

Special Senses 2

For Bio 250

The Ear

- Houses two senses
 - Hearing
 - Equilibrium (balance)
- Receptors are mechanoreceptors
- Different organs house receptors for each sense

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Anatomy of the Ear

- The ear is divided into three areas
 - Outer (external) ear
 - Middle ear
 - Inner ear

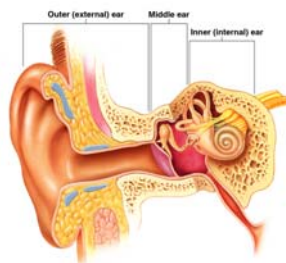


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The External Ear

- Involved in hearing only
- Structures of the external ear
 - Pinna (auricle)
 - External auditory canal

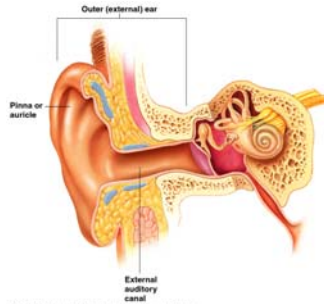


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The External Auditory Canal

- Narrow chamber in the temporal bone
- Lined with skin
- Ceruminous (wax) glands are present
- Ends at the tympanic membrane

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The Middle Ear or Tympanic Cavity

- Air-filled cavity within the temporal bone
- Only involved in the sense of hearing

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The Middle Ear or Tympanic Cavity

- Two tubes are associated with the inner ear
 - The opening from the auditory canal is covered by the tympanic membrane
 - The auditory tube connecting the middle ear with the throat
 - Allows for equalizing pressure during yawning or swallowing
 - This tube is otherwise collapsed

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Bones of the Tympanic Cavity

- Three bones span the cavity
 - Malleus (hammer)
 - Incus (anvil)
 - Stapes (stirrup)

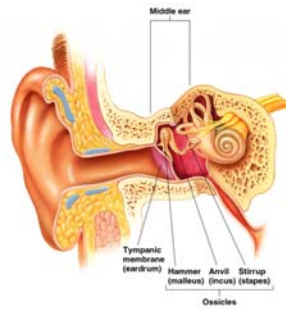


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Bones of the Tympanic Cavity

- Vibrations from eardrum move the malleus
- These bones transfer sound to the inner ear

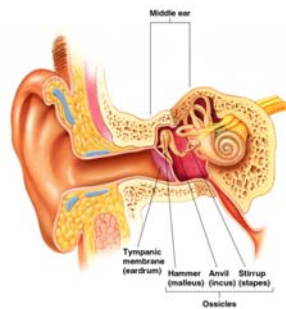


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Inner Ear or Bony Labyrinth

- Includes sense organs for hearing and balance
- Filled with perilymph

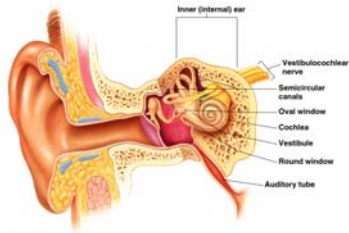


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Inner Ear or Bony Labrynth

- A maze of bony chambers within the temporal bone
 - Cochlea
 - Vestibule
 - Semicircular canals

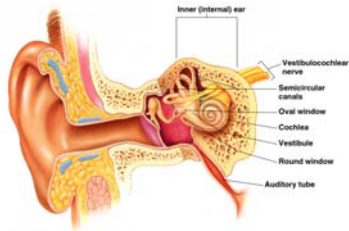


Figure 8.12

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