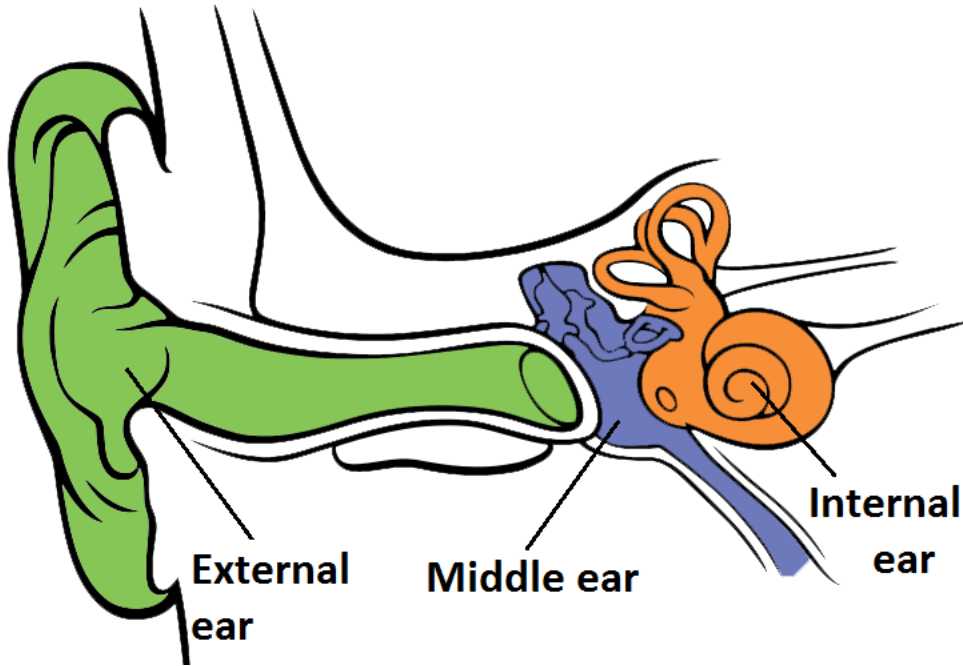


Anatomy of the ear

ملاحظة:

هذا الملف للمراجعة وترتيب المعلومات فقط وليس مرجع للمذاكرة لانه ليست كل المعلومات متضمنة.



دعاء ما قبل المذاكرة:

اللهم اني اسألك فهم النبيين وحفظ المرسلين, والملائكة المقربين, اللهم اجعل ألسنتنا عامرة بذكرك, وقلوبنا بخشيتك, وأسرارنا بطاعتك, انك على كل شيء قدير, حسبنا الله ونعم الوكيل.

Done by:

طرفه بن ميمون

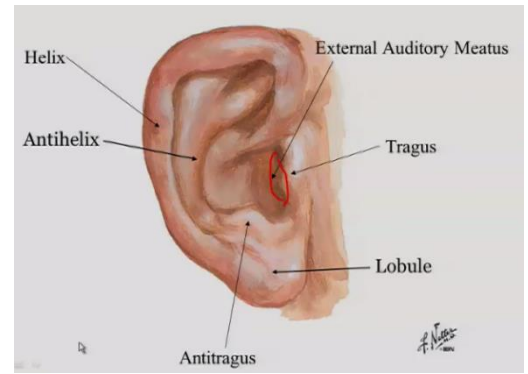
External ear

It is formed of the auricle (pinna), & the external auditory meatus.

It consists of a thin plate of *elastic cartilage* covered by a double layer of skin.

It receives the insertion of extrinsic muscles, which are supplied by the facial nerve

and Sensation by great auricular & auriculotemporal nerves.

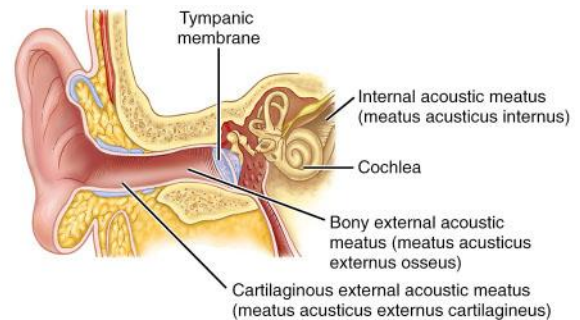


The external auditory canal

Is a curved S-shaped tube & collects sound waves from the auricle to the tympanic membrane.

Its outer 1/3rd is **elastic cartilage**, provided with hairs, sebaceous and **Ceruminous Glands (secrete earwax)**

, while its inner 2/3rds are **boney**.



Middle ear (Tympanic Cavity)

Is a narrow slit- like cavity (air-filled) in the petrous temporal bone & lined with mucous membrane

It contains the **auditory ossicles**, which transmit the vibrations of the tympanic membrane (eardrum) to the internal ear

auditory ossicles: *they are the first bones form in the embryo:*

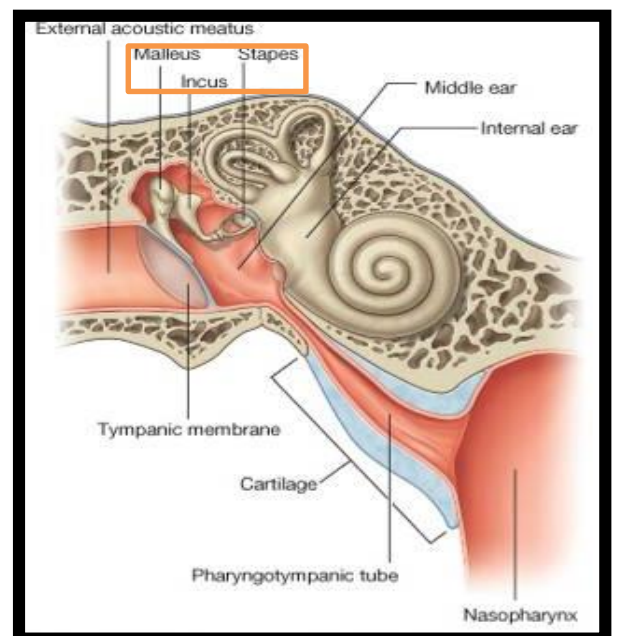
malleus, incus, and stapes

Communications of Middle Ear (Tympanic Cavity)

Anteriorly: with **Nasopharynx** through the **Auditory Tube**(pharyngotympanic Tube), which extends from the anterior wall downward ↓, forward ↱, and medially ↘ to the nasopharynx.

The posterior 1/3rd of the canal is bony, and its anterior 2/3rds are cartilaginous

Its function is to equalize the pressure



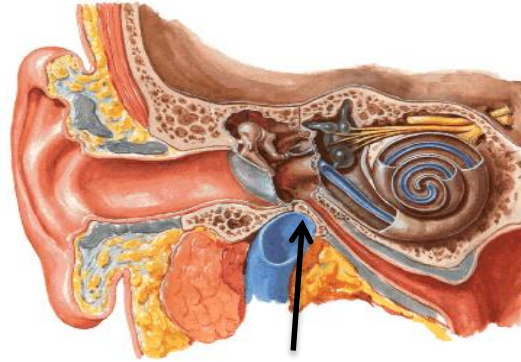
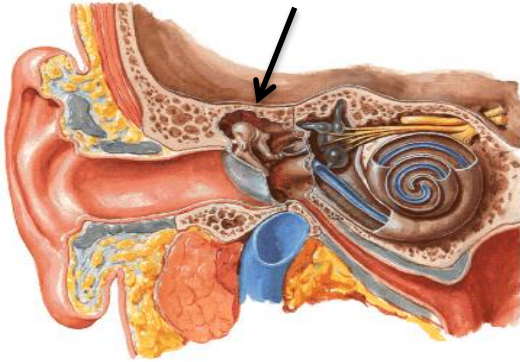
Roof

formed by a thin plate of bone, called **tegmen tympani** part of petrous temporal bone

Floor

formed by a thin plate of bone, which separates the middle ear from the **bulb of the internal jugular vein**

tegmen tympani separates the tympanic cavity from the temporal lobe of the brain.



Anterior wall

formed below by a thin plate of bone that separates tympanic cavity from the internal carotid artery

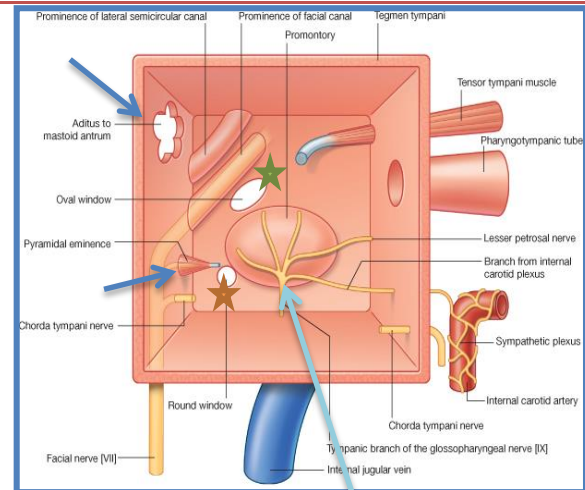
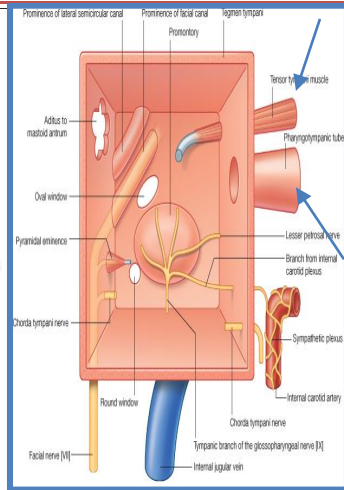
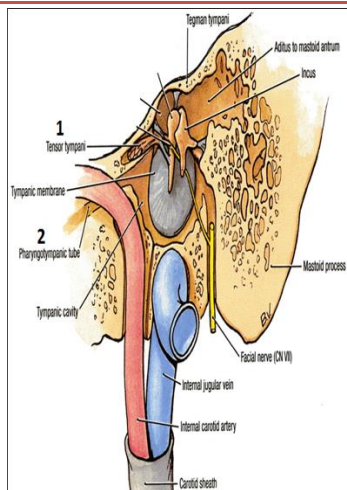
2 canals: 1-The upper smaller is the canal for the tensor tympani muscle.

2-The lower larger is for the auditory tube.

Posterior wall

In its Upper part a large, irregular opening, the **aditus to the mastoid antrum**

Below: a small, hollow, conical projection, the **pyramid** which is house of stapedius muscle and its tendon at the tip of the pyramid.



lateral wall

Formed by tympanic membrane

Extremely sensitive to pain

Medial wall

It is formed by the lateral wall of the inner ear

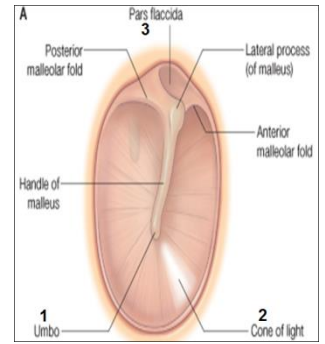
Shows rounded projection (Promontory)

★ Above Promontory : Oval window (**Fenestra Vestibuli**)

★ Below promntry : Round window (**Fenestra Cochleae**)

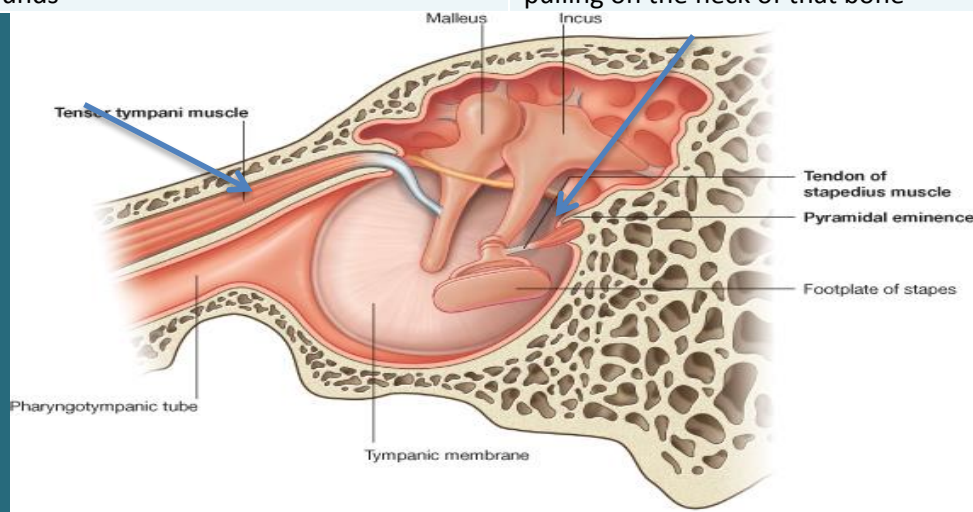
TYMPANIC MEBRANE (concave laterally)

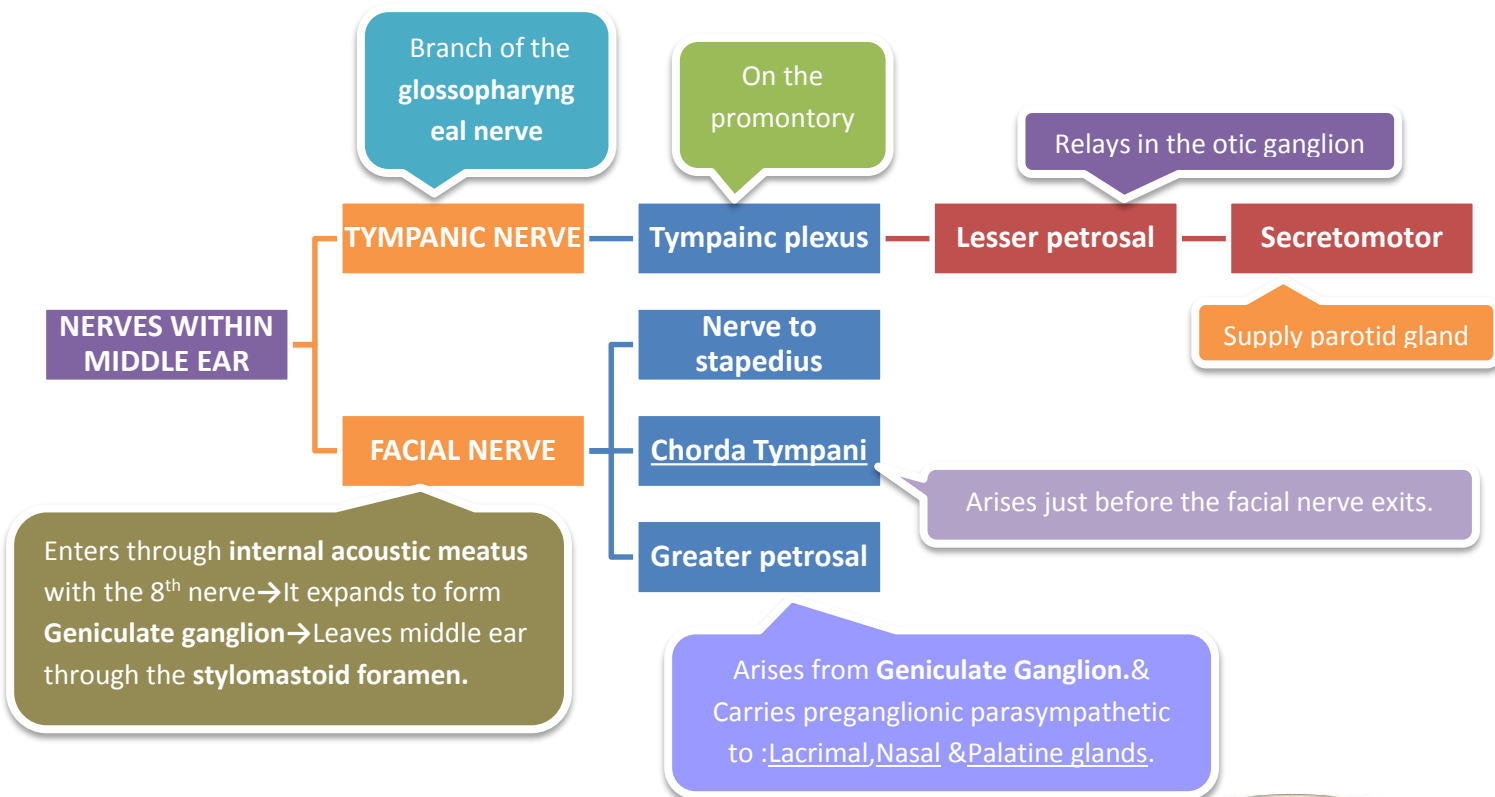
- 1-Umbo: produced by the tip of the handle of the malleus.
- 2-Cone of Light: When the membrane is illuminated through an otoscope
- 3-Pars Flaccida : small triangular area on the upper part



Muscles within the tympanic cavity (middle ear)

	TENSOR TYMPANI	Stapedius(the smallest voluntary muscle)
origin	Cartilage of the auditory tube and the bony walls of its own canal	Internal walls of the hollow pyramid
Insertion	Handle of the malleus	The tendon from the apex of the pyramid and inserted into the neck of the stapes
Nerve supply	Mandibular nerve	Facial nerve
Action	Contracts reflexly in response to loud sounds	Reflexly damps down the vibrations of the stapes by pulling on the neck of that bone





INTERNAL EAR, (LABYRINTH)

Situated in the petrous part of the temporal bone.

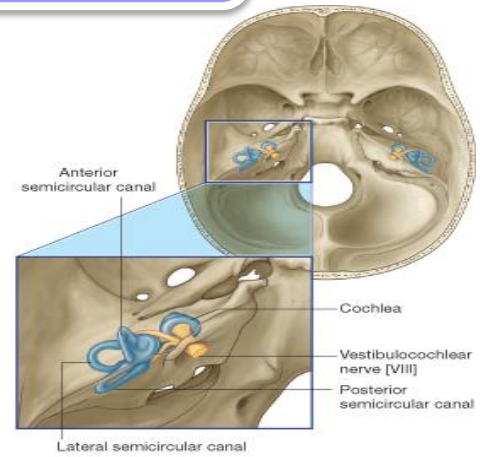
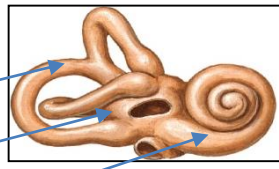
It consists of: **Bony & Membranous** labyrinth.

-Bony Labyrinth

They contain a clear fluid, the **perilymph**

It consists of:

- Semicircular canal
- Vestibule canal
- Cochlea canal



Cochlea

Its first turn produces the **promontory** on the medial wall of the tympanic cavity.

It contains the **cochlear duct**.

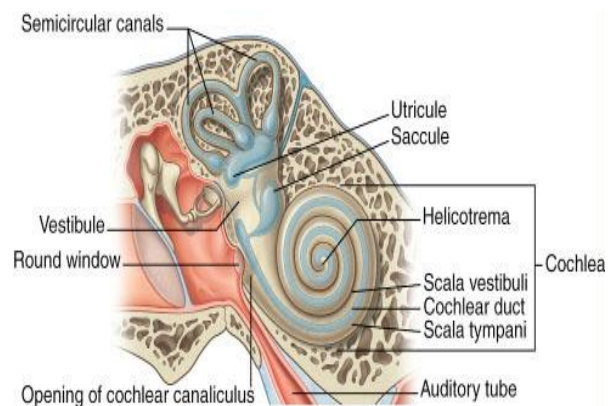
Vestibule

The central part of the bony labyrinth. Contains the **utricle & saccule**

In the lateral wall of the vestibule are the **fenestra vestibule**(Oval window),

which is closed by the base of the stapes, and the **fenestra cochleae**(Round window),

which is closed by the **secondary tympanic membrane**.



Semicircular Canals

There are 3 canals with 5 orifices (opening):
superior (anterior), posterior & lateral.

Each canal has a swelling at one end called the **ampulla**

Lodged within the canals are the **semicircular ducts**

The Membranous Labyrinth

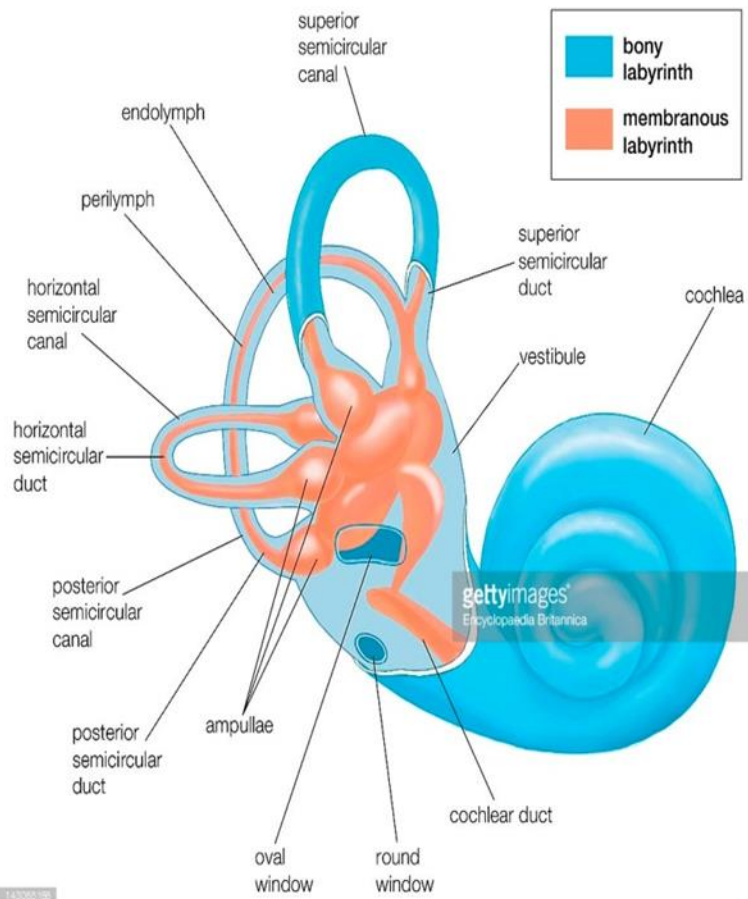
consists of series of membranous sacs and ducts
within the bony labyrinth, It is filled with **Endolymph**.

There are **four ducts & two sacs**:

Sacs: Utricle & Sacculle (within the bony vestibule).

Ducts: Three semicircular Ducts ,(within the bony semicircular canals),

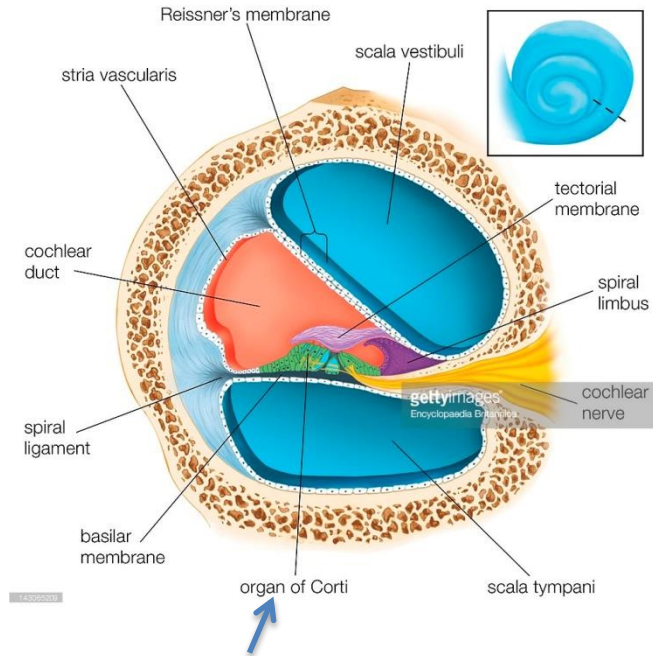
Cochlear Duct: (within the bony cochlea).



The utricle, saccule and semicircular ducts are concerned with
maintenance of Equilibrium

The highly specialized epithelium on the floor of cochlear duct
forms **the Spiral organ of Corti** that

contains the sensory receptors for Hearing.



Here is a video summarizes the
anatomy of the ear briefly

Hope it's help!



دعاء مابعد المذاكرة:

اللهم اني استودعك ما قرأت وما حفظت وما تعلمت, فرده الي عند حاجتي اليه, انك على كل شيء قدير, حسبنا الله ونعم الوكيل.