

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Ear I
ORL Course 432

King Abdulaziz Univ. Hospital

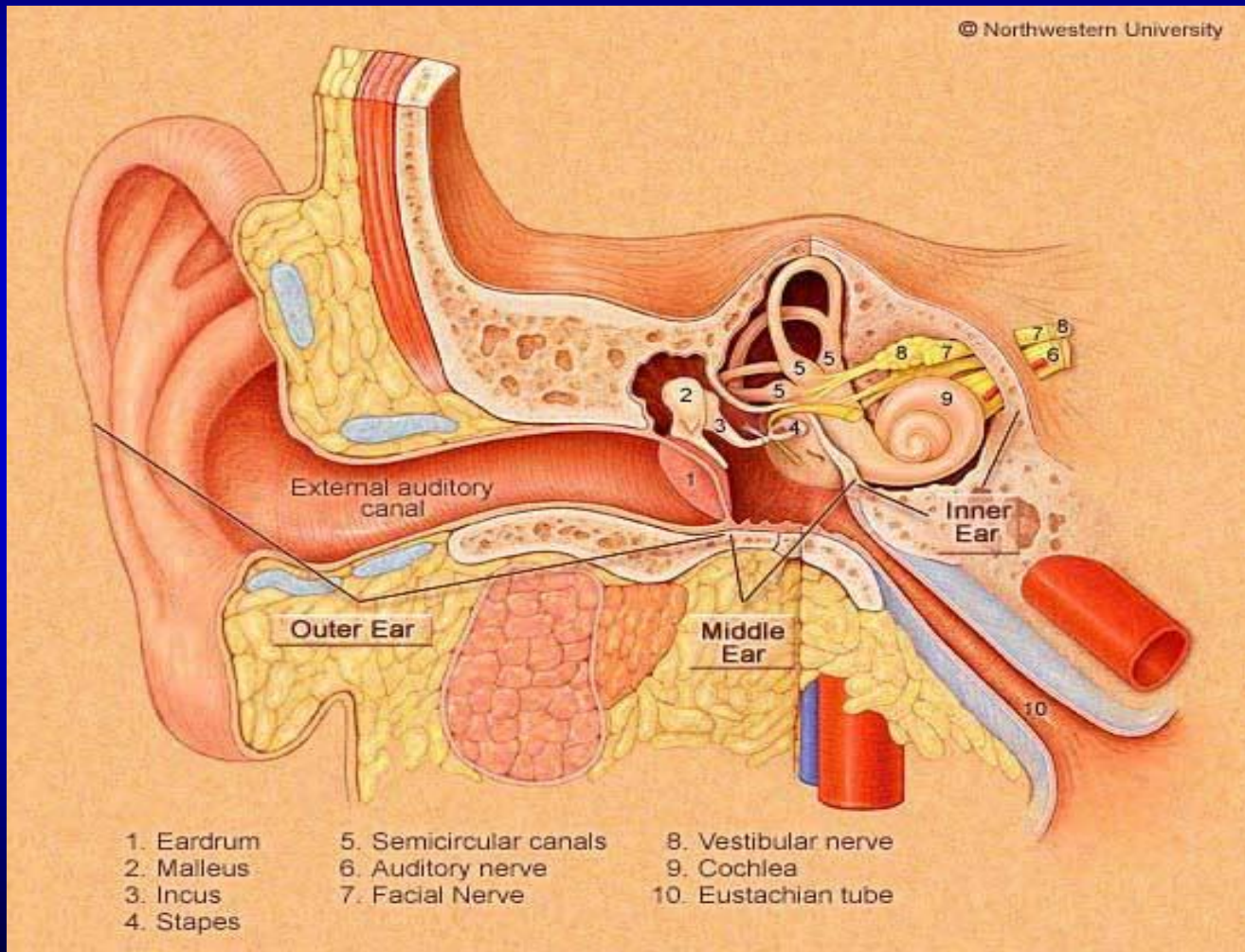
Objectives

- Summary of the main learning outcomes for students enrolled in the course.
- **To know the basic ENT anatomy and physiology.**
- **To recognize assessment and management of common ENT diseases, include ability to obtain patients' history, perform comprehensive physical and mental status assessment, interprets findings**
- **To know how to handle common ENT emergencies.**
- **To handle simple ENT diagnostic instruments.**
- **To be aware of common ENT operations.**
- **To create an interest for further post-graduate study in ENT.**

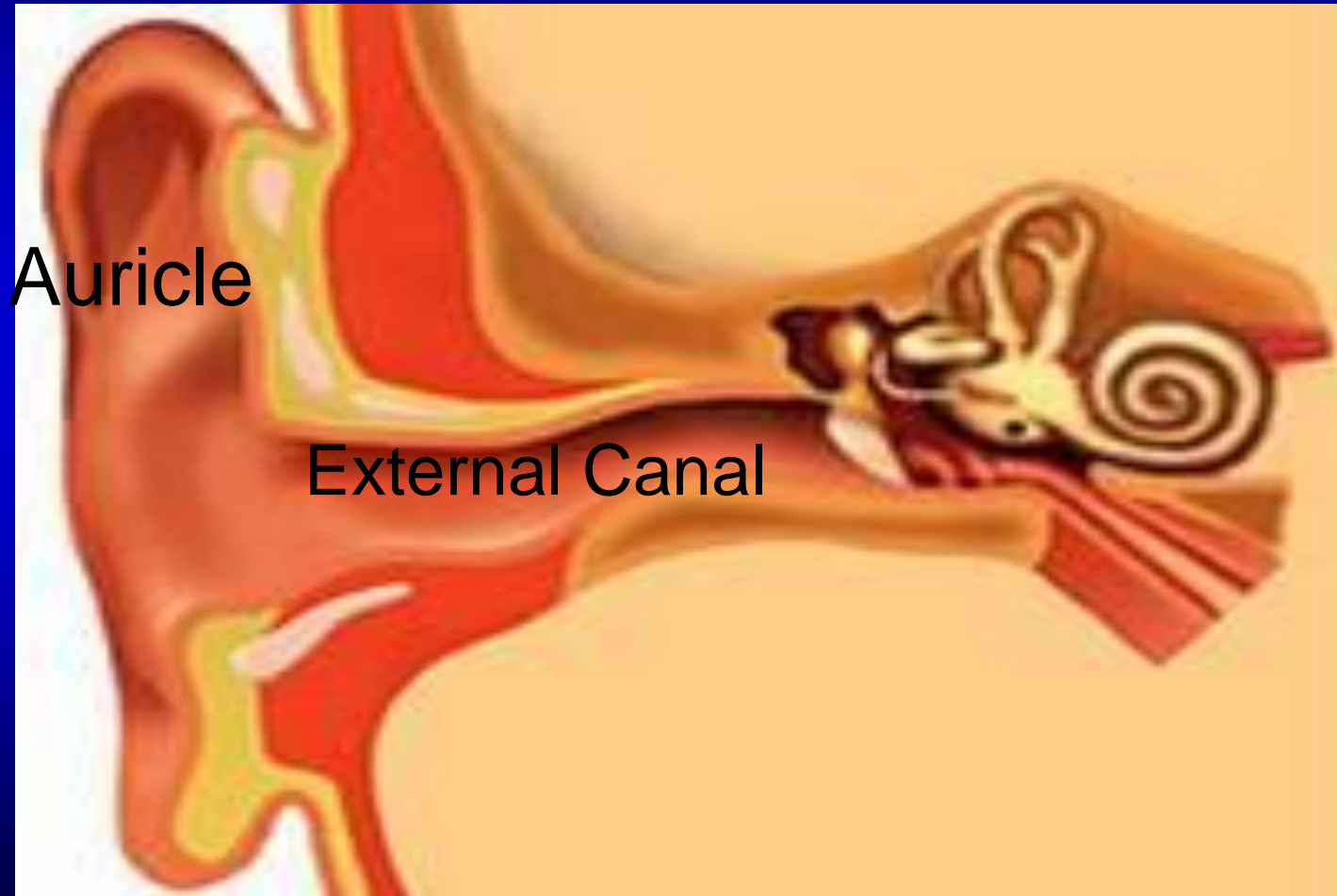
Cont - Objectives

- **Enable to acquire and practice the code of medical ethics and demonstrates good and ideal attitude towards patients and their families, with the colleagues and other Staff and Sectors**
- **To learn not only the theoretical and clinical aspects of the course but to mold as an ideal instruments in the line of medical profession includes communication and inter-relationship with colleagues and other Staff**

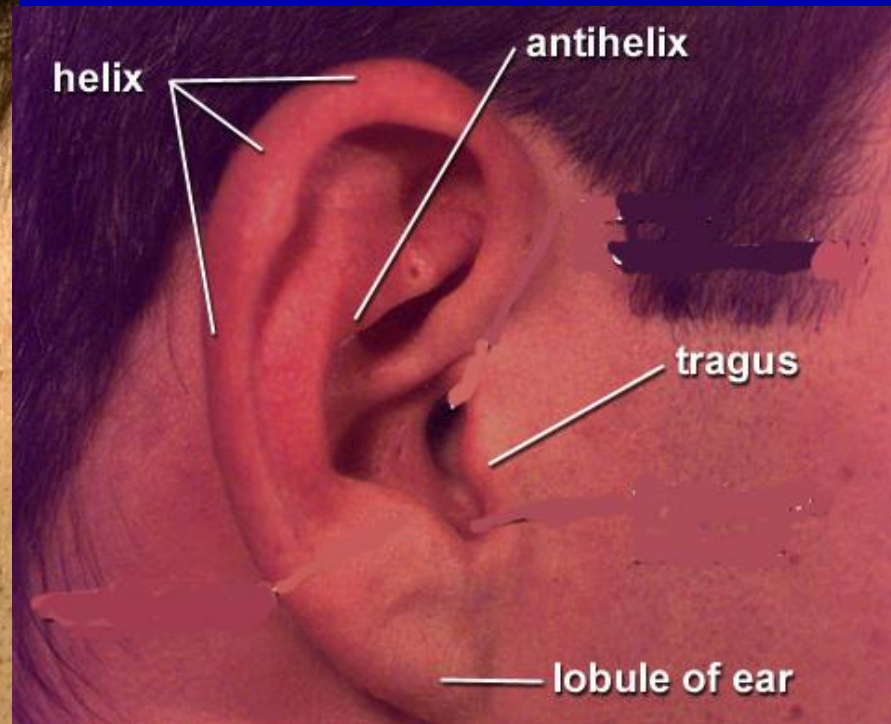
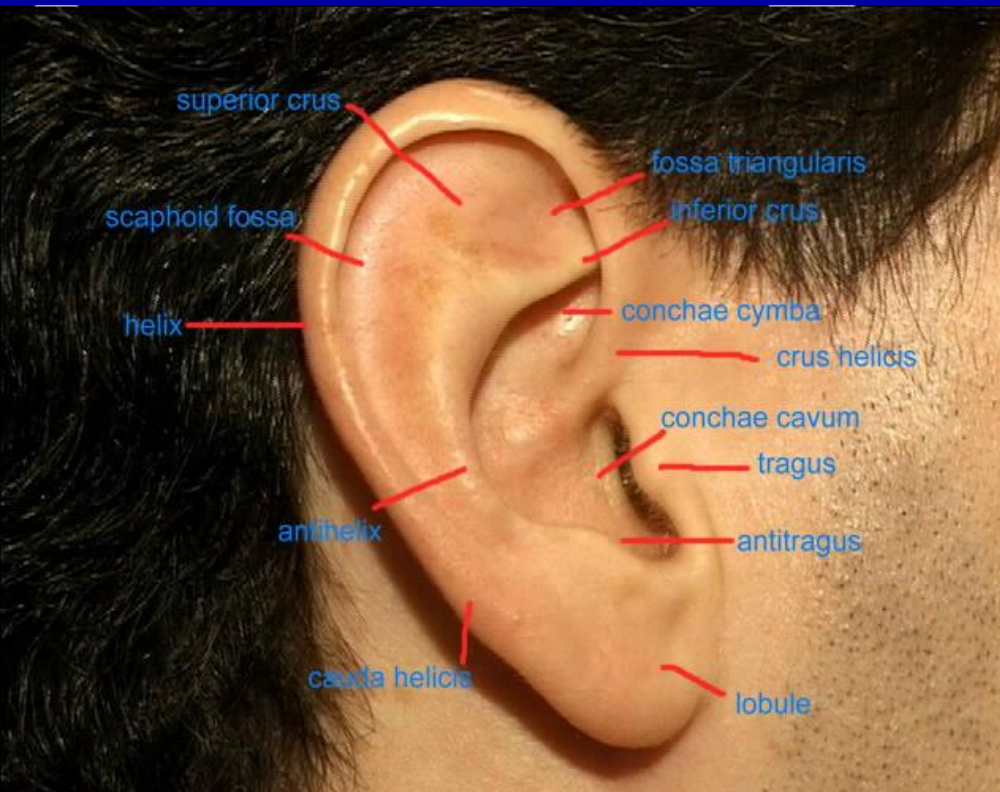
ANATOMY OF THE EAR



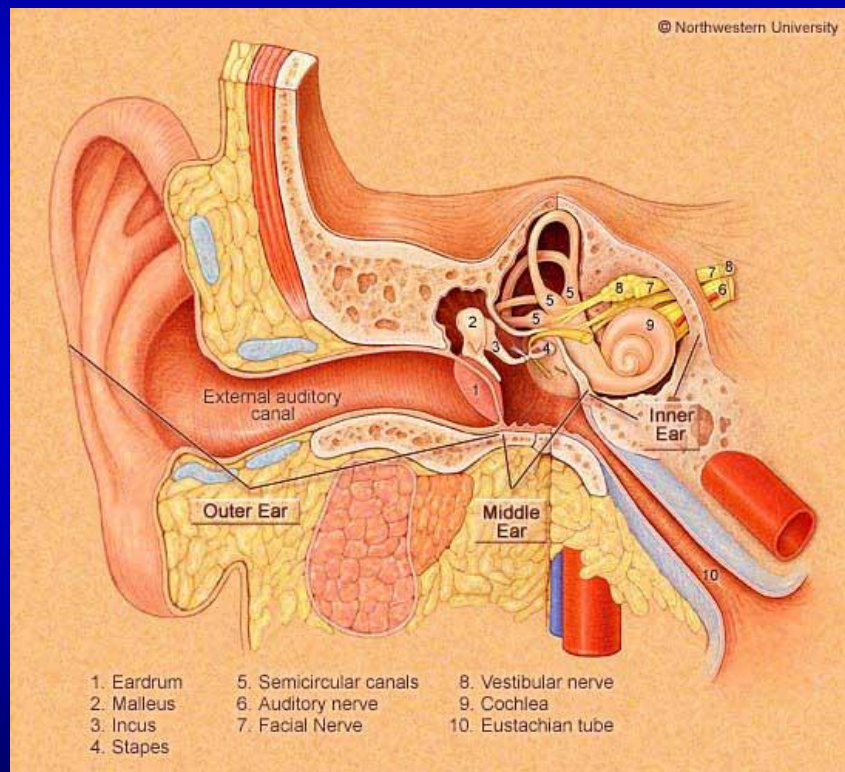
EXTERNAL EAR



THE AURICLE



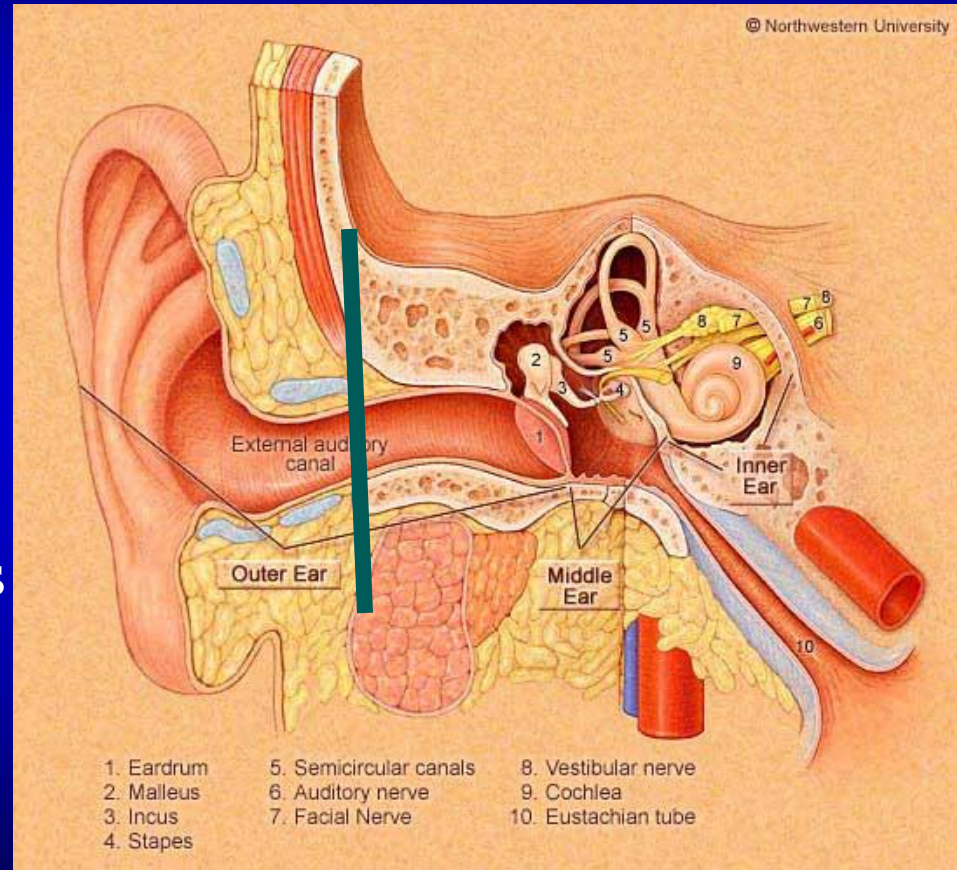
The External Auditory Canal



The External Auditory Canal

Lateral Third:

- Cartilagenous
- Hair follicles
- Ceruminous glands
- Sebaceous glands



Medial Two Thirds:

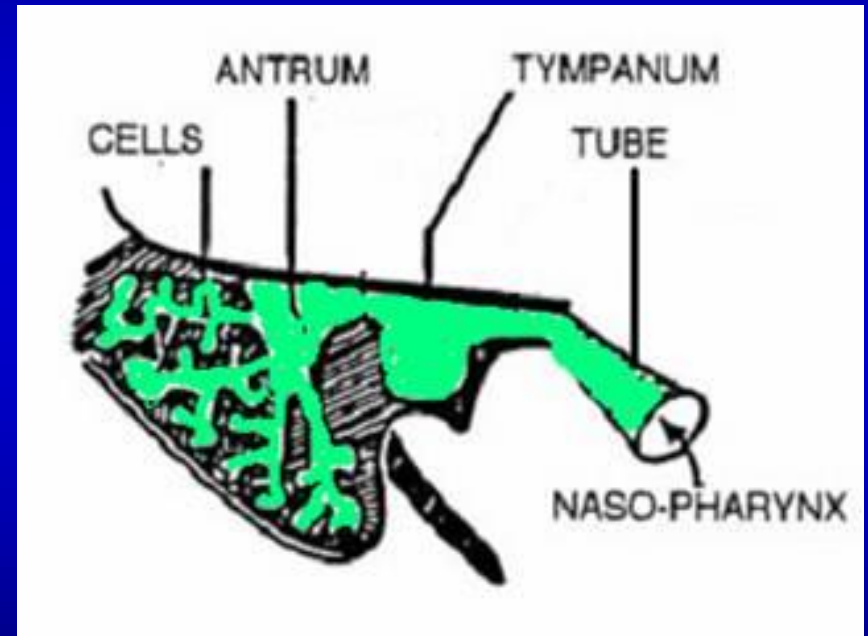
- Bony
- Develops after birth

ANATOMY OF THE EAR

- External Ear
- Middle Ear Cleft
- Inner Ear

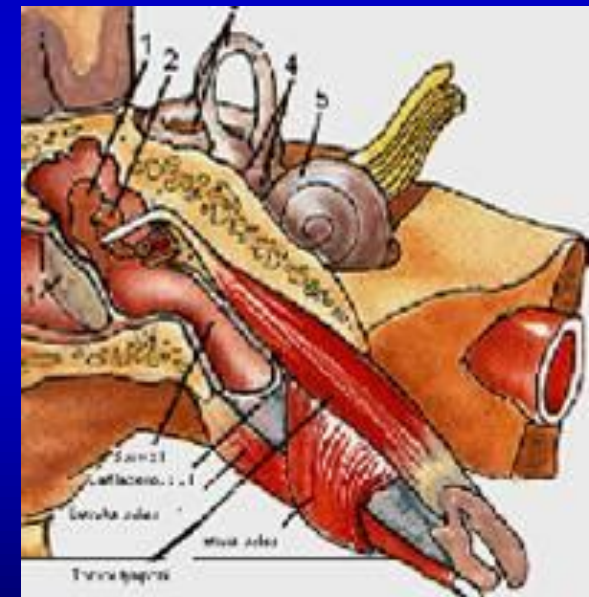
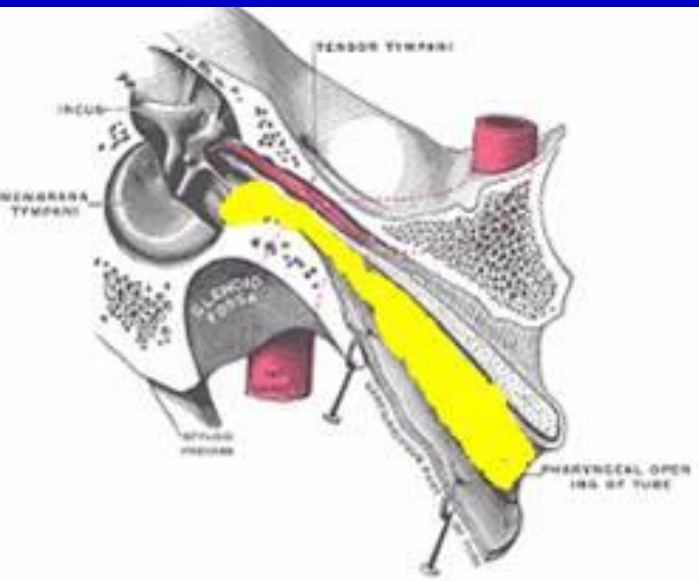
MIDDLE EAR CLEFT

- Eustachian
(Pharyngo-tympanic)
Tube
- Tympanum (Middle
Ear Cavity)
- Mastoid Antrum and
Air Cells



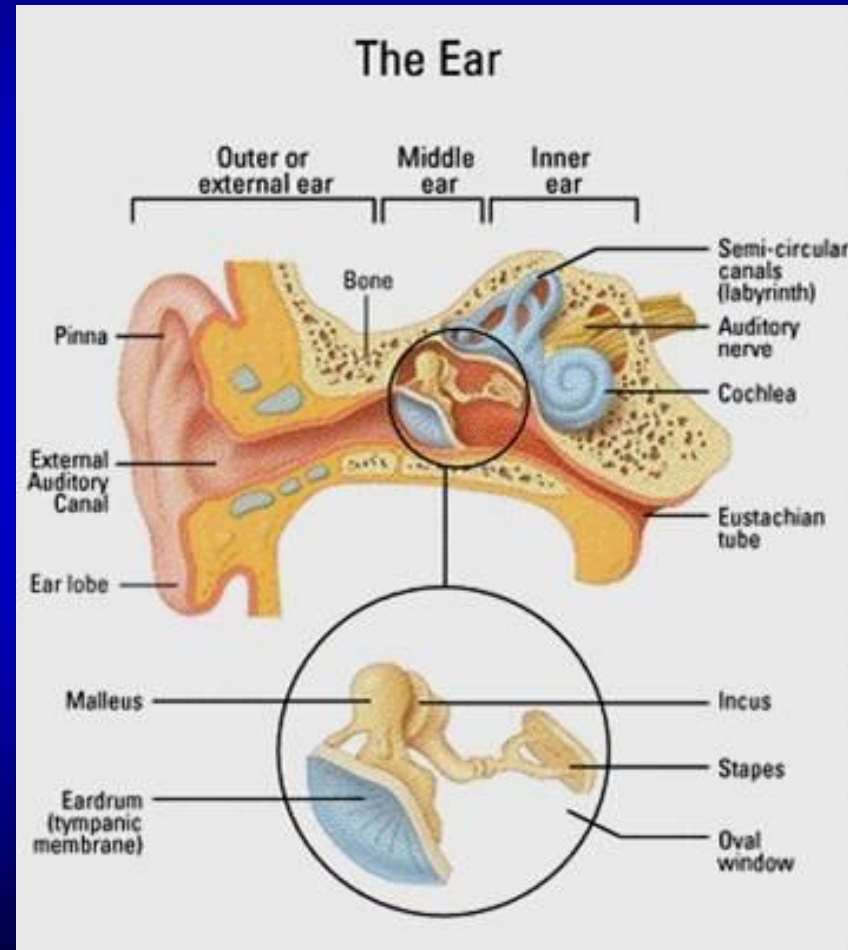
MIDDLE EAR CLEFT

- Eustachian (Pharyngo-Tympanic) Tube



MIDDLE EAR CLEFT

- Eustachian (Pharyngo-Tympanic) tube
- Tympanic cavity (Middle ear cavity)



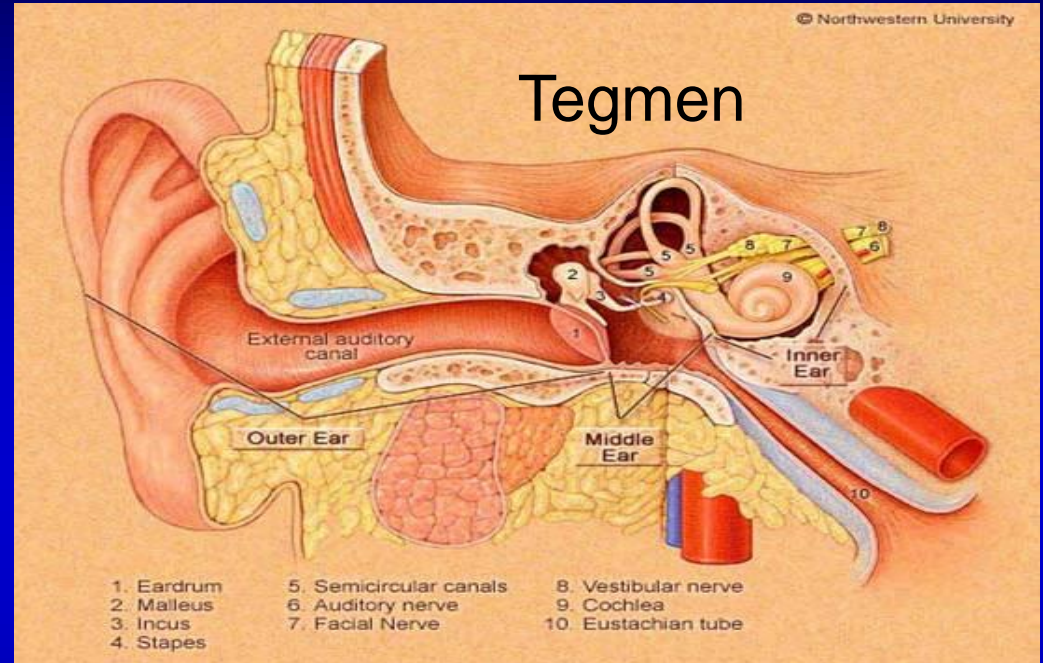
WALLS OF TYMPANIC CAVITY

- Roof
- Floor
- Anterior wall
- Posterior wall
- Lateral wall
- Medial wall



WALLS OF TYMPANIC CAVITY

- Roof
- Floor



WALLS OF TYMPANIC CAVITY

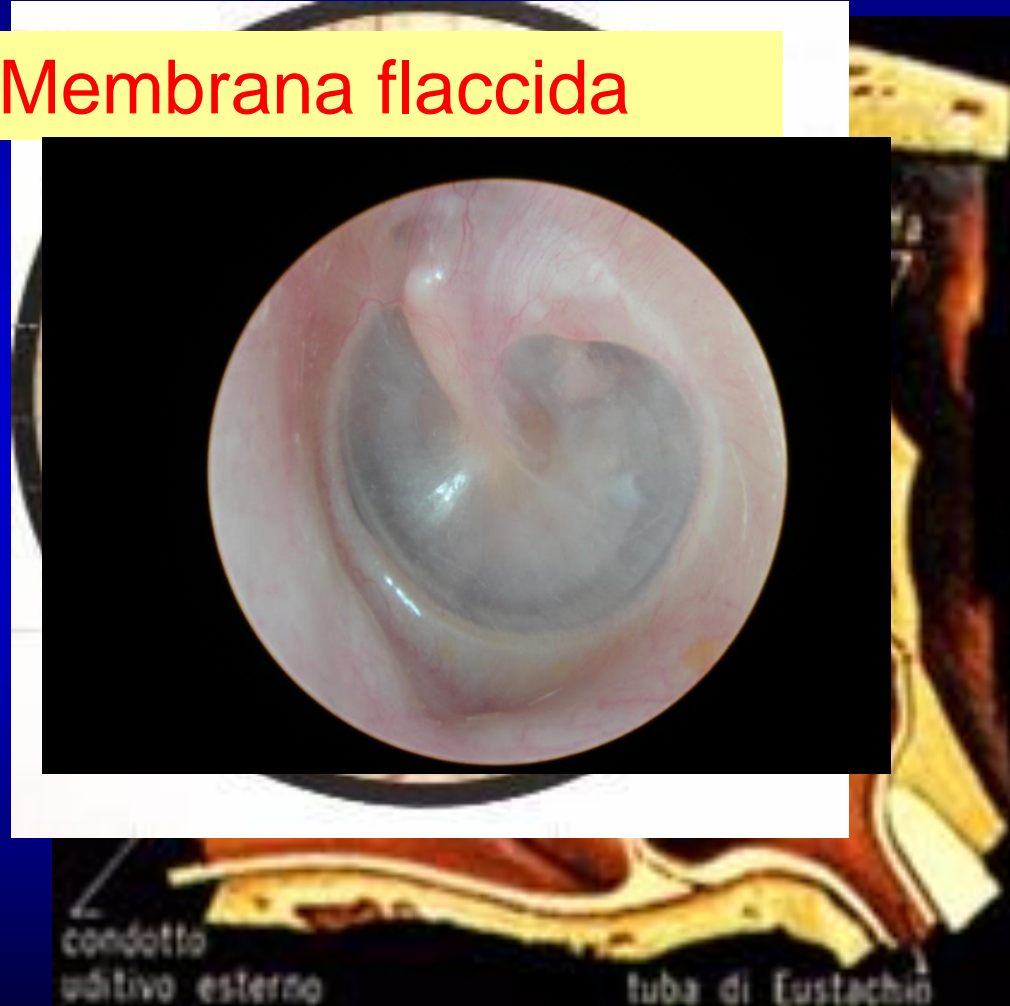
- Roof
- Floor
- Anterior wall
- Posterior wall



WALLS OF TYMPANIC CAVITY

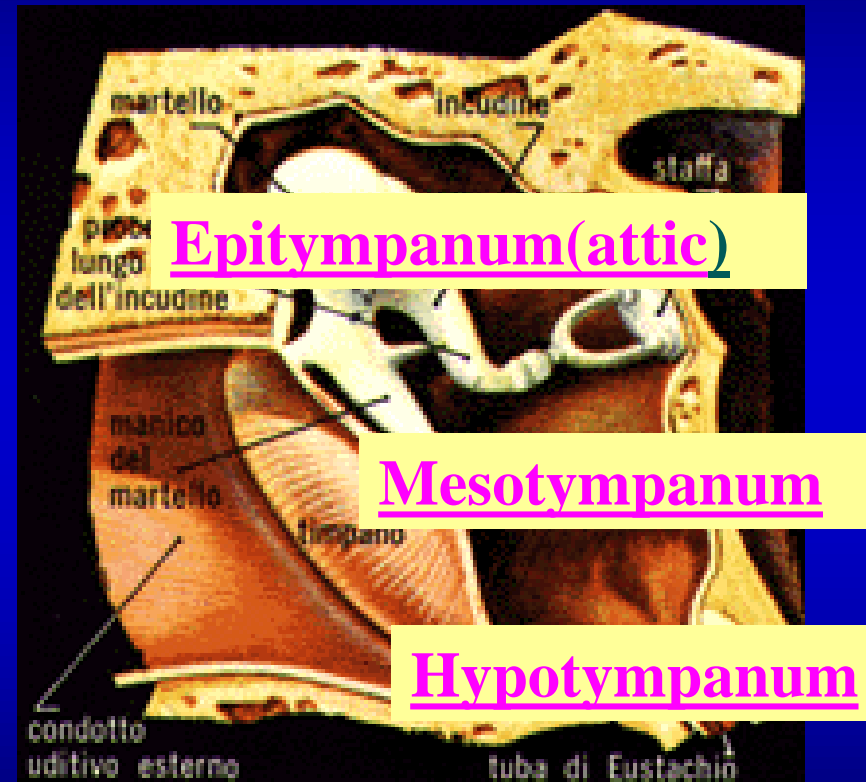
- Roof
- Floor
- Anterior wall
- Posterior wall
- Lateral wall

Membrana flaccida



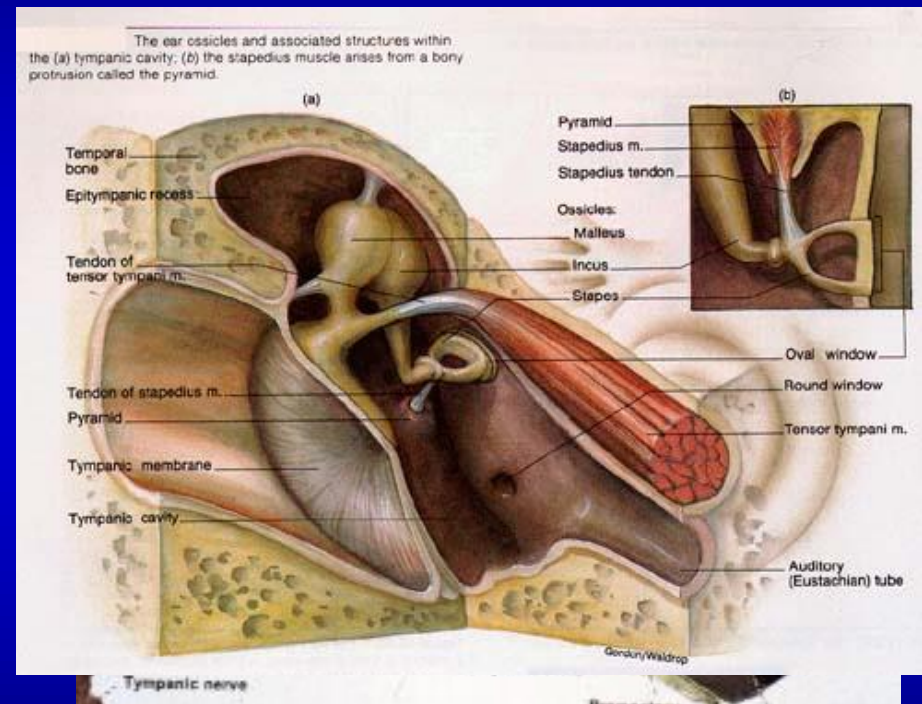
WALLS OF TYMPANIC CAVITY

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WALLS OF TYMPANIC CAVITY

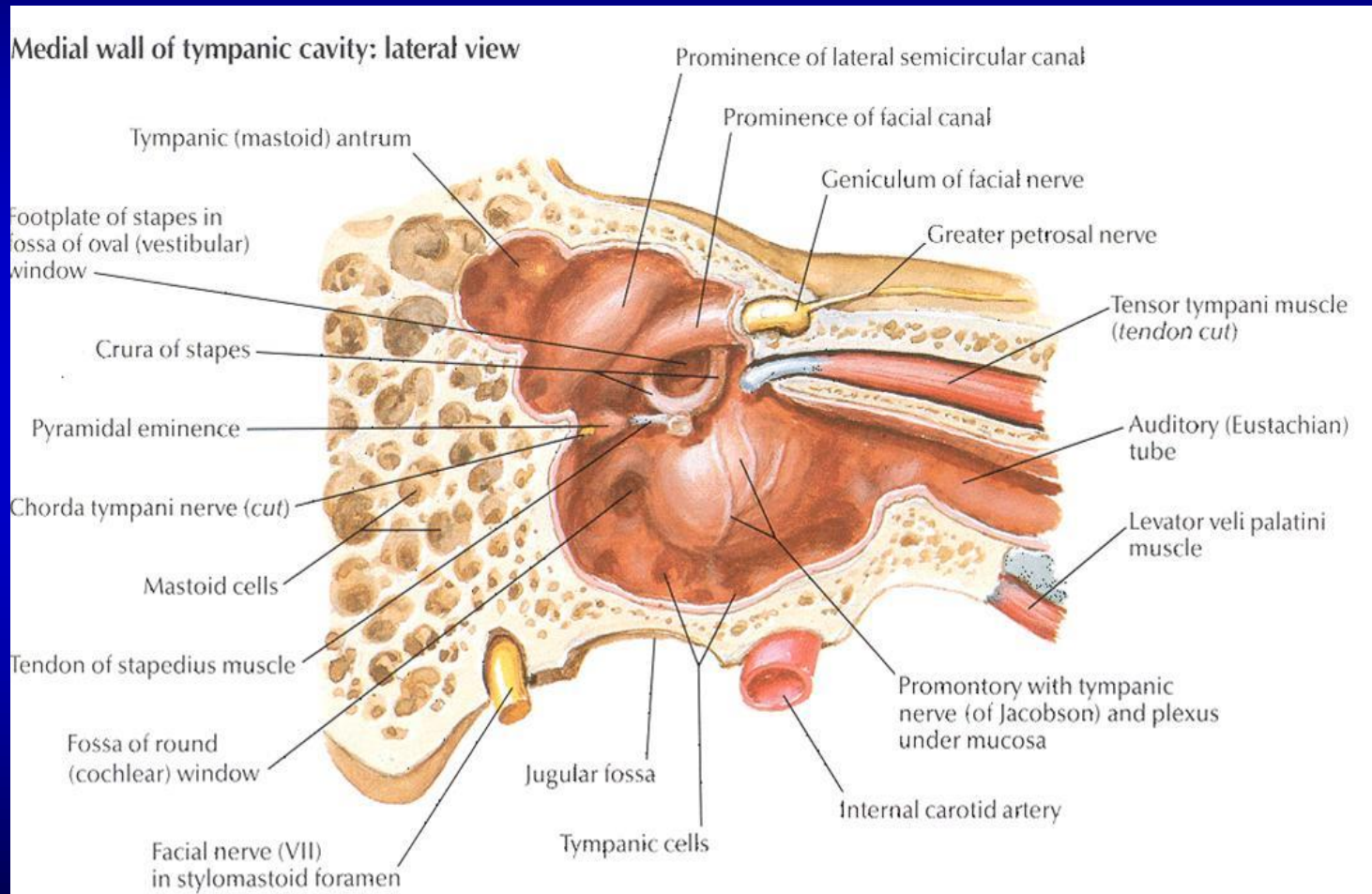
- Roof
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- Posterior wall
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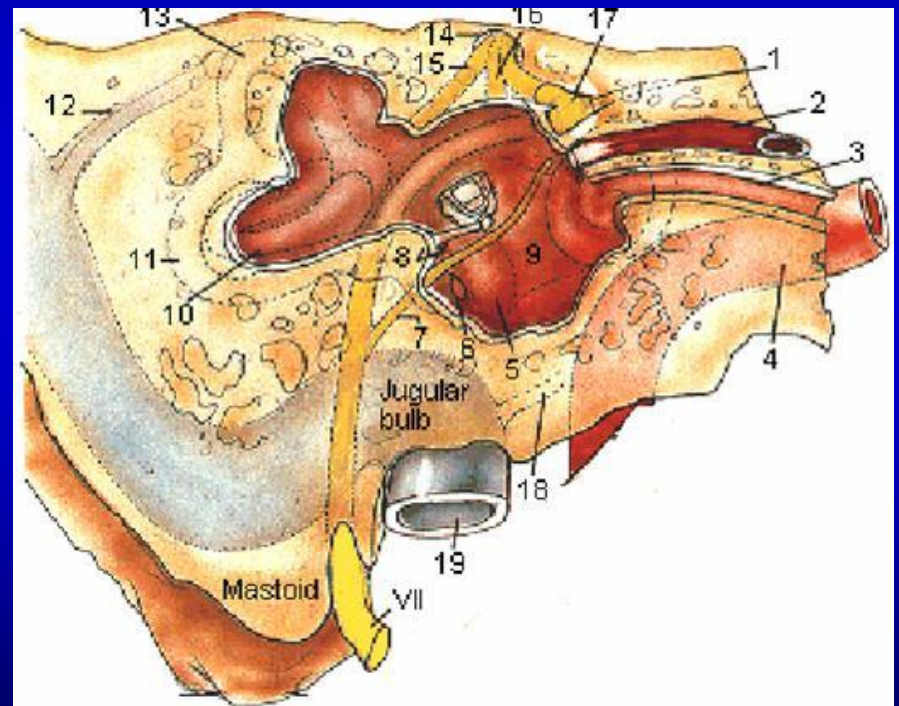
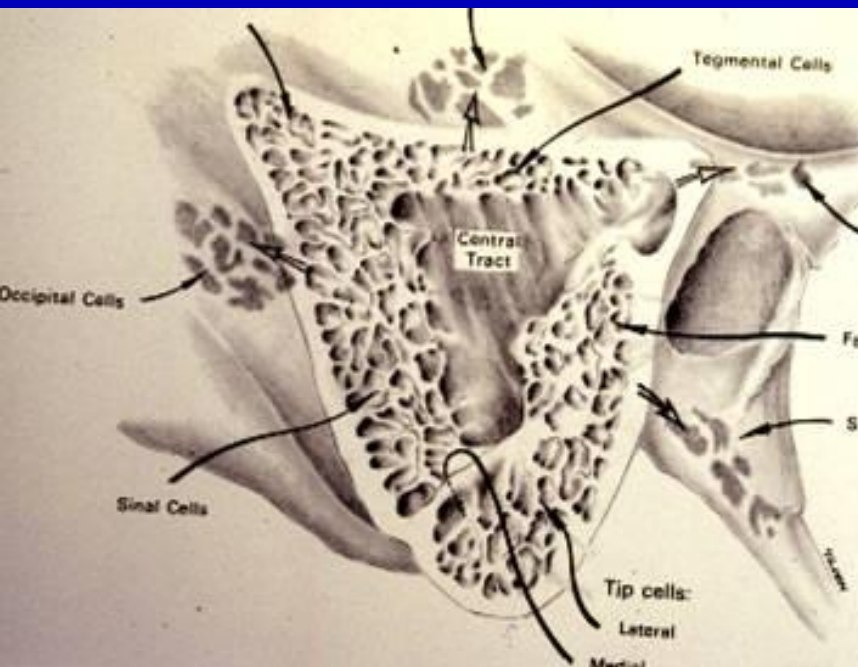
MIDDLE EAR CLEFT

- Eustachian (Pharyngo-tympanic) Tube
- Tympanic (Middle Ear) Cavity
- Mastoid antrum and air cells

Mastoid Antrum & Air cells



Mastoid Antrum & Air cells

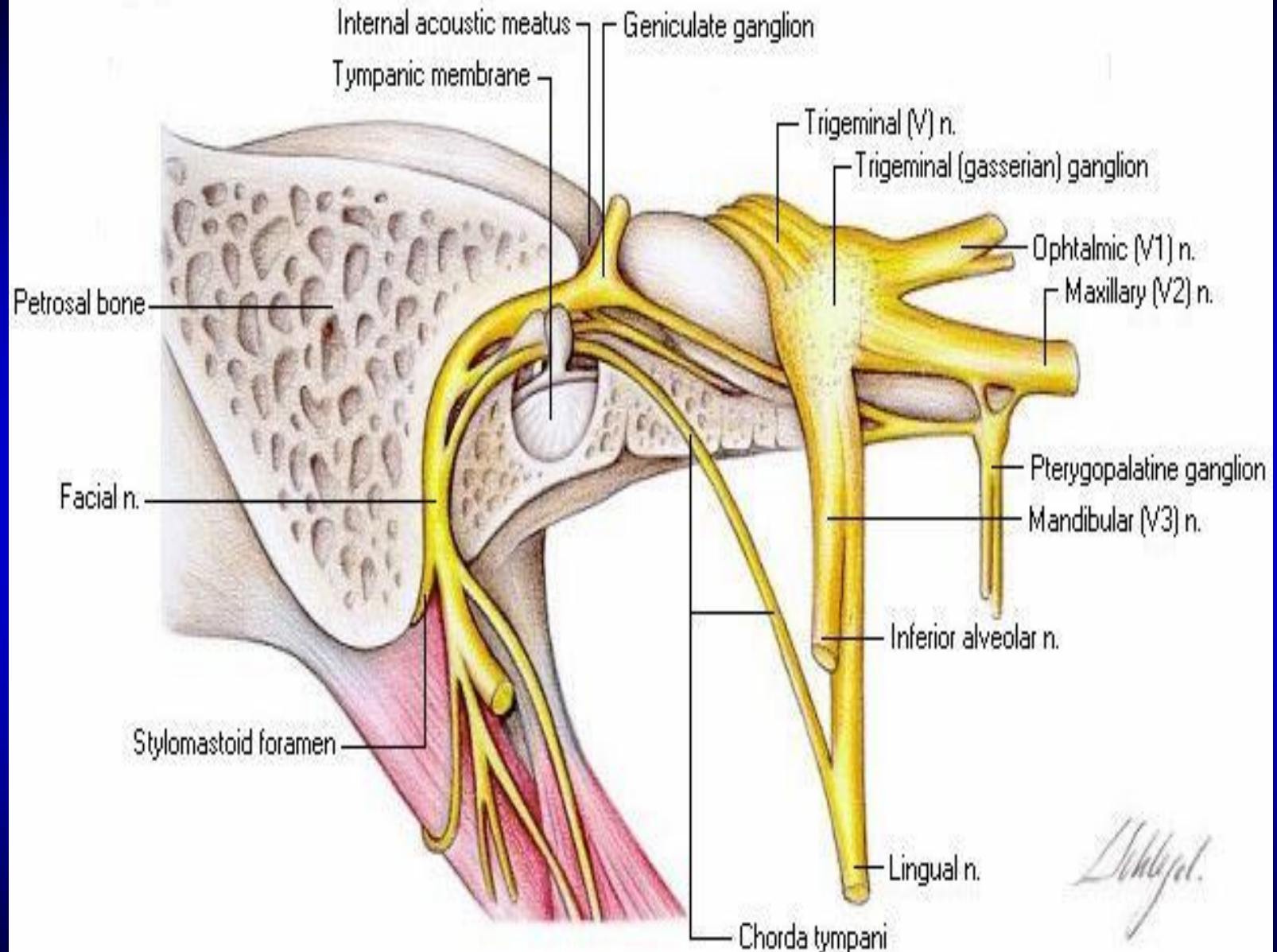


CONTENTS OF MIDDLE EAR CAVITY

- Air
- Ossicles
Malleus, Incus, & Stapes
- Muscles
Tensor Tympani & Stapedius
- Nerves
Chorda Tympani & Tympanic Plexus



FACIAL (VII) AND TRIGEMINAL (V) NERVES, IN SITU, IN THE PETROUS PYRAMID



LINING OF MIDDLE EAR

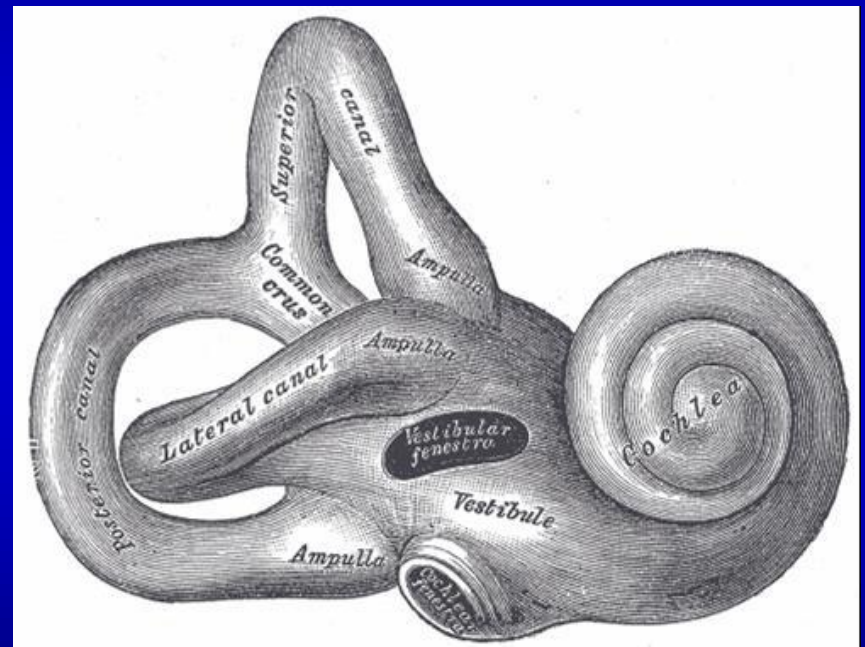
Mucous membrane : ciliated columnar
anteriorly and cuboidal or flat elsewhere

SENSORY SUPPLY OF MIDDLE AND EXTERNAL EAR

- Cervical II & III (great auricular and lesser occipital)
- V cranial nerve (auriculotemporal)
- IX cranial nerve (tympanic or Jacobson's)
- X cranial nerve (auricular or Arnold's)
- ? VII cranial nerve

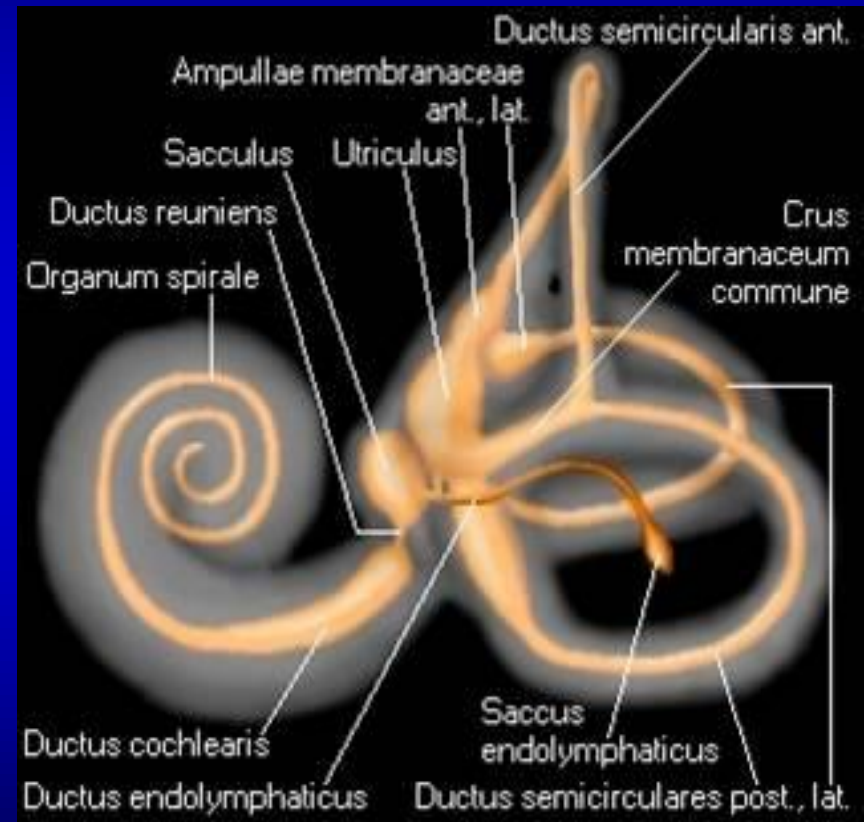
ANATOMY OF INNER EAR

- Osseous Labyrinth
 - Bony Cochlea
 - Vestibule
 - Bony semicircular canals



CONTENTS OF THE BONY LABYRINTH

- Perilymph
- Membranous labyrinth
 - Cochlear duct
 - Sacculle and utricle
 - Membranous semicircular ducts



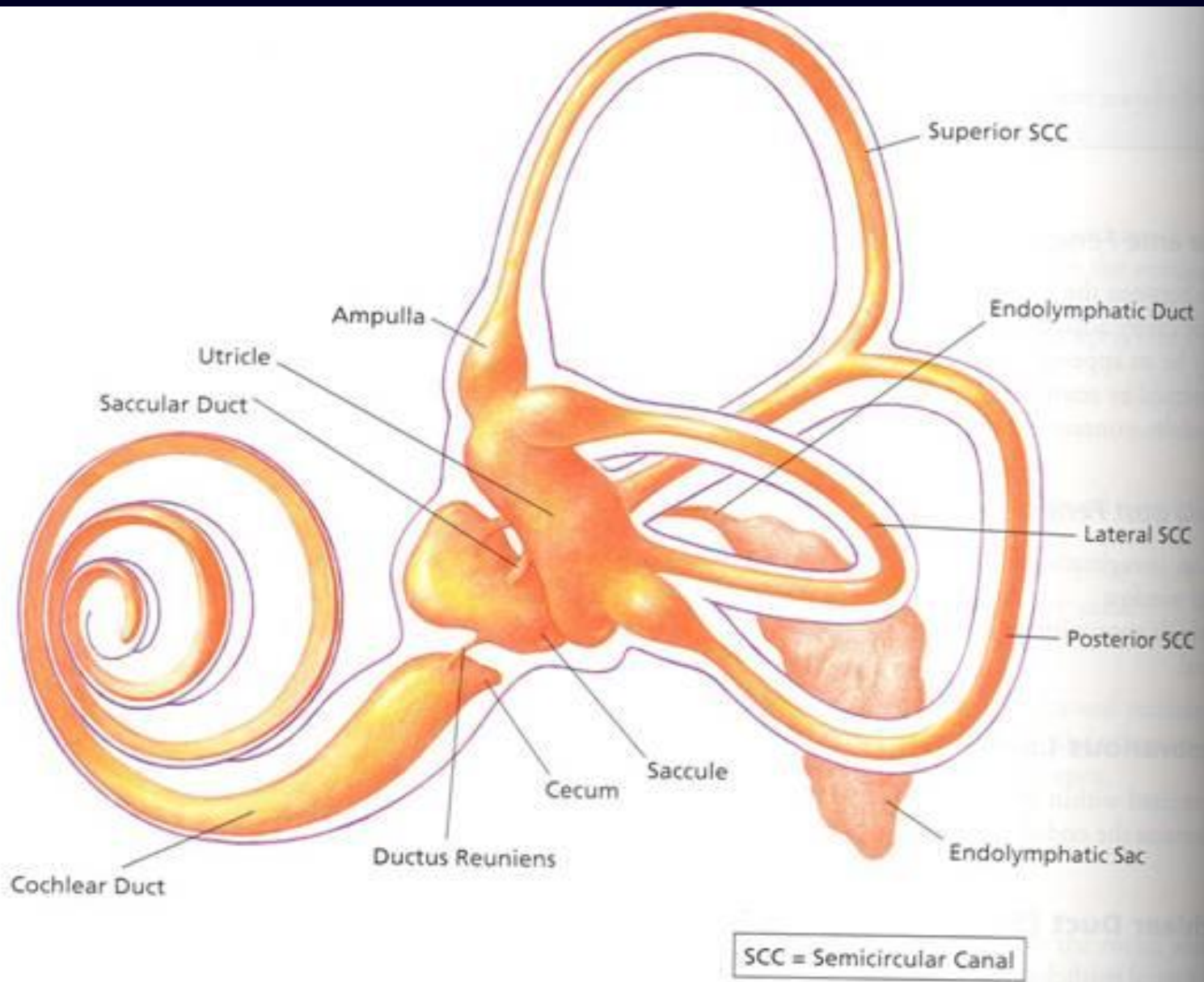
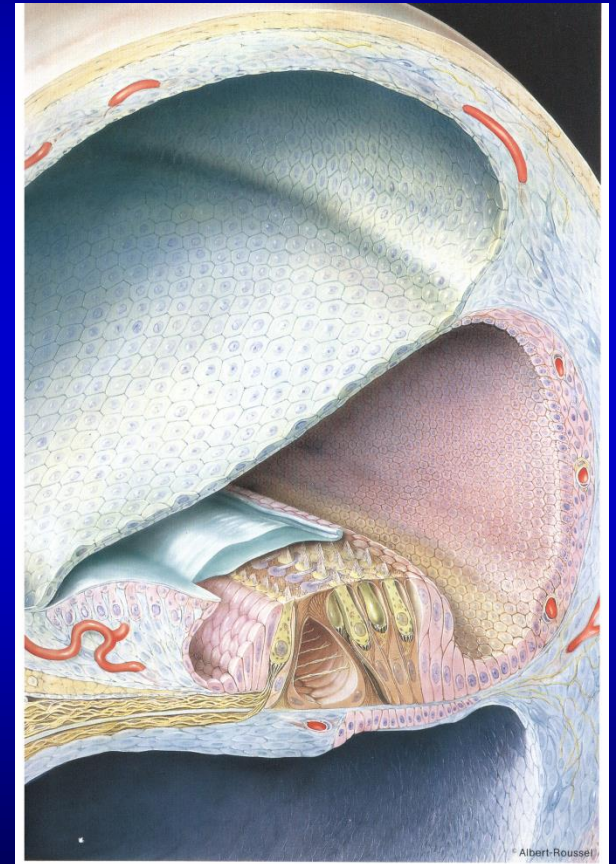


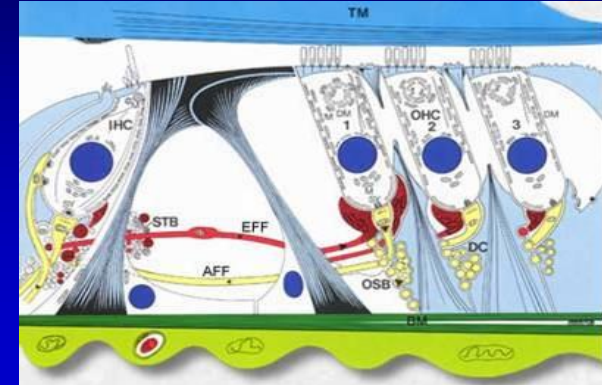
FIG. 9.22. Membranous labyrinth.

CONTENTS OF MEMBRANOUS LABYRINTH

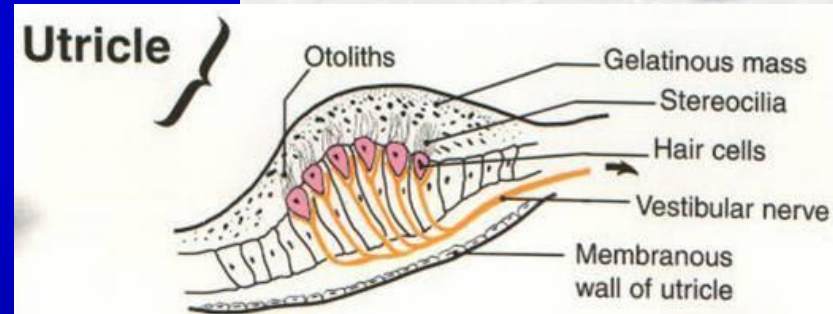
- Endolymph
- Sensory epithelium
 - Cochlea: *organ of Corti*
 - Utricle & saccule: *maculae*
 - Semicircular canals: *cristae*



INNER EAR SENSORY EPITHELIUM



- Cochlea: *organ of Corti*

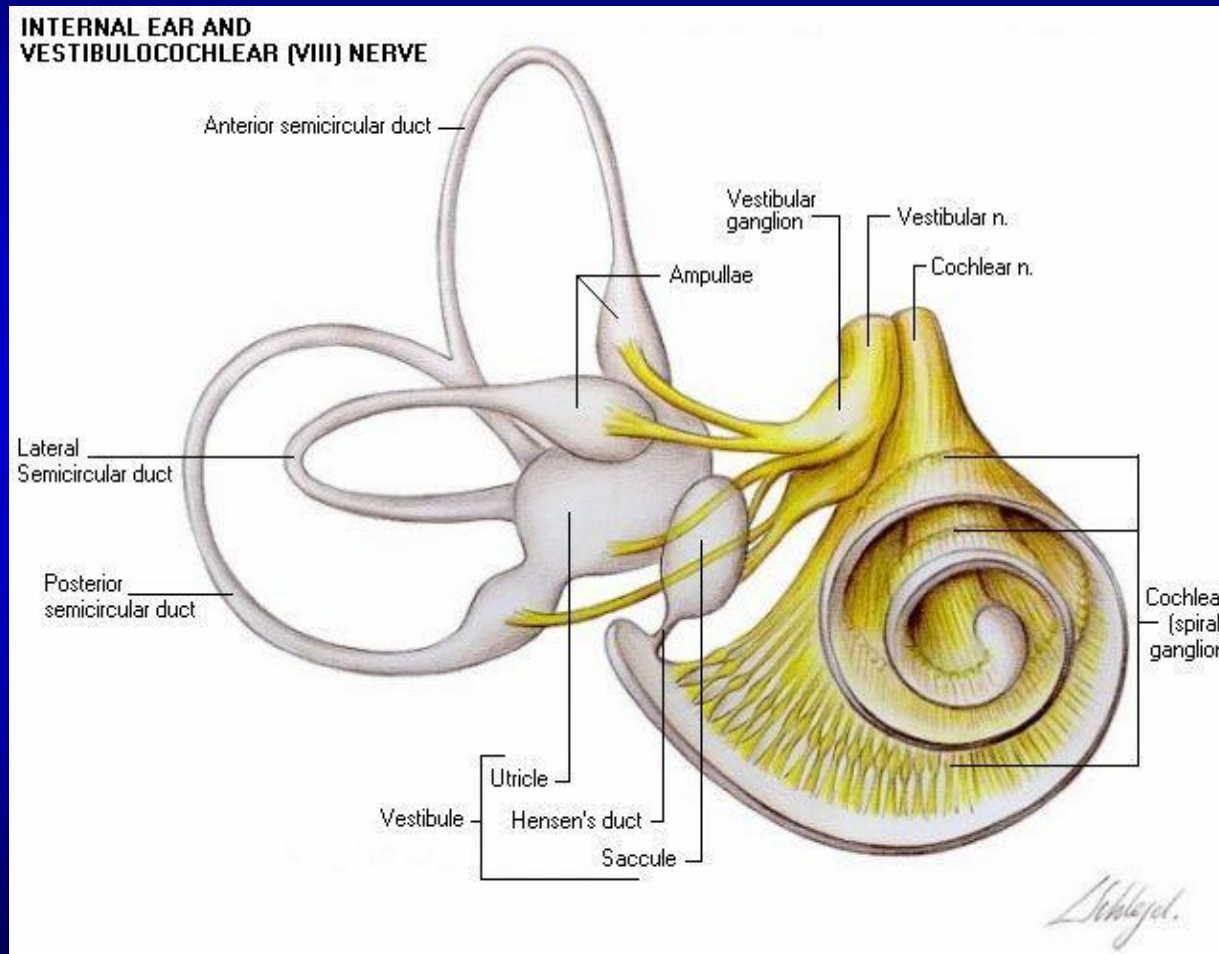


- Utricle & saccule: *maculae*

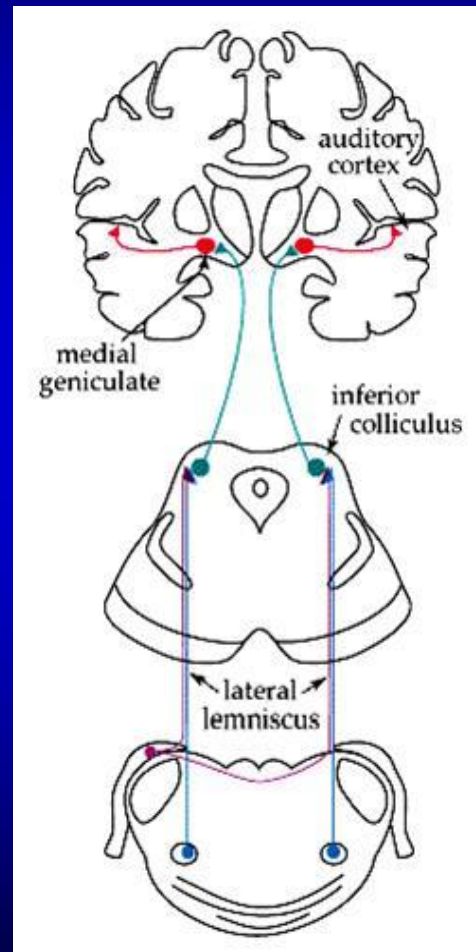


- Semicircular canals: *cristae*

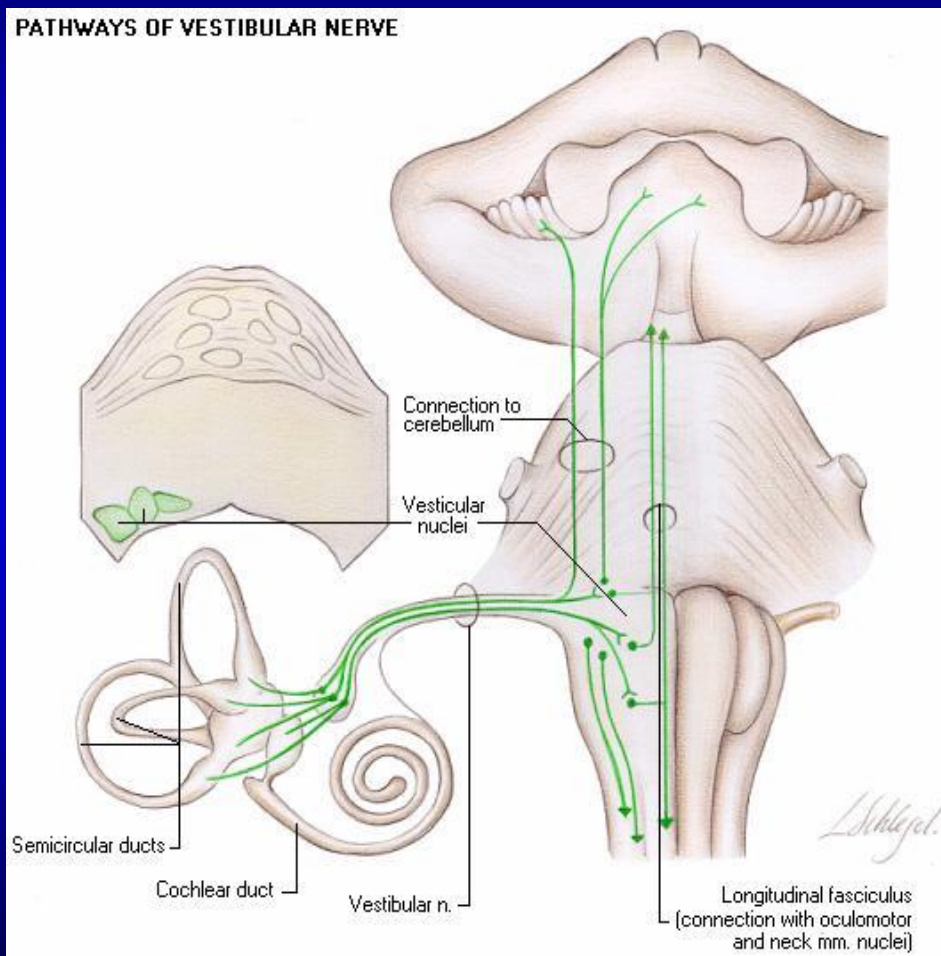
THE VESTIBULO-COCHLEAR NERVE



CENTRAL CONNECTIONS OF COCHLEAR NERVE



CENTRAL CONNECTIONS OF VESTIBULAR NERVE



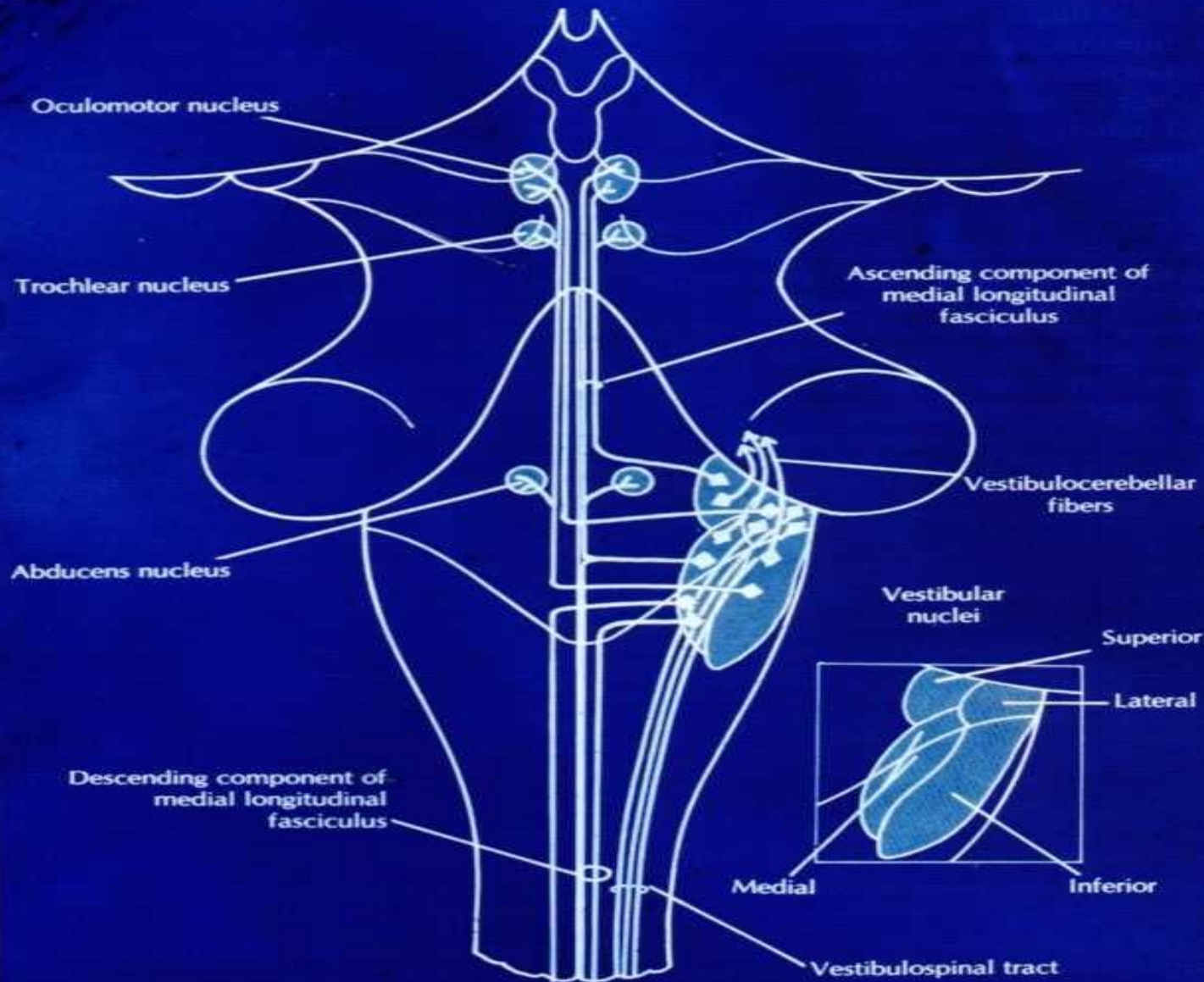


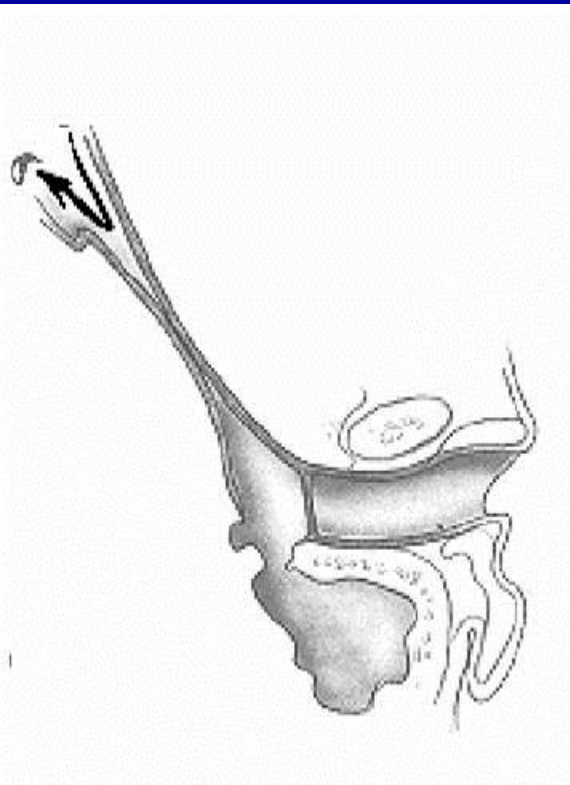
Figure 22-4. Vestibular pathways to the spinal cord and to the nuclei of the ocular motor nerves.

PHYSIOLOGY OF THE EAR

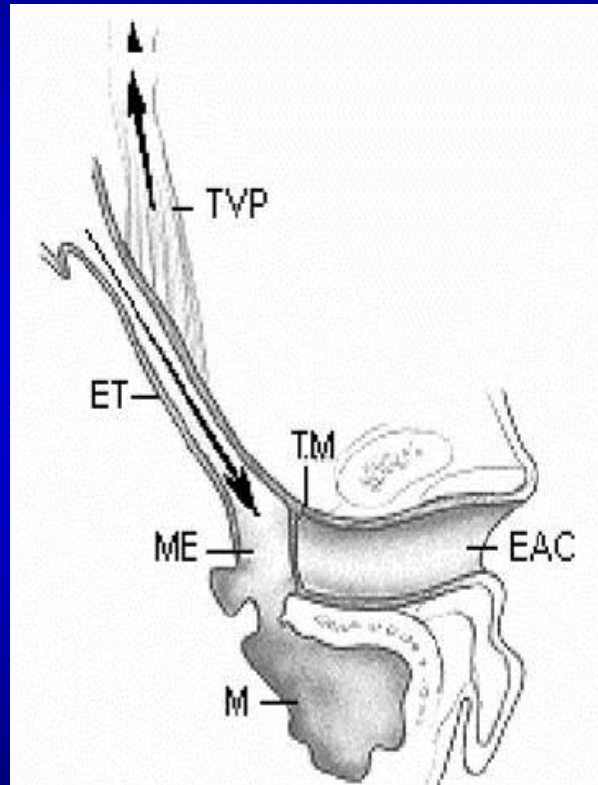
FUNCTIONS OF THE EXTERNAL EAR

- Protection of the middle ear
 - Curvature
 - Cerumen
- Auditory functions:
 - Sound conduction
 - Increase sound pressure by the resonance function

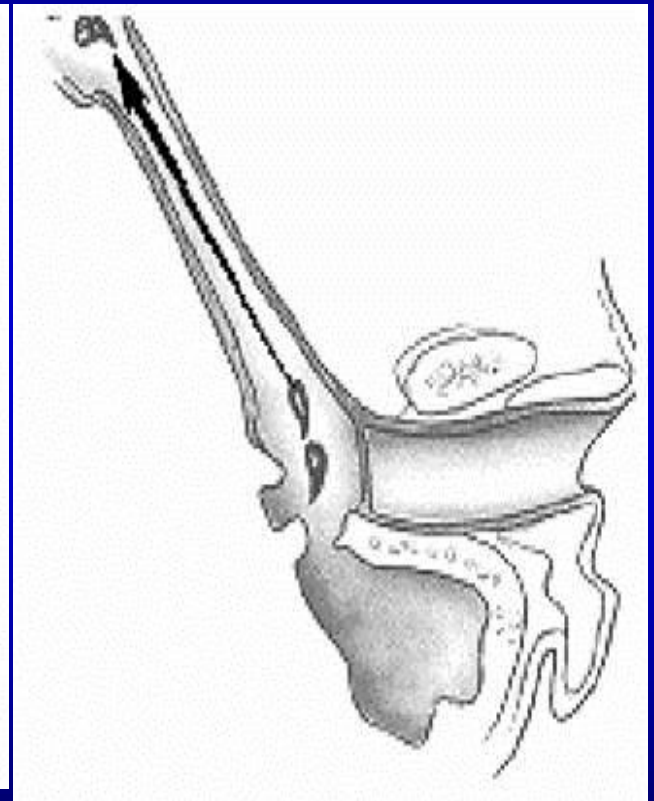
FUNCTIONS OF THE EUSTACHIAN TUBE



Protection



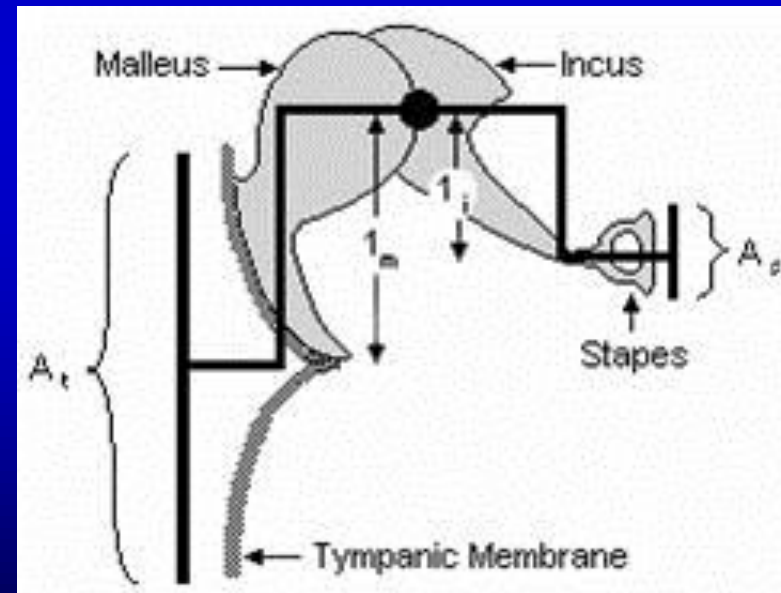
Ventilation



Drainage

FUNCTIONS OF THE MIDDLE EAR

- Conduction of sound
- Transformer mechanism
 - Hydraulic action
 - Ossicular leverage



FUNCTIONS OF THE MIDDLE EAR

- Conduction of sound
- Transformer mechanism
 - Hydraulic action
 - Ossicular leverage
- Protection to the inner ear
 - stapedial reflex

Middle & Inner Ear

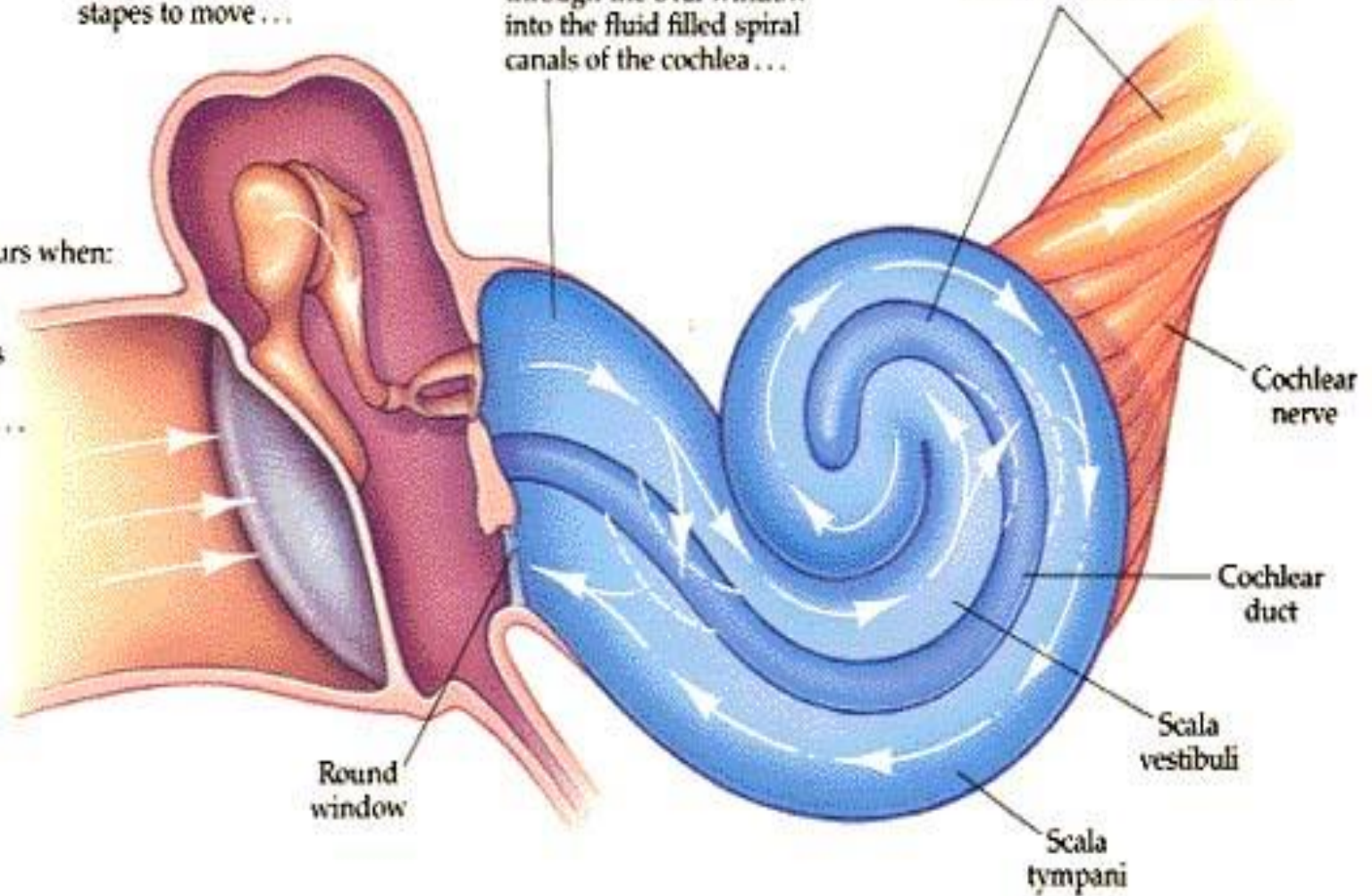
2) causing the ossicles to vibrate and the footplate of the stapes to move ...

3) the sound vibrations pass through the oval window into the fluid filled spiral canals of the cochlea ...

4) and are transmitted to the cochlear duct where they set off nerve impulses which are carried to the brain via the cochlear nerve.

Hearing occurs when:

1) sound vibrations strike the eardrum ...



OFFICE HOURS

- Whole Day - every Saturday
- Afternoon - every Monday & Tuesday

THANK YOU