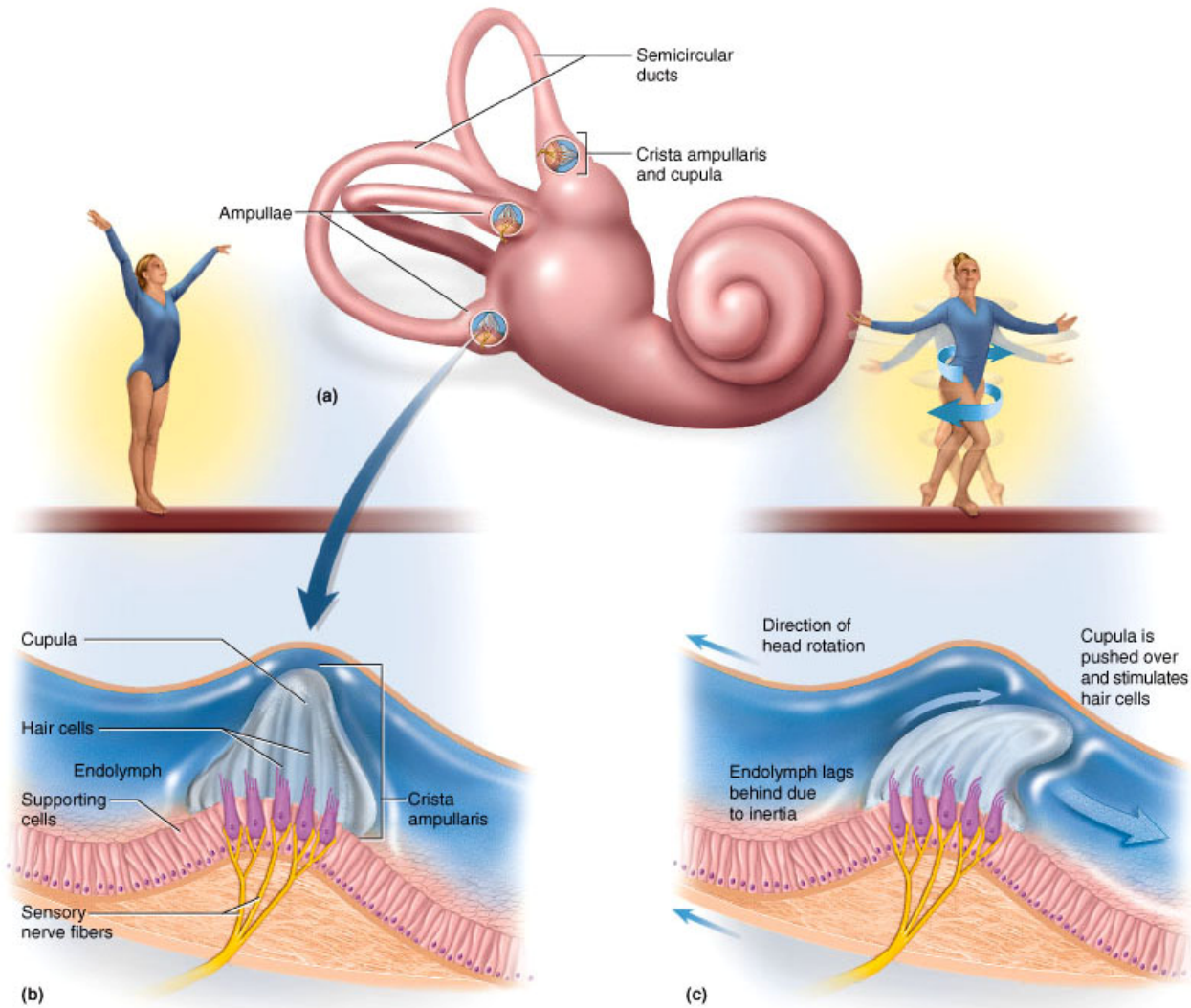


Crista Ampullaris

- Consists of hair cells buried in a mound of gelatinous membrane (one in each duct)
- Orientation causes ducts to be stimulated by rotation in different planes

Crista Ampullaris - Head Rotation

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- As head turns, endolymph lags behind, pushes cupula, stimulates hair cells

Vestibular Projection Pathways

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