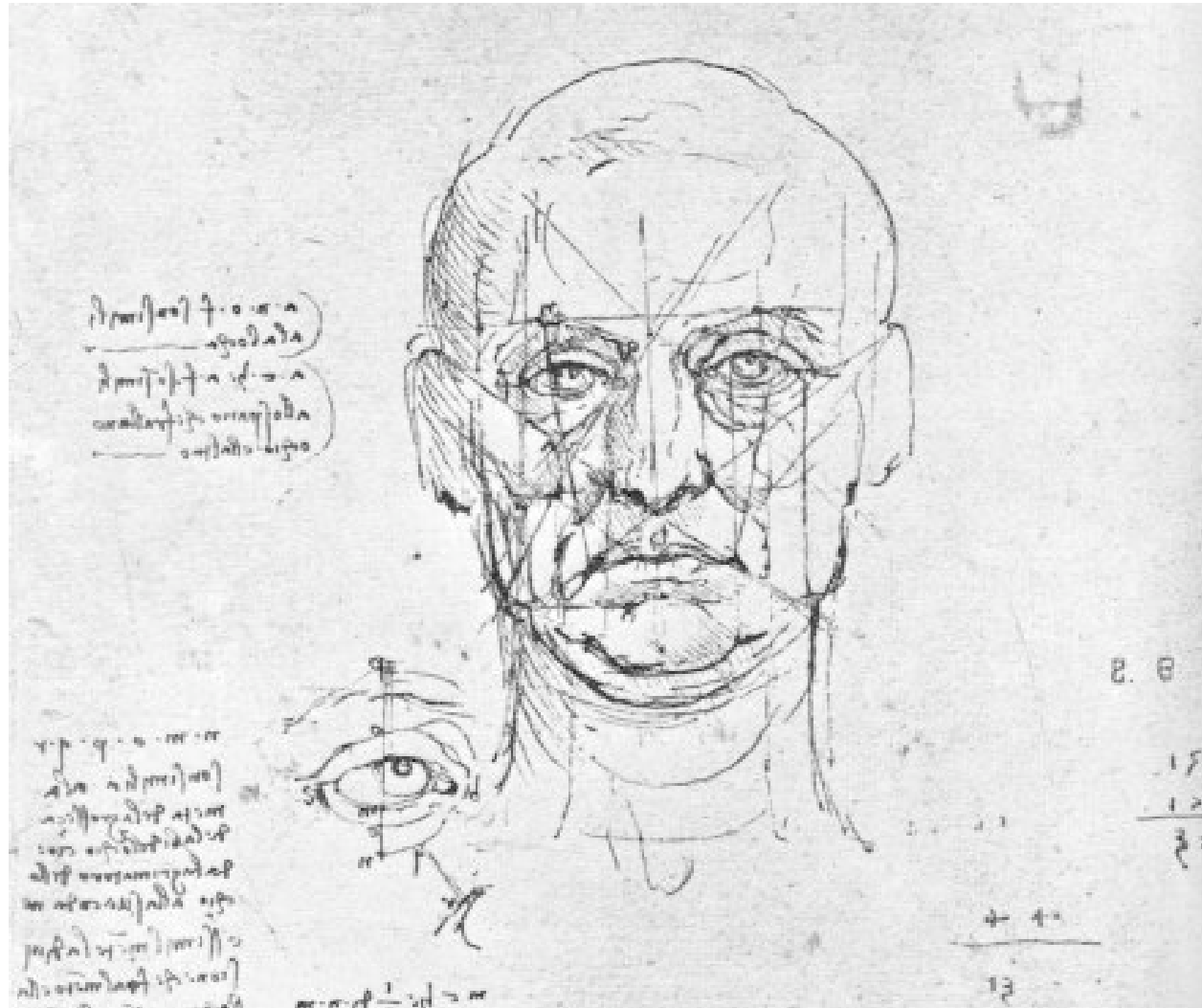
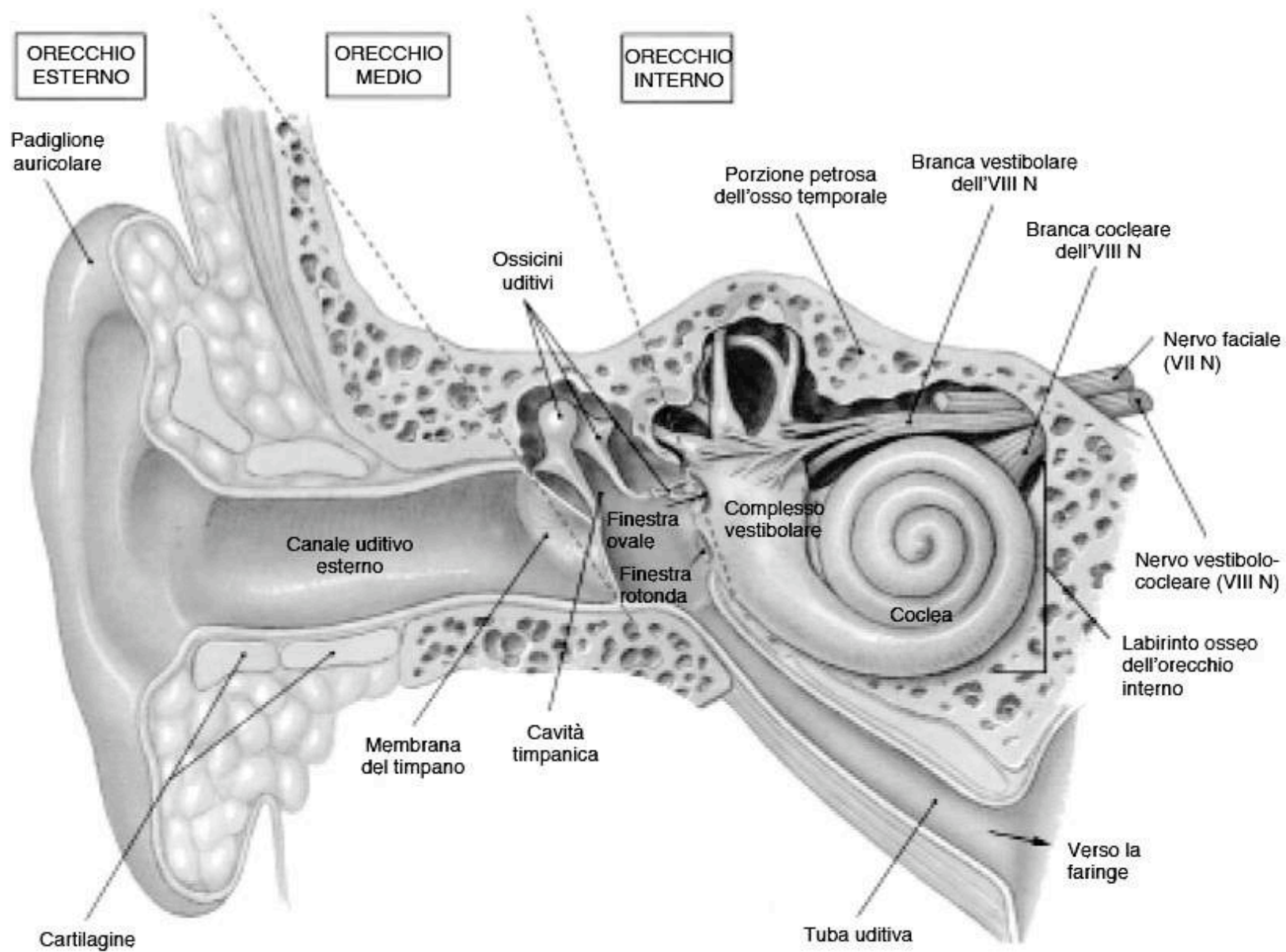


Via Uditiva e Vestibolare

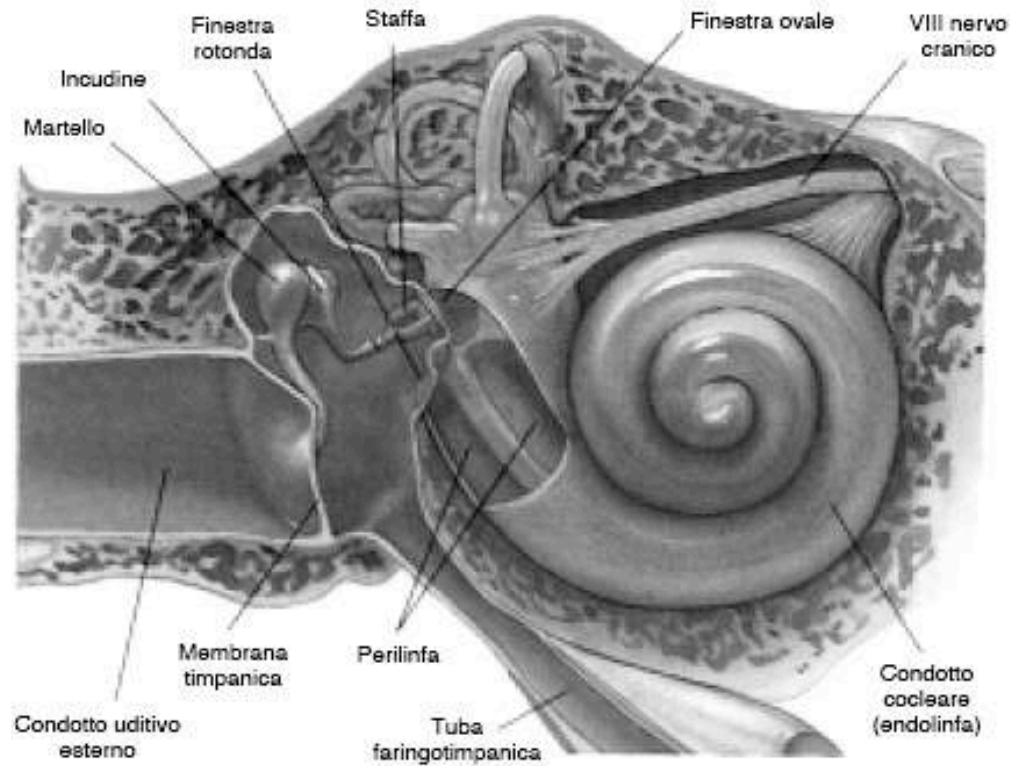


Orecchio

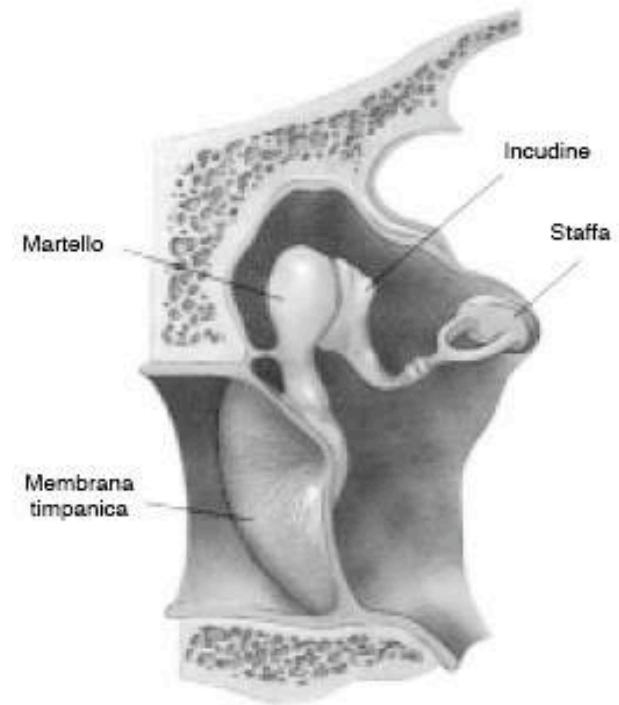
- **L'orecchio contiene due organi di senso:**
 - **L'organo dell'equilibrio**
 - **L'organo dell'udito**
- **L'orecchio si divide in 3 porzioni:**
 - **Orecchio esterno**
 - **Orecchio medio**
 - **Orecchio interno**
- **L'orecchio interno è contenuto nella piramide del temporale**



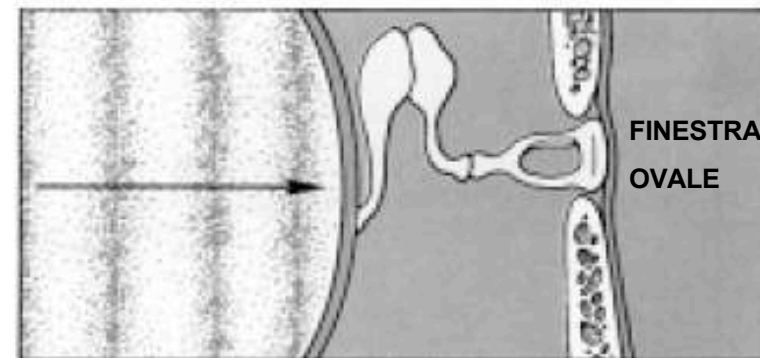
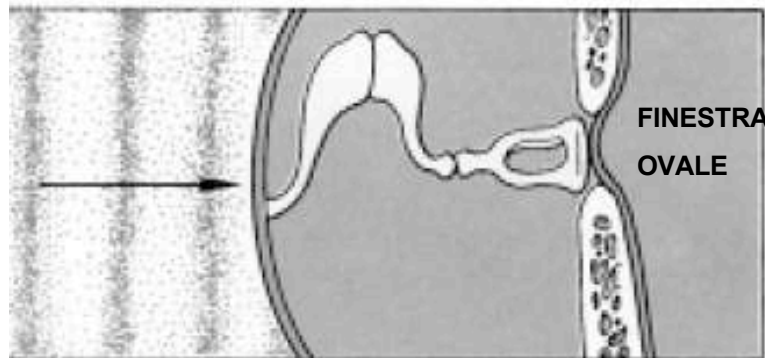
ORECCHIO MEDIO

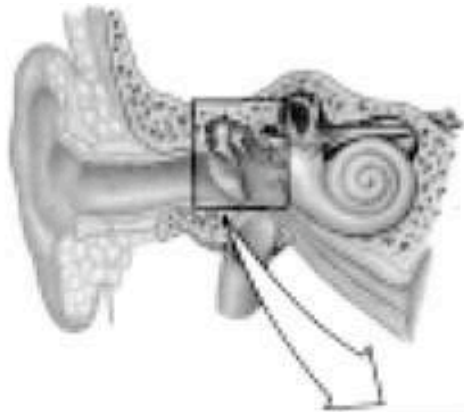


(a)



(b)



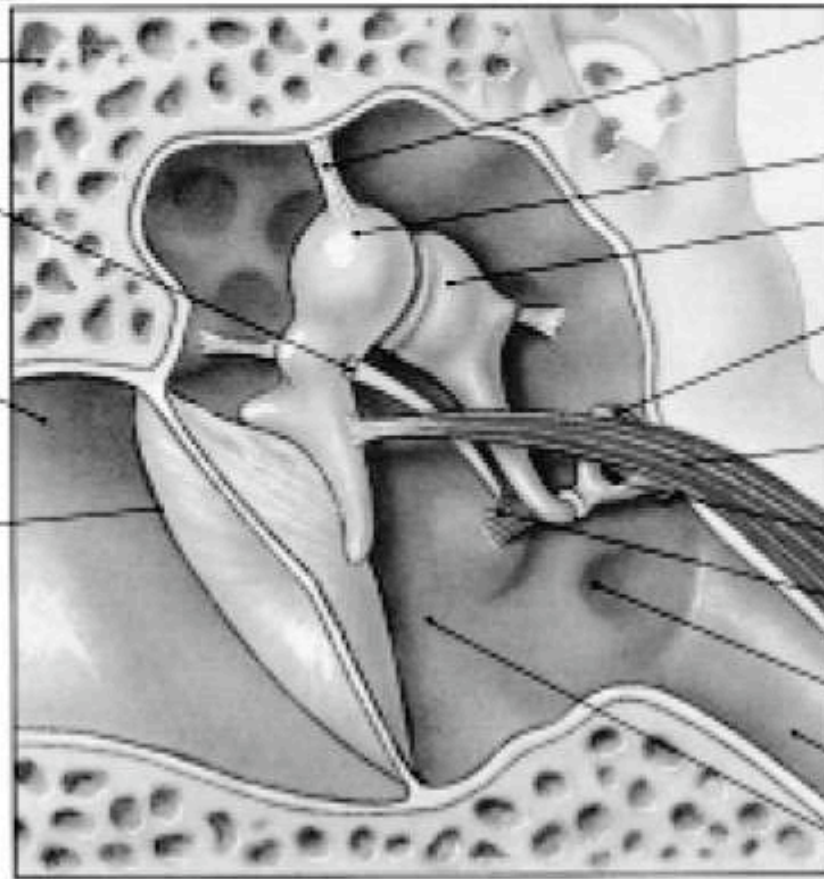


Ossio temporale
(porzione petrosa)

Corda del timpano,
branca del VII N

Canale uditivo
esterno

Membrana
del timpano



Legamento
sospensione

Martello

Incudine

Base della staffa
sulla finestra
ovale

Muscolo tensore
del timpano

Staffa

Muscolo stapedio

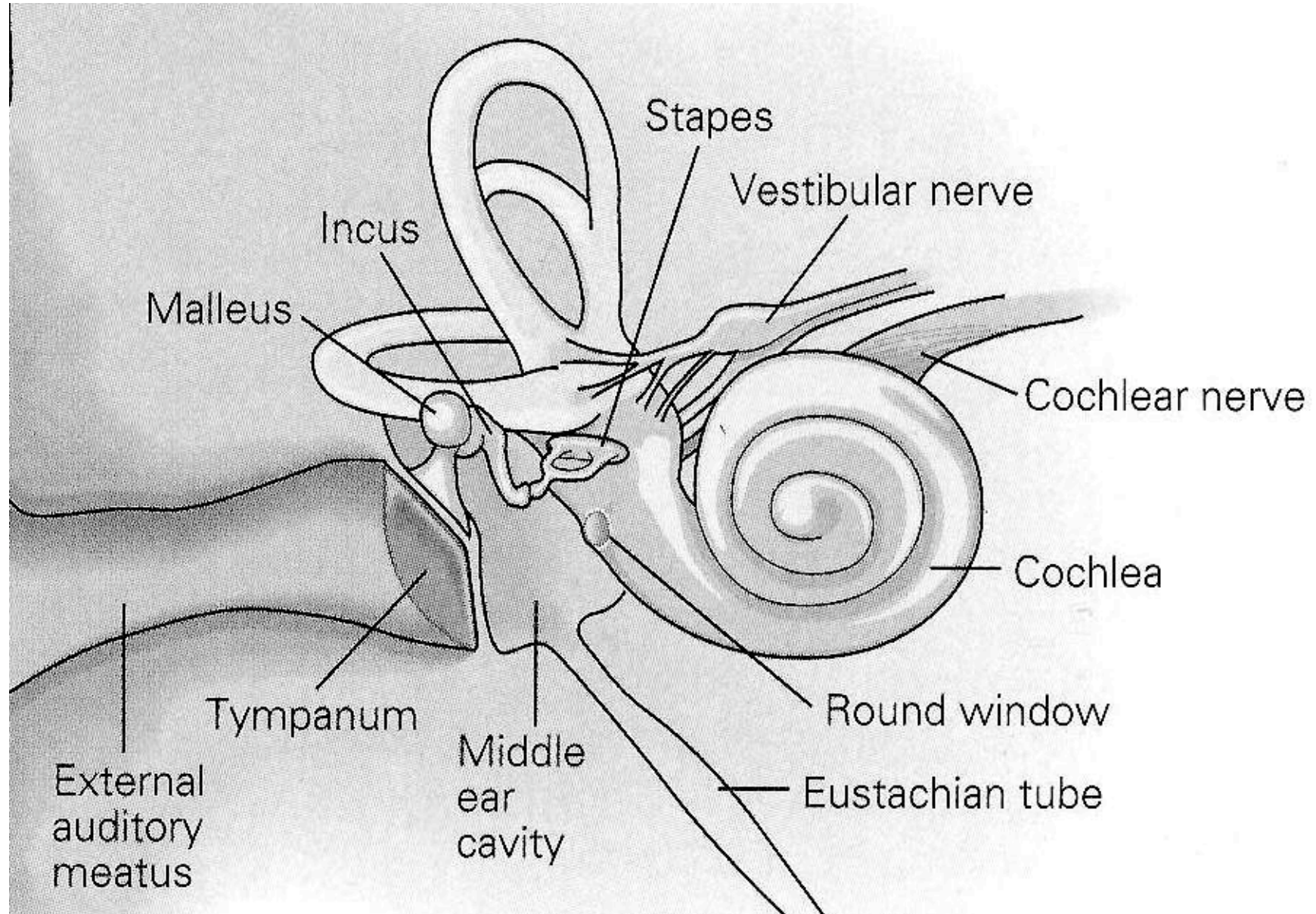
Finestra rotonda

Tuba uditiva

Cavità
timpanica

(b) Orecchio medio

ORECCHIO INTERNO



Visualizzazione tramite RMN

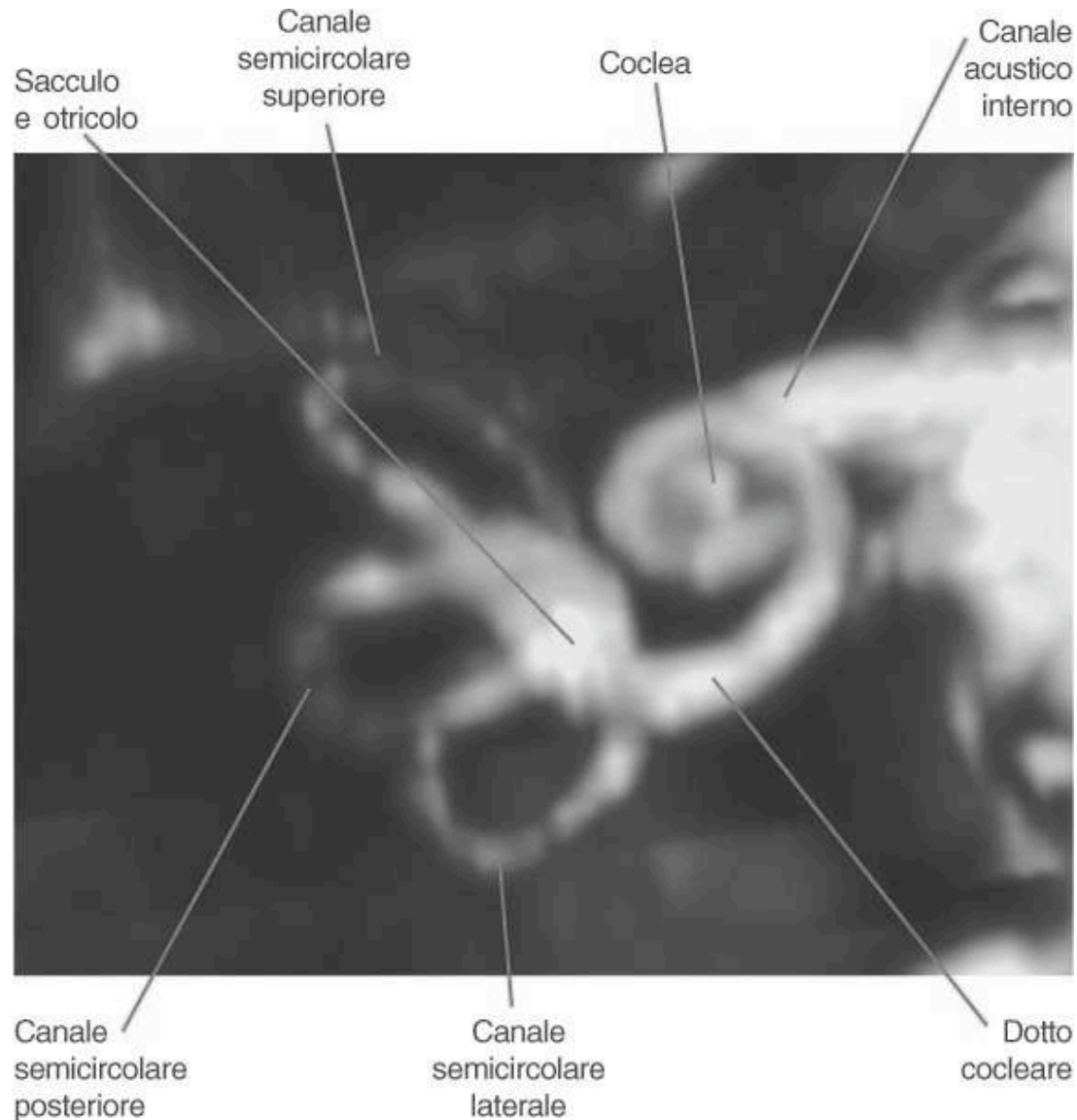
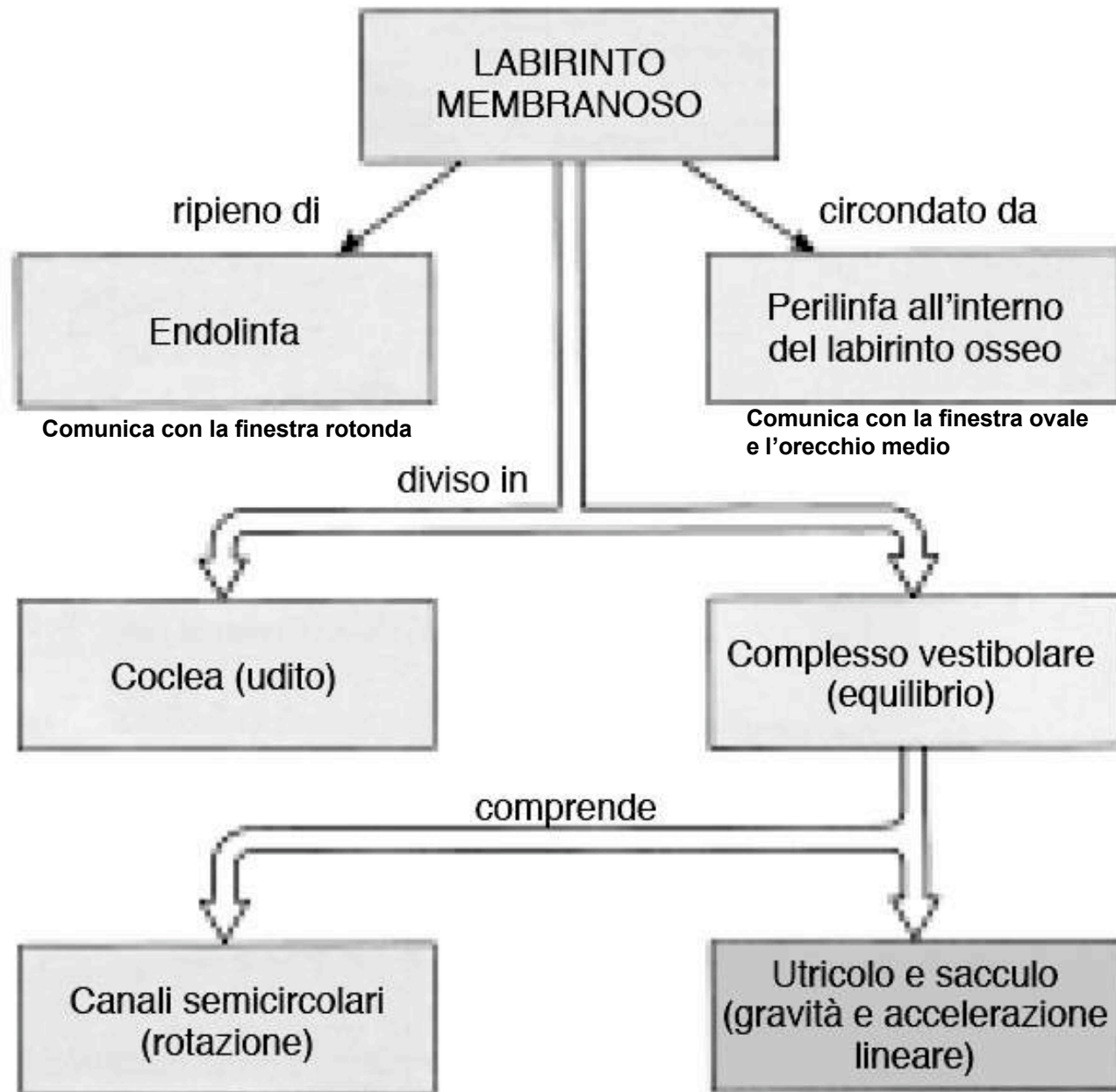
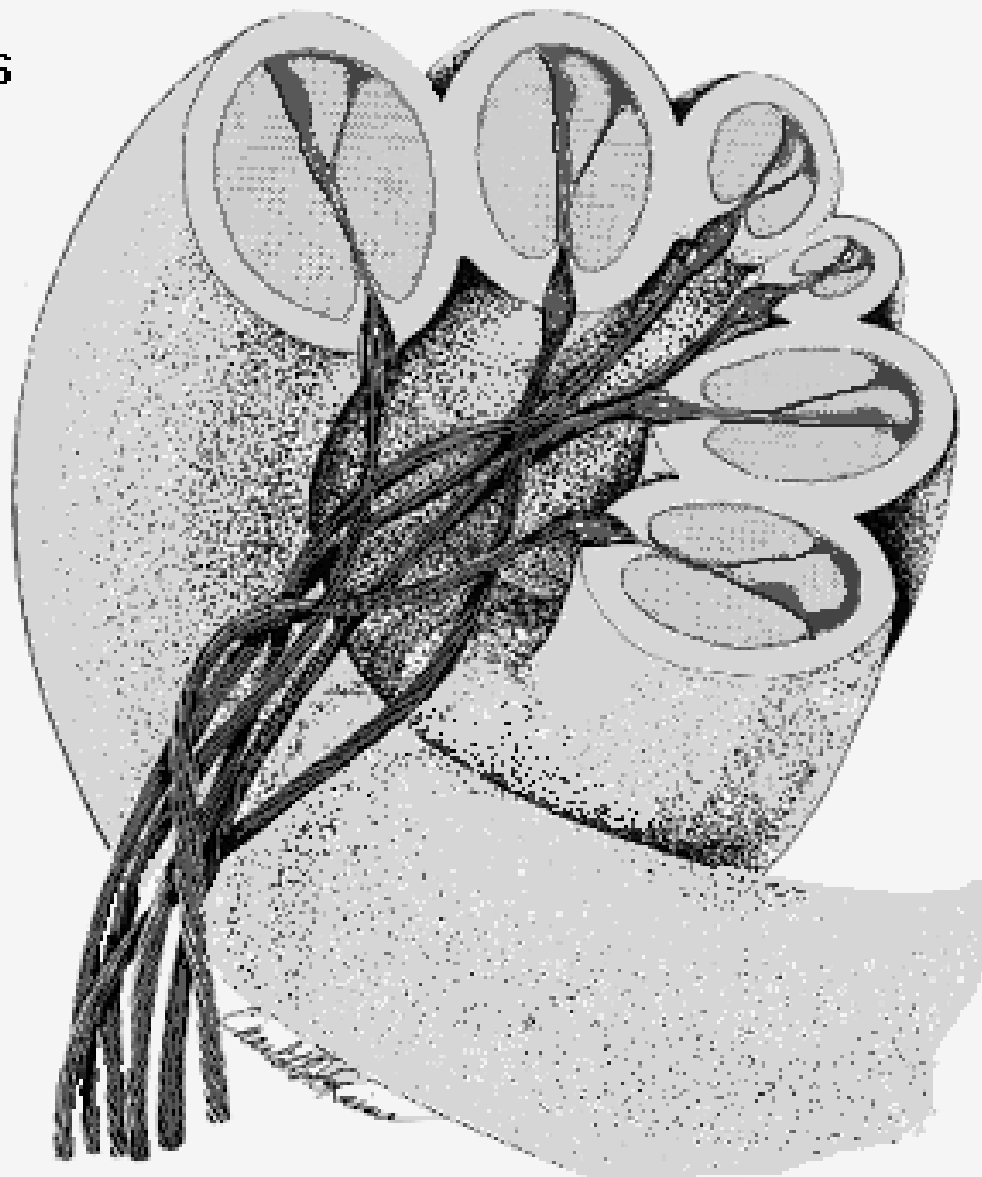


Figura I. - Ricostruzione tridimensionale (metodo della Maximum Intensity Projection) delle strutture dell'orecchio interno da un esame di Risonanza Magnetica.

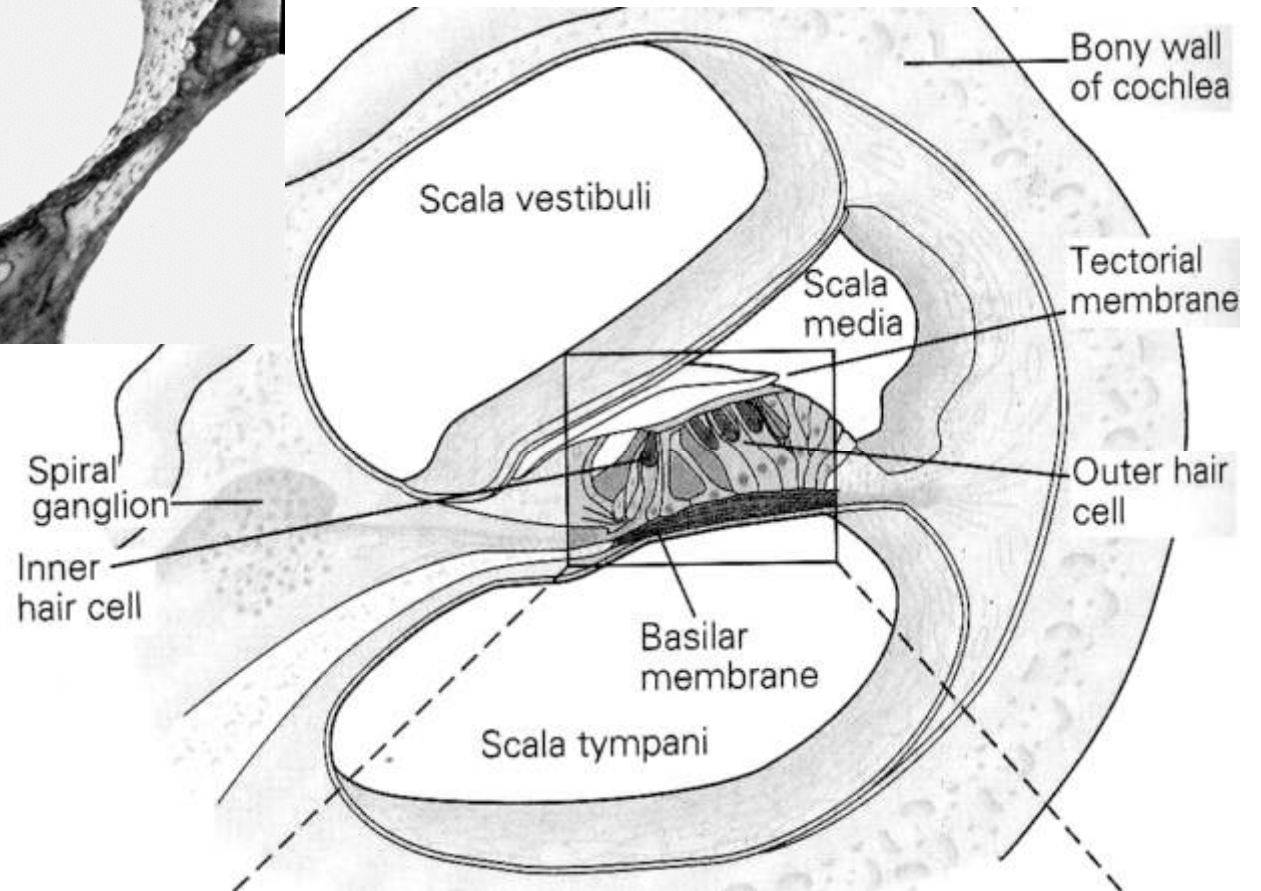
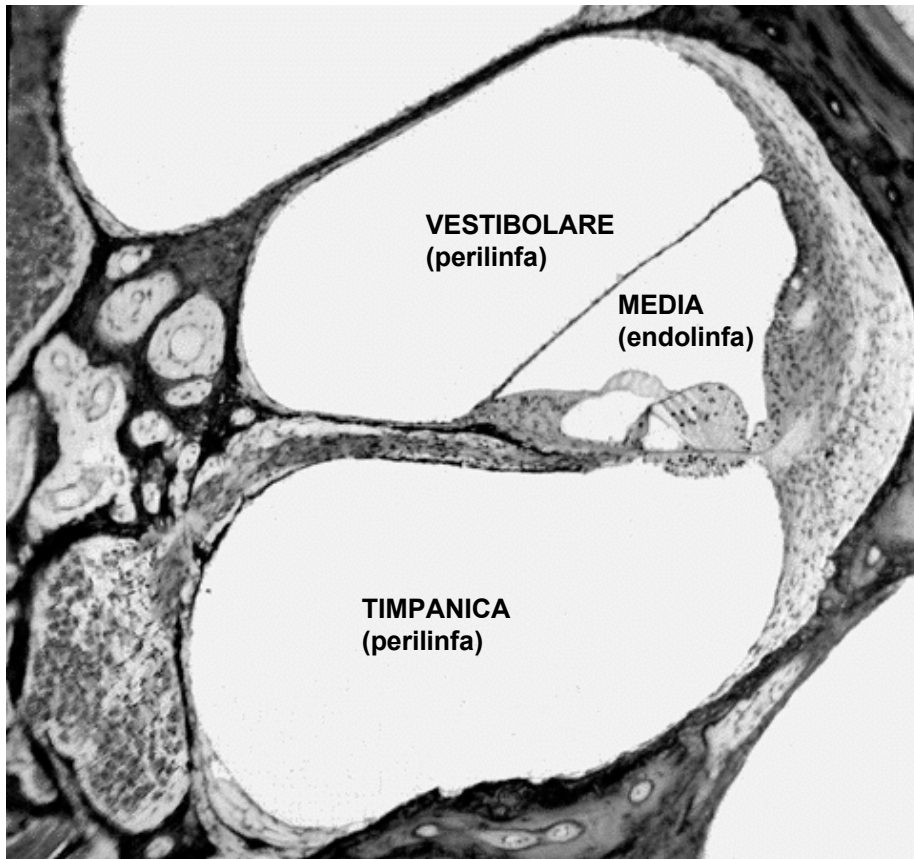


Coclea

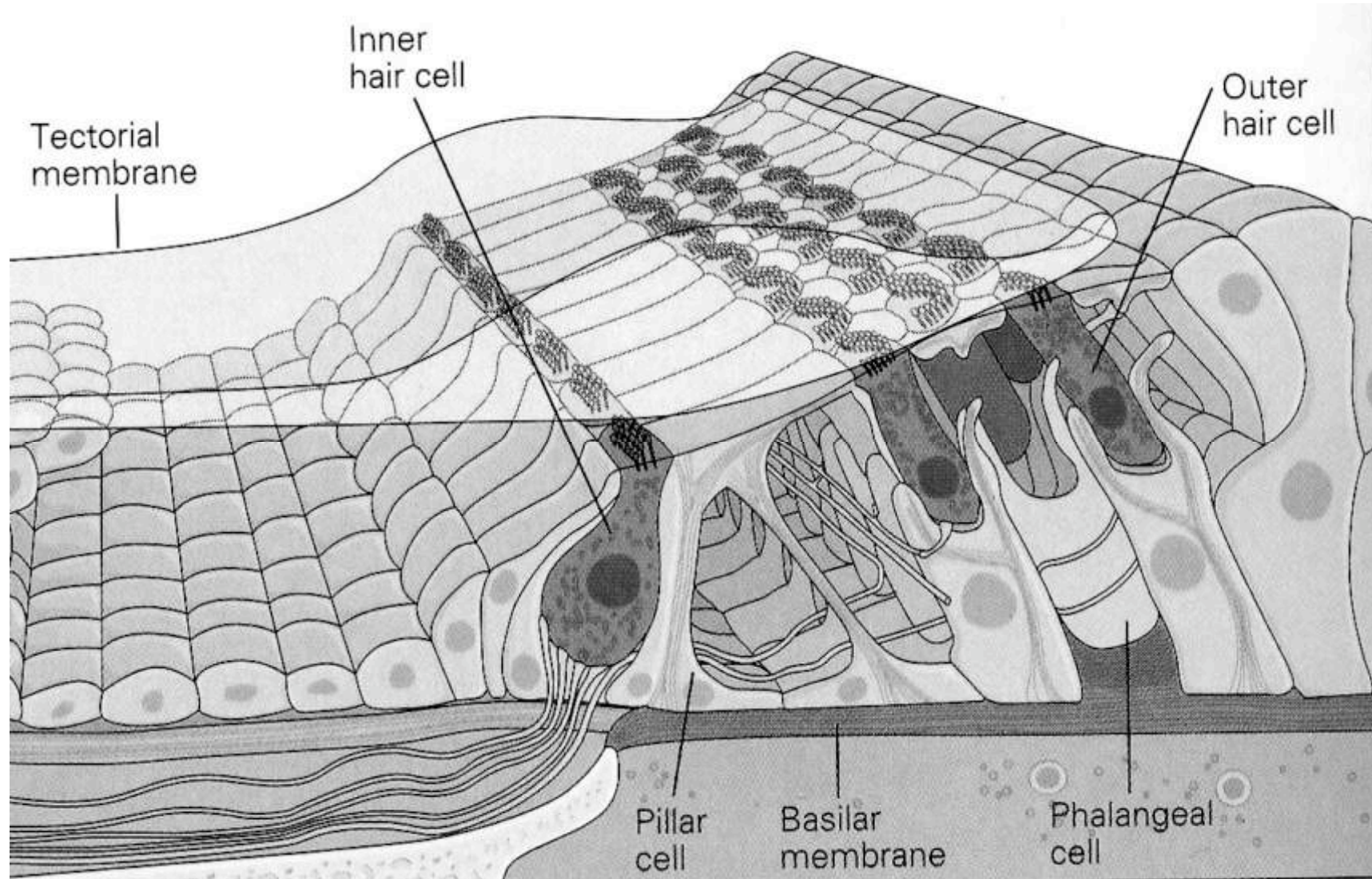
COCHLEAR COILS
AND NERVE



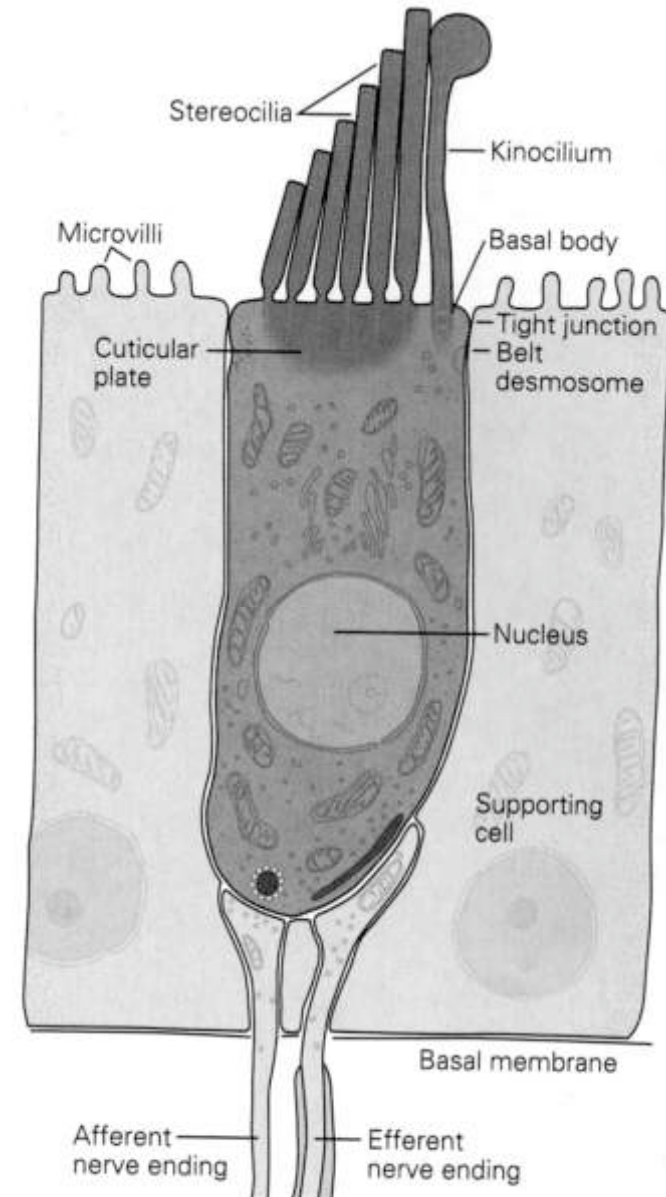
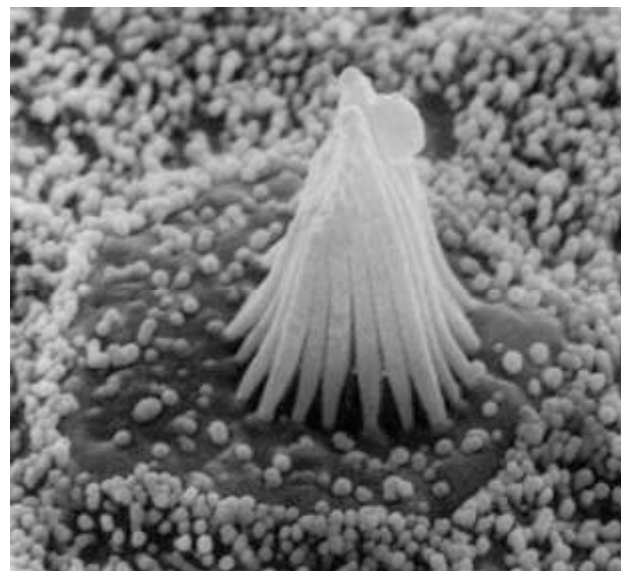
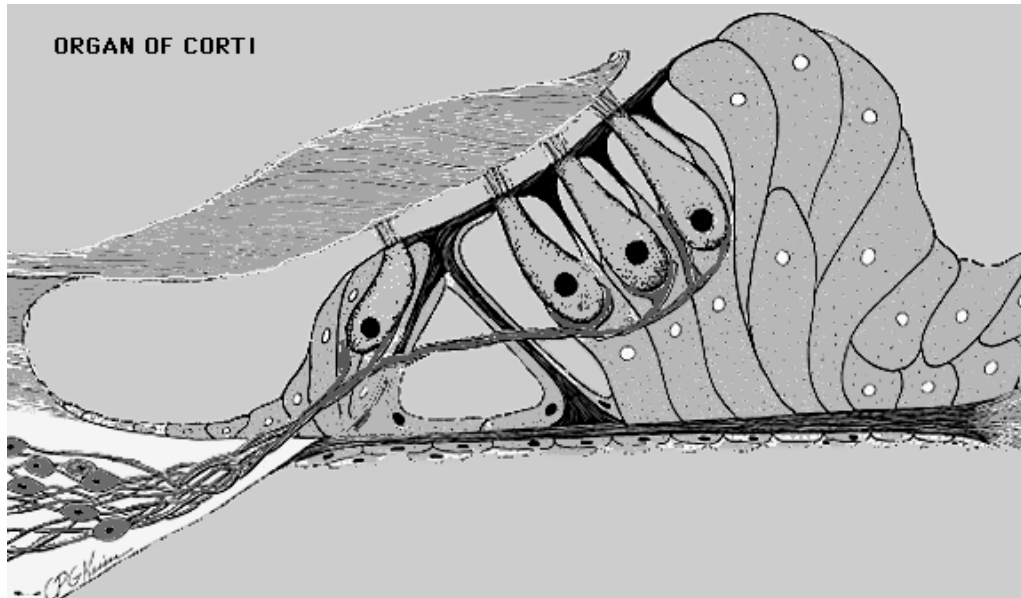
Organo del Corti



Organo del Corti



Organo del Corti





Organo del Corti

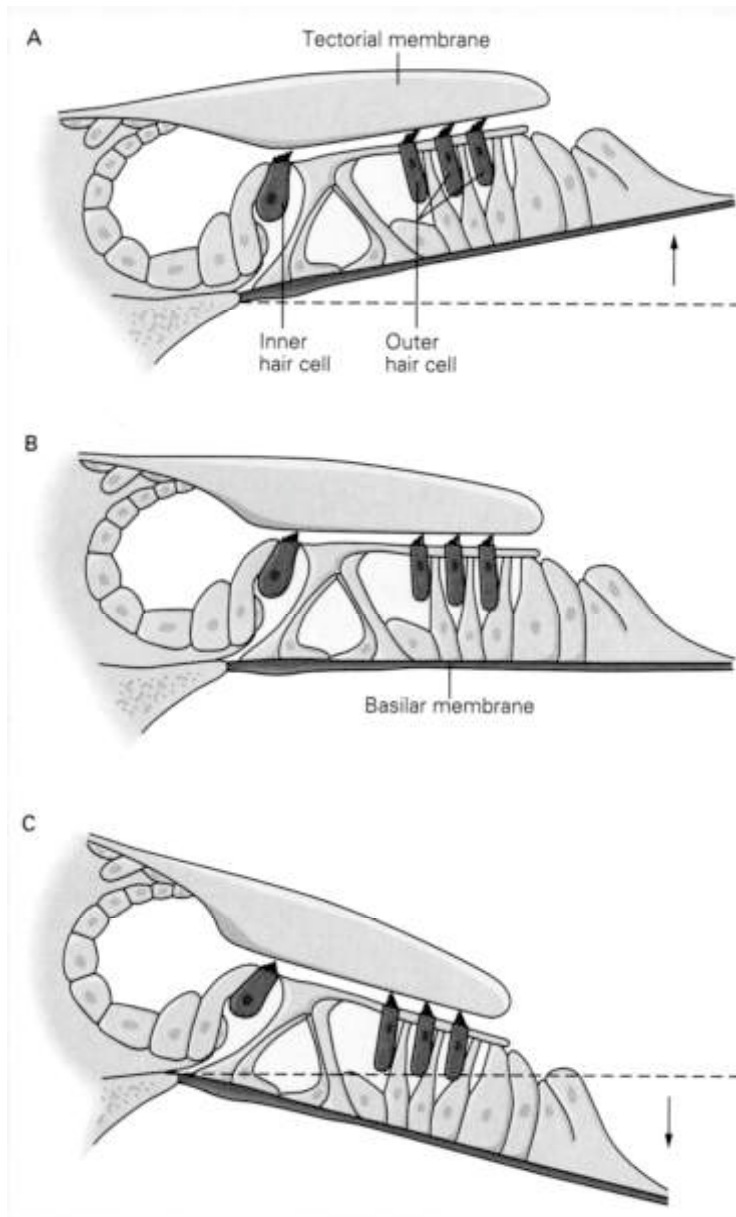


Figure 30-6 Hair cells in the cochlea are stimulated when the basilar membrane is driven up and down by differences in the fluid pressure between the scala vestibuli and scala tympani. Because this motion is accompanied by shearing motion between the tectorial membrane and organ of Corti, the hair bundles that link the two are deflected. This deflection initiates mechano-electrical transduction of the stimulus. (Adapted from Miller and Towe 1979.)

A. When the basilar membrane is driven upward, shear between the hair cells and the tectorial membrane deflects hair bundles in the excitatory direction, toward their tall edge.

B. At the midpoint of an oscillation the hair bundles resume their resting position.

C. When the basilar membrane moves downward, the hair bundles are driven in the inhibitory direction.

Via Cocleare (acustica)

1. Le fibre sensitive provenienti dal ganglio cocleare (del Corti) raggiungono i nuclei cocleari nel tronco (regione di confine tra midollo allungato e ponte).
2. I neuroni dei nuclei cocleari proiettano al nucleo olivare superiore o al collicolo inferiore (lamina quadrigemina del mesencefalo).
3. I neuroni del collicolo inferiore proiettano al genicolato mediale del talamo.
4. I neuroni talamici proiettano alla corteccia uditiva.
5. I neuroni del nucleo olivare superiore inviano i loro assoni al collicolo inferiore, all'orecchio interno, o ai nuclei motori del tronco encefalico che inviano le fibre efferenti ai muscoli dell'orecchio medio.

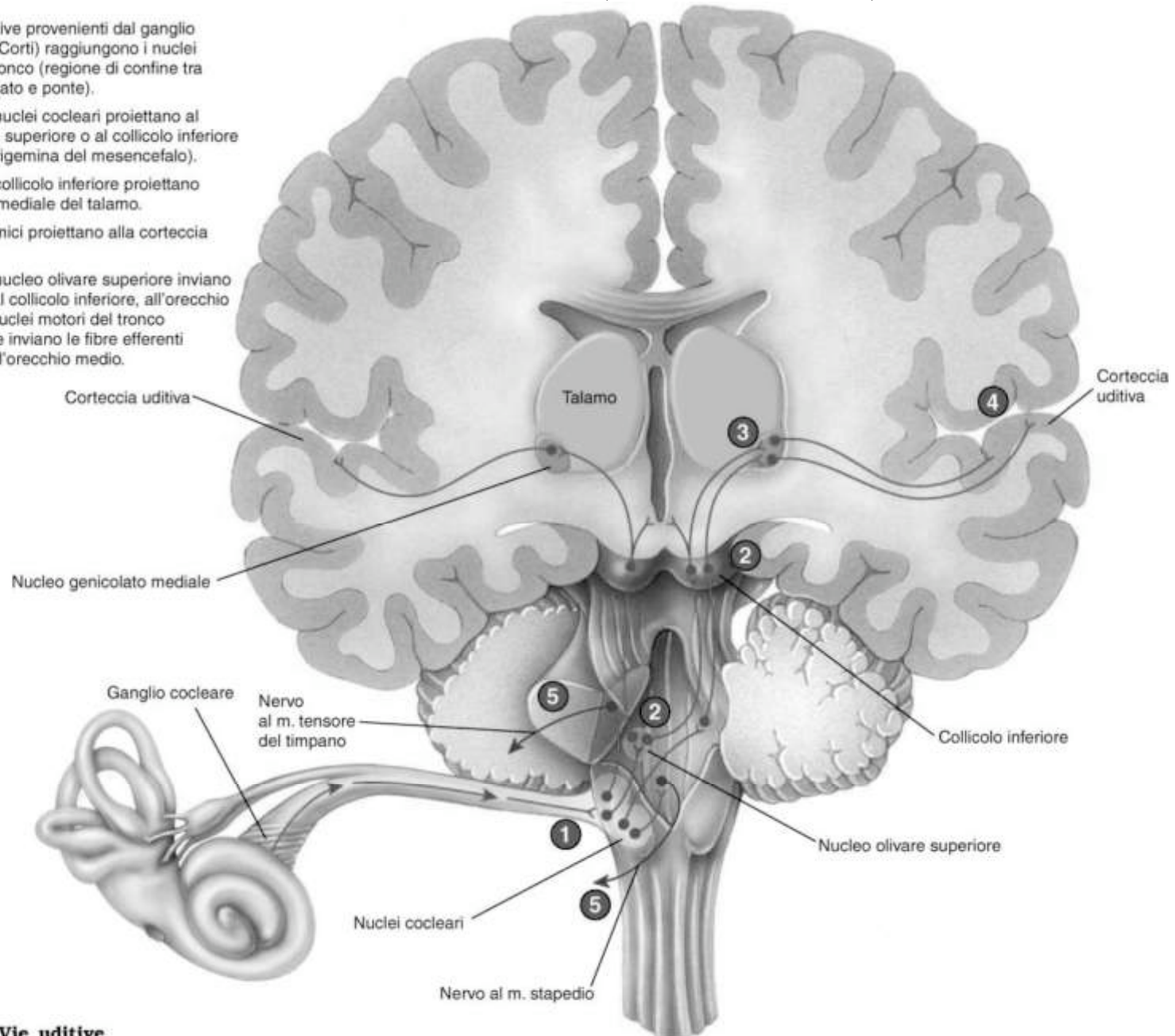
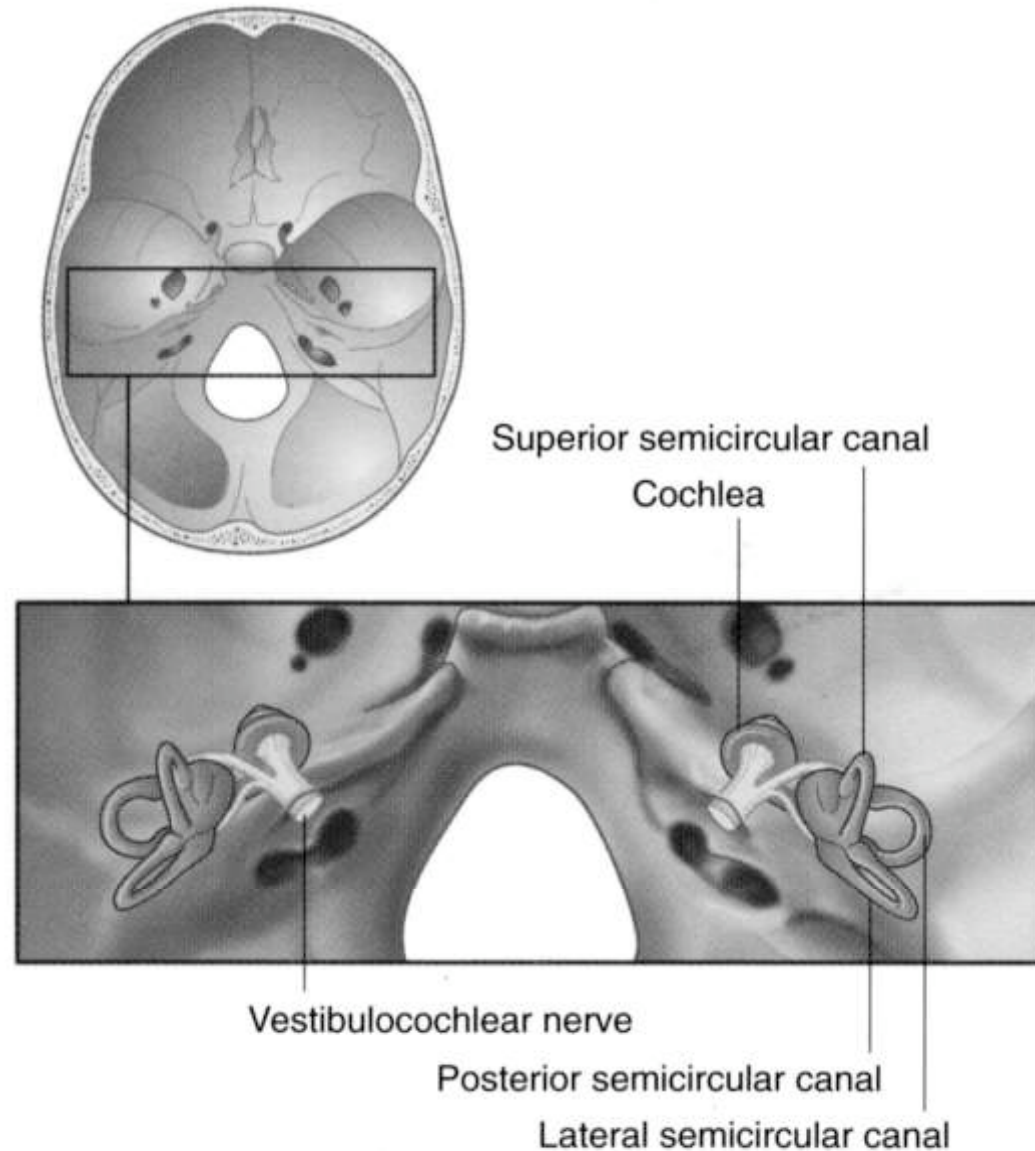
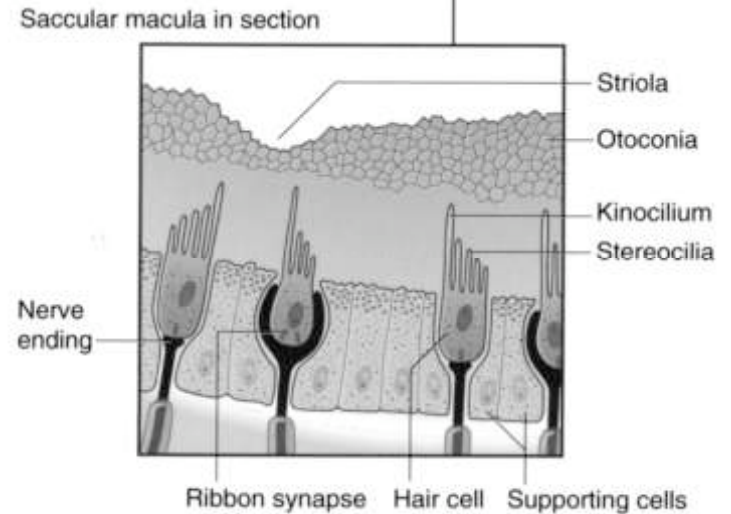
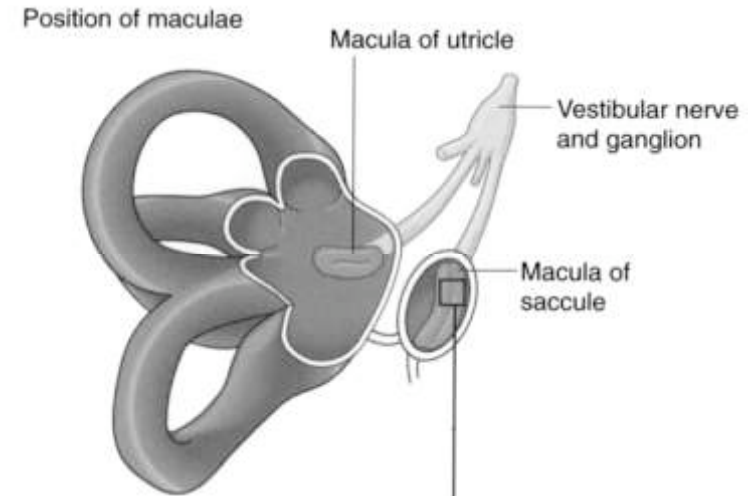
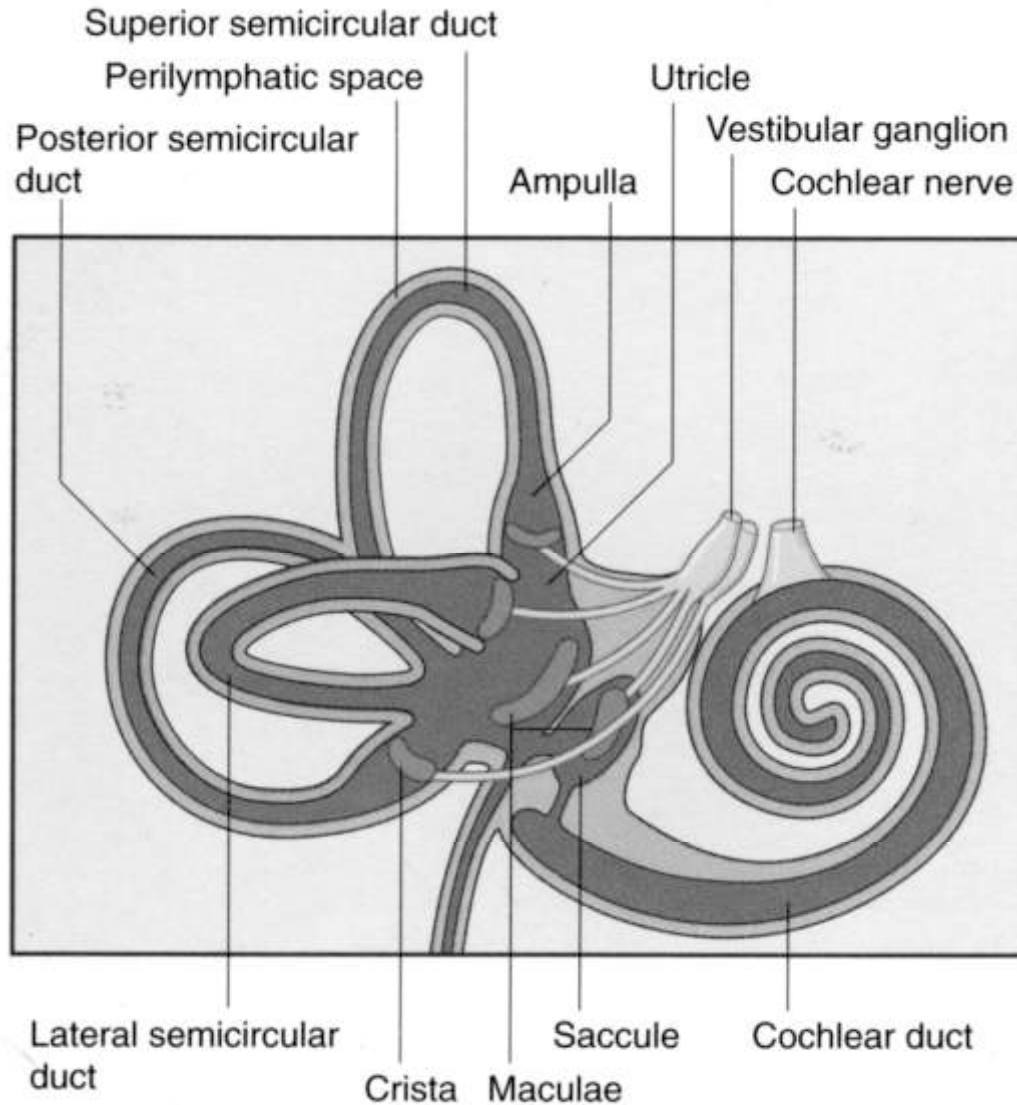


Figura 13.25. Vie uditive

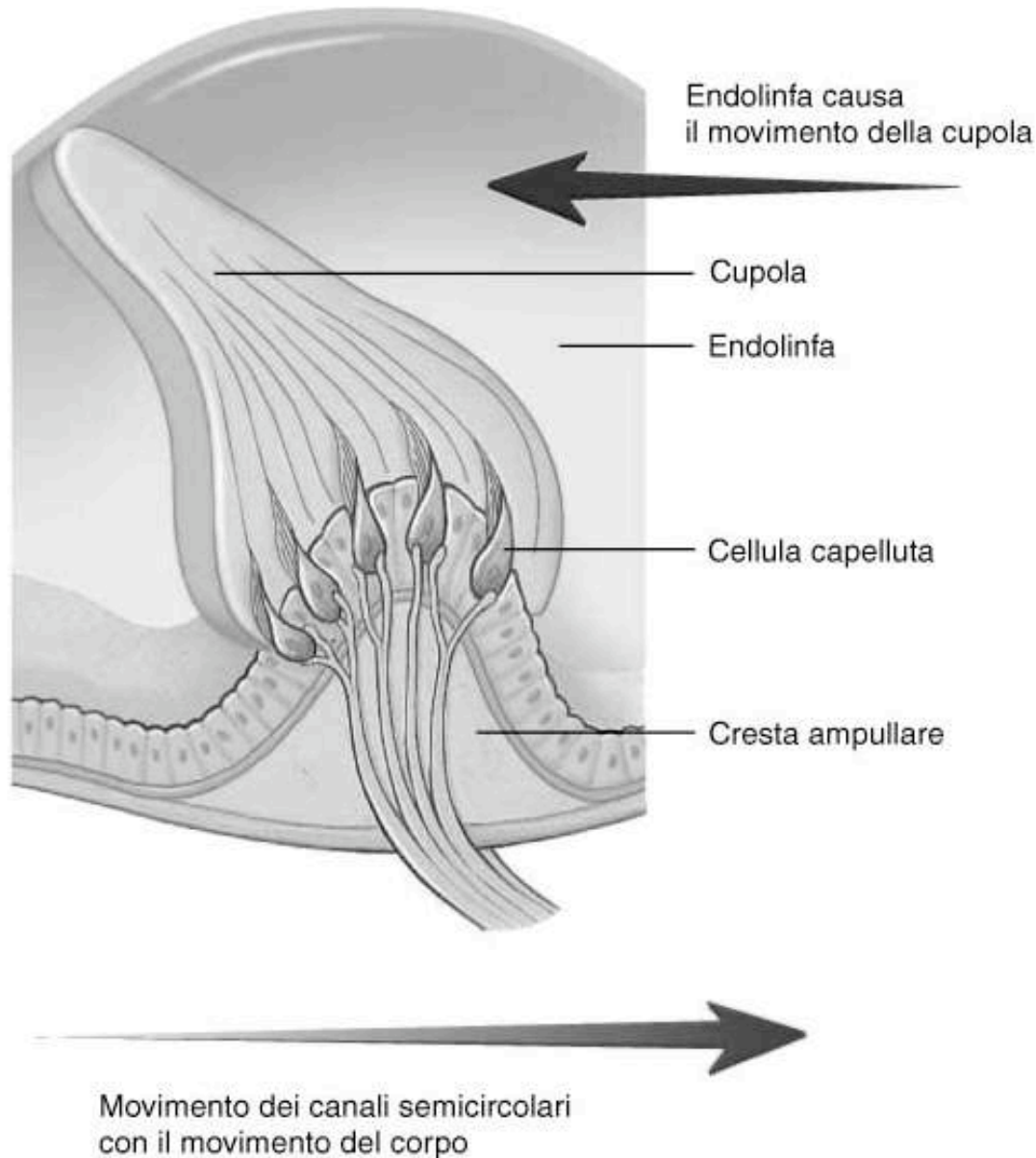
Posizione dei canali semicircolari



Canali semicircolari



Stimolazione delle ampolle



- L'endolinfa si muove per inerzia in senso opposto al movimento del corpo
- Questo provoca la stimolazione dell'ampolla (che si trova solo da un lato del canale semicircolare)

Via vestibolare

1. Assoni sensoriali dal ganglio vestibolare passano attraverso il nervo vestibolare al nucleo vestibolare, che riceve anche segnali provenienti da altre sorgenti come la propriocezione dalle gambe.
2. Neuroni vestibolari inviano assoni al cervelletto, che influenza i muscoli posturali, e ai nuclei motori (oculomotori, trocleari e abducenti) che controllano i muscoli estrinseci dell'occhio.
3. Neuroni vestibolari inviano assoni anche al nucleo ventrale posteriore del talamo.
4. I neuroni talamici si proiettano all'area vestibolare della corteccia.

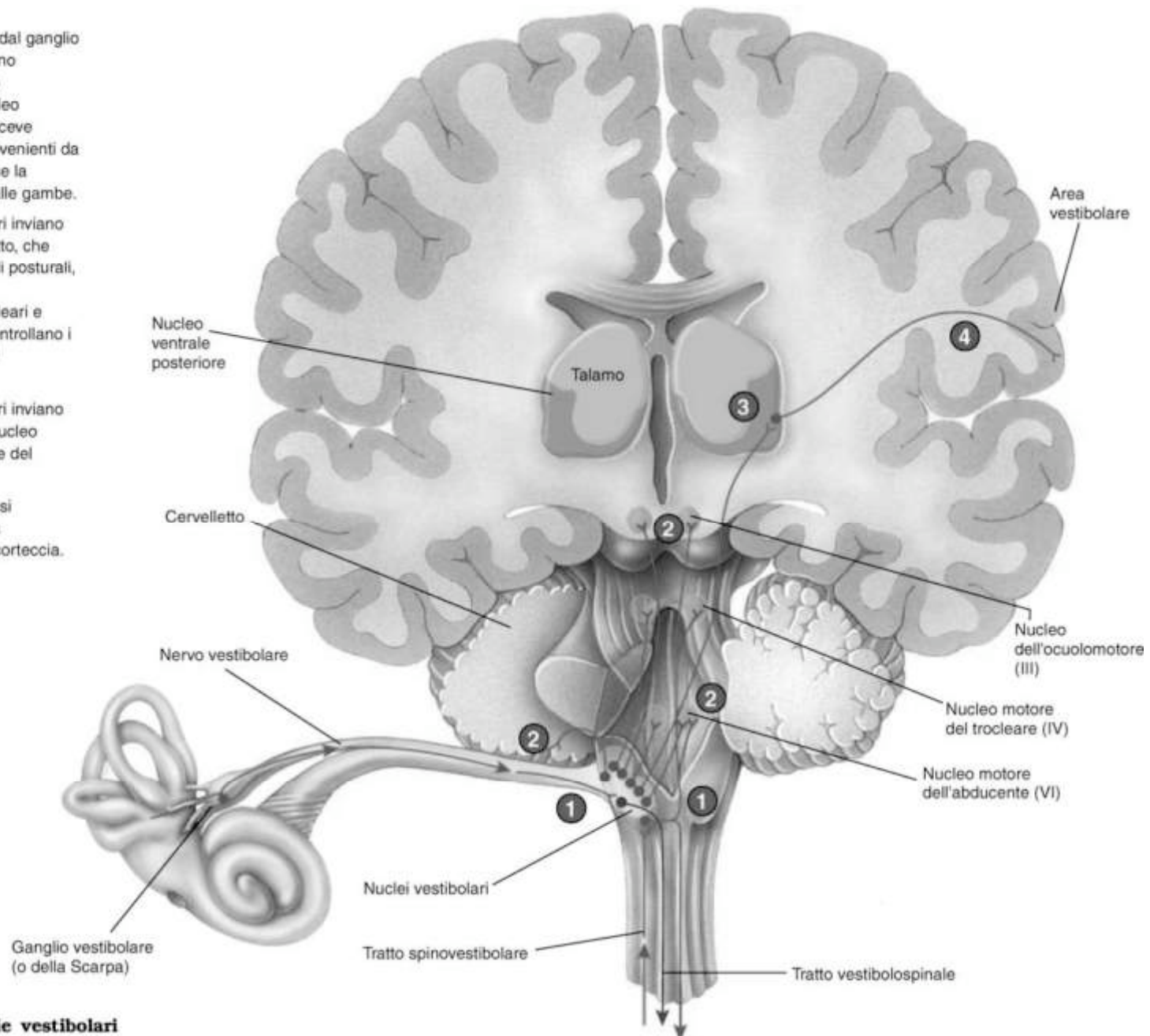
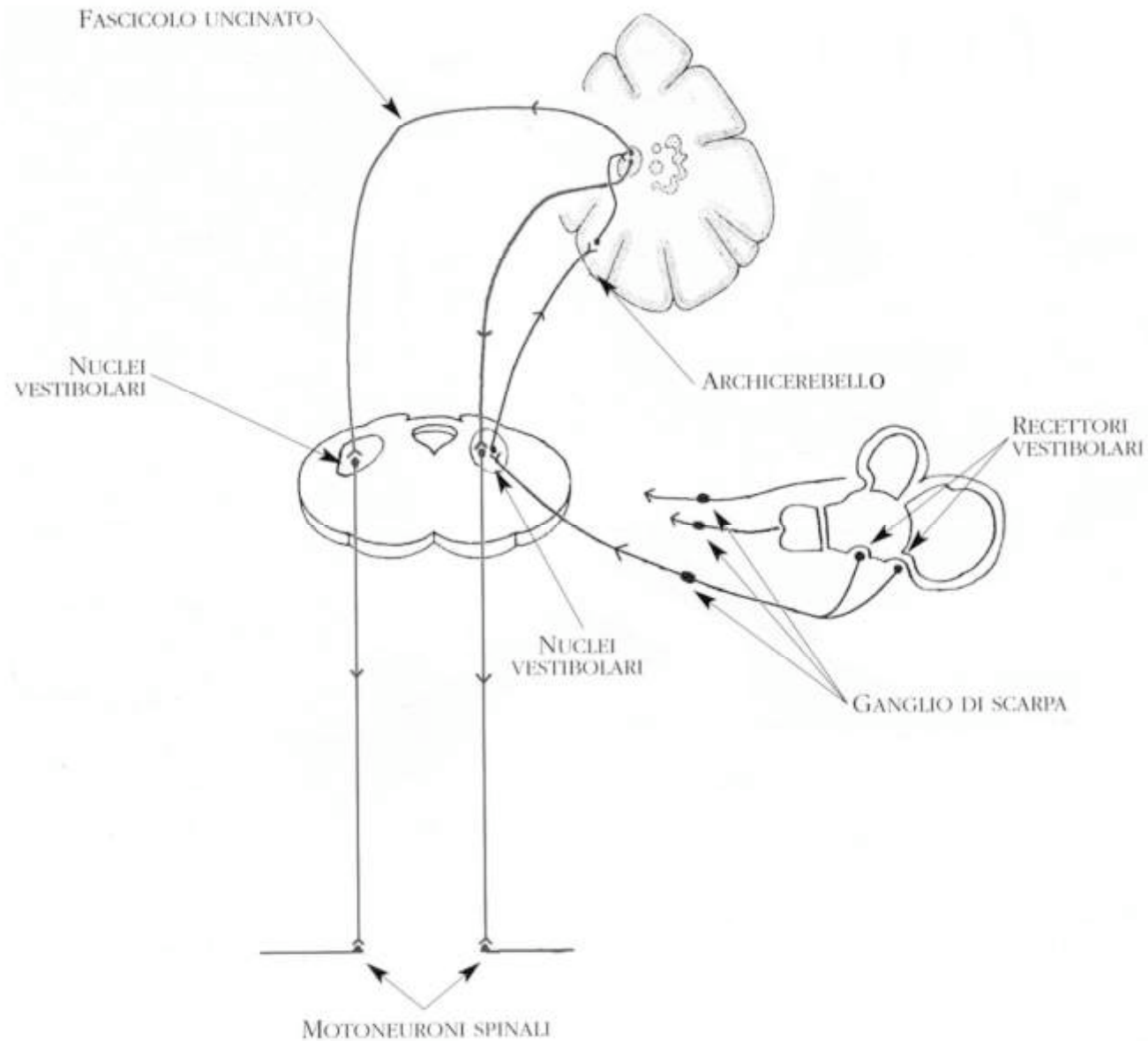
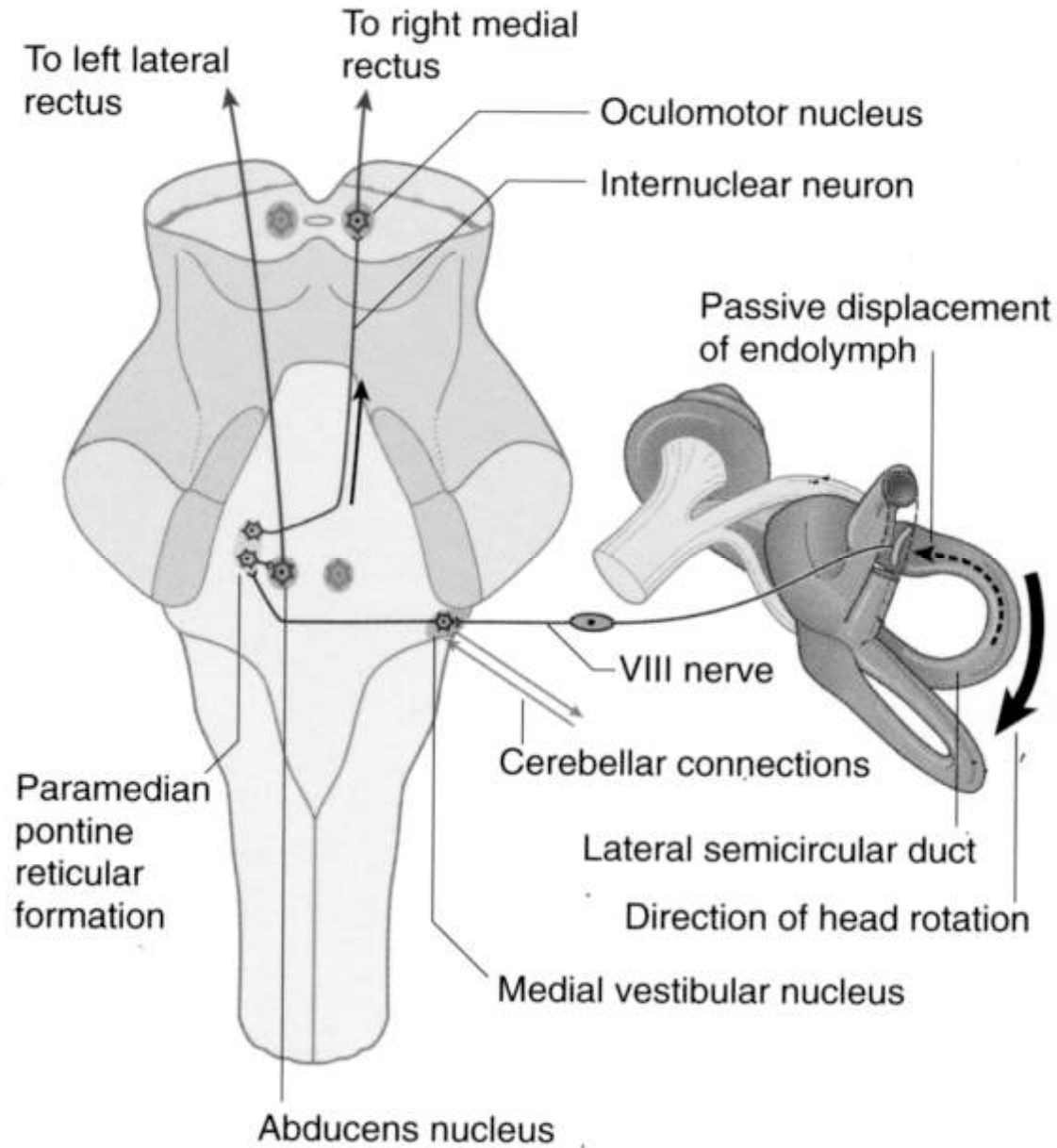


Figura 13.30. Vie vestibolari

Via vestibolare - collegamenti con il cervelletto



Via vestibolare - collegamenti con i nuclei dei nervi oculomotori



Via vestibolare - collegamenti con le vie extrapiramidali

Figura 17.15 - Vie dell'equilibrio.

