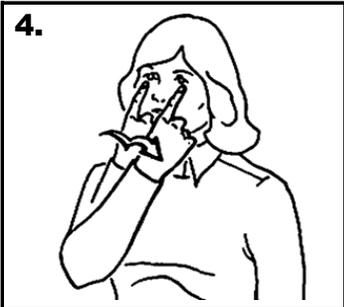
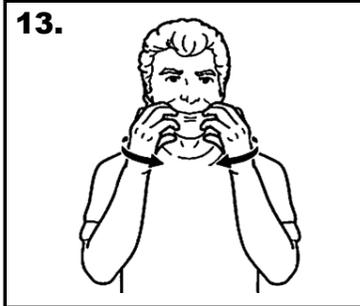
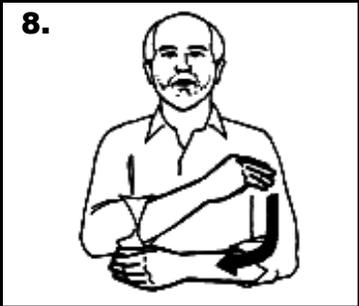
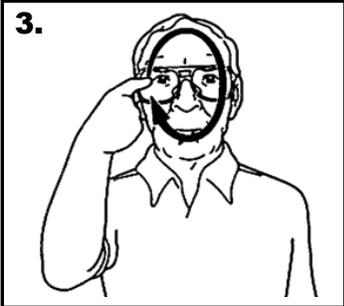
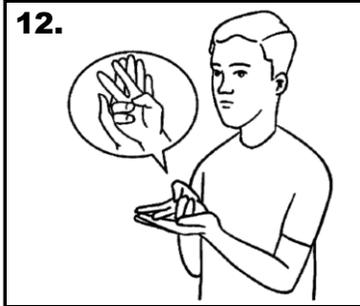
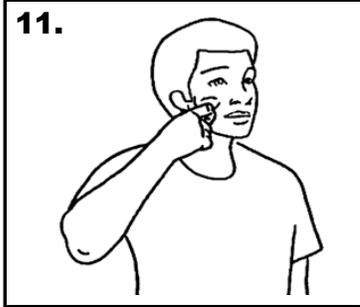
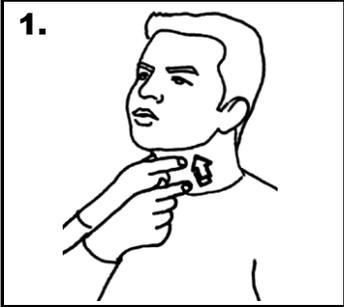
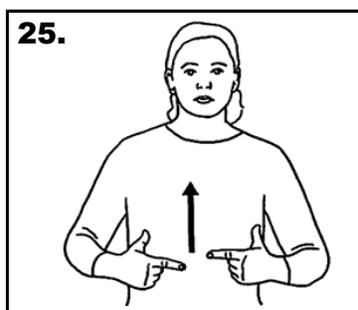
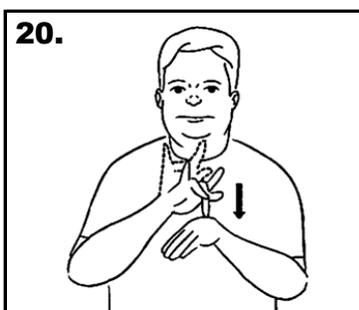
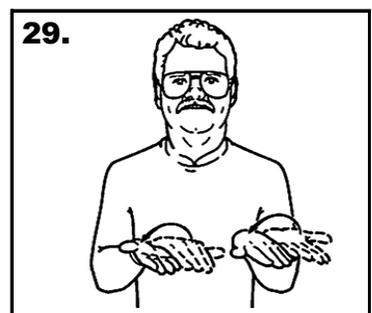
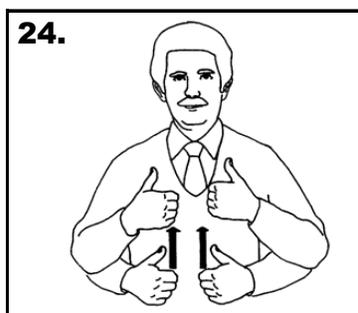
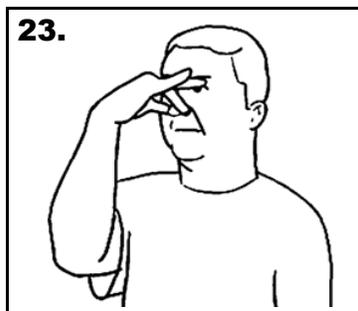
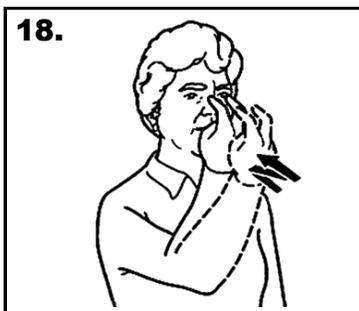
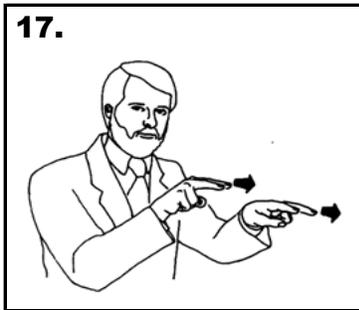
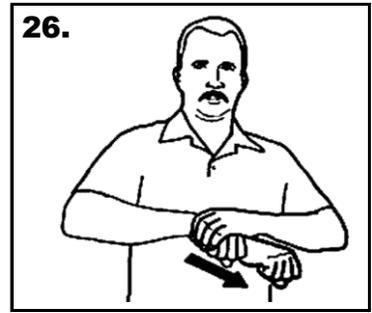
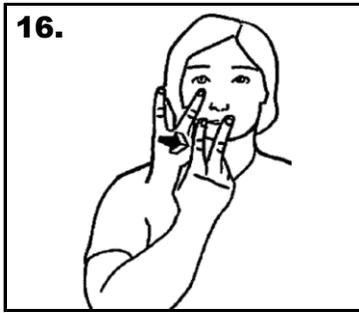


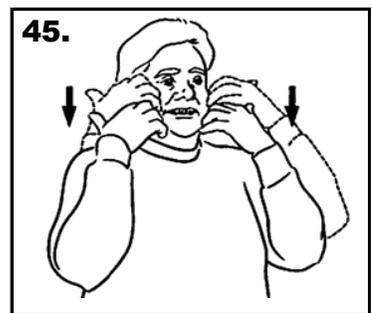
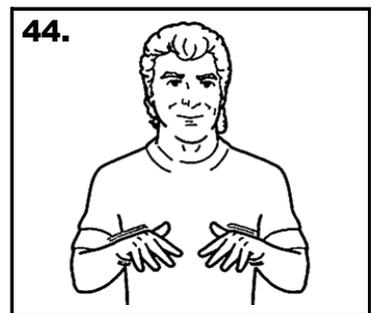
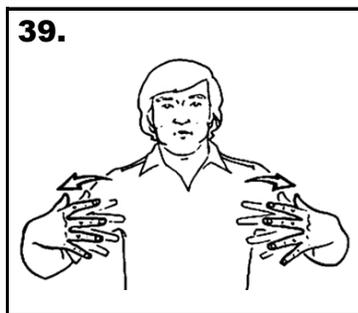
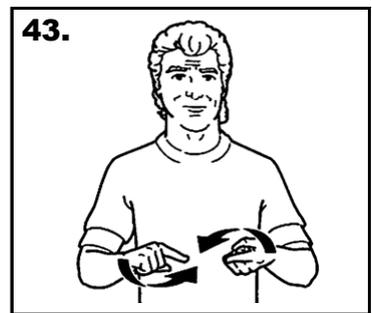
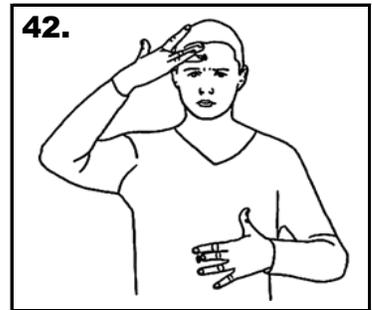
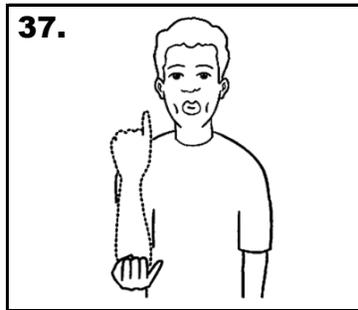
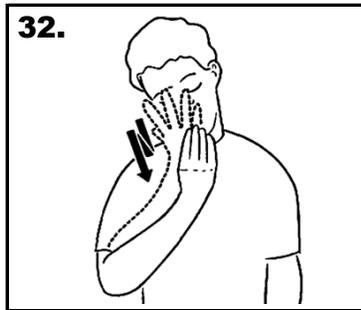
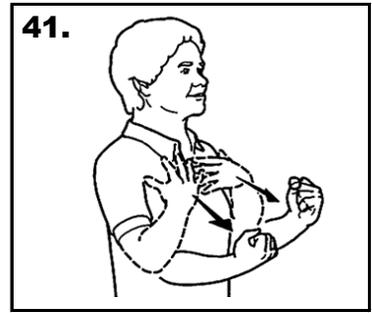
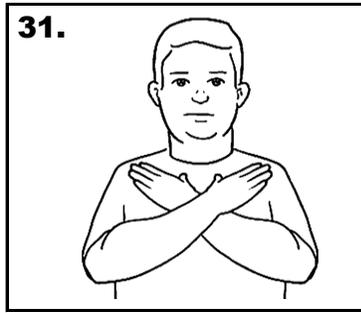
# 21 - Health (Part 1)



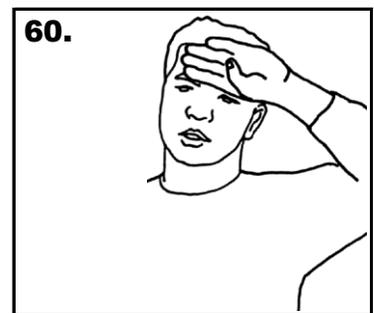
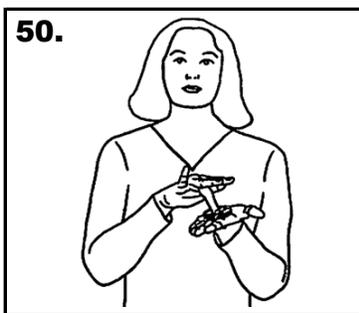
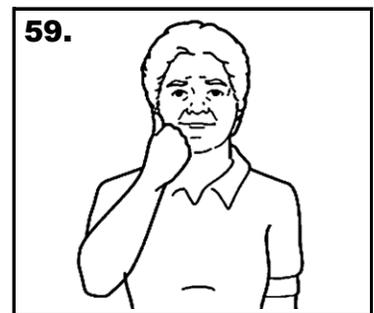
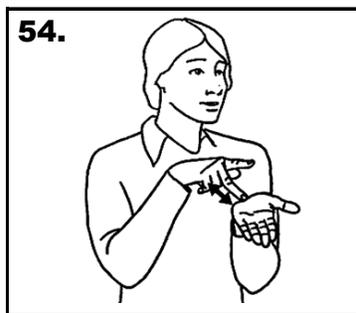
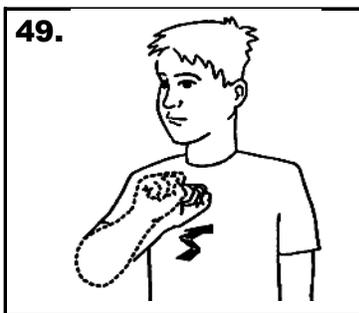
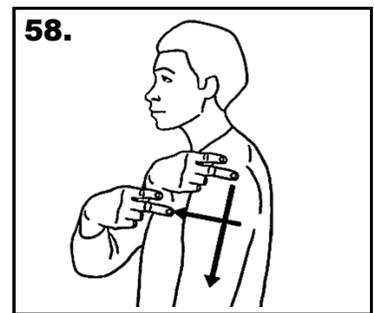
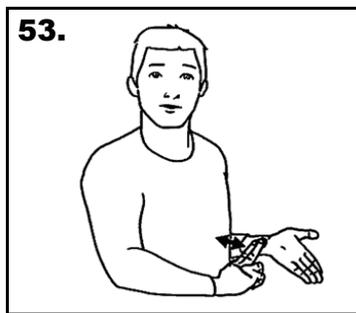
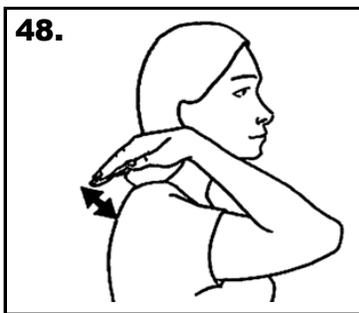
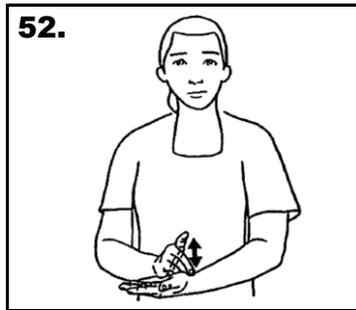
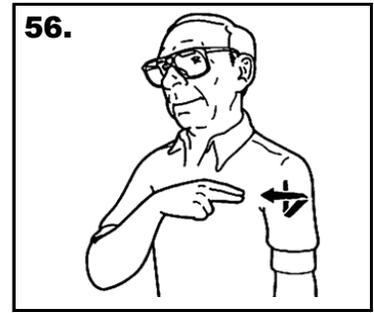
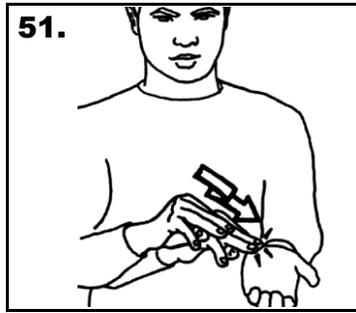
## 21 - Health (Part 1)



## 21 - Health (Part 1)



## 21 - Health (Part 1)



## Chapter 21: Health (Part 1)

1. throat, esophagus
2. head
3. face, looks, appear
4. eyes
5. mouth
6. nose
7. teeth
8. arm
9. hands
10. feet
11. skin, ethnicity
12. lie down
13. beard
14. hearing aid
15. cochlear implant
16. see, vision, sight
17. look, watch
18. blind
19. glasses
20. touch, been to
21. taste
22. smell, odor, scent
23. stink, smells bad
24. live, life, address, alive
25. live, life, alive
26. born, birth
27. born, birth
28. born, birth
29. die, pass away
30. breathe
31. rest, relax
32. sleep
33. over sleep, sleep in
34. awake, wake up, surprise
35. cripple, limping, lame
36. pale, Caucasian, Anglo
37. skinny, thin
38. fat, obese
39. fat, obese
40. fat, obese (derogatory)
41. strong, healthy, well, cure
42. sick, ill, disease
43. pain, ache, hurt, sore
44. nervous, anxious
45. sweat, perspire
46. vomit, throw up, really hate
47. dizzy
48. back
49. cough
50. medicine
51. medical, doctor, physician
52. doctor, physician
53. nurse
54. psychiatrist
55. cold, tissue, handkerchief
56. hospital
57. clinic, infirmary
58. patient
59. fever
60. fever

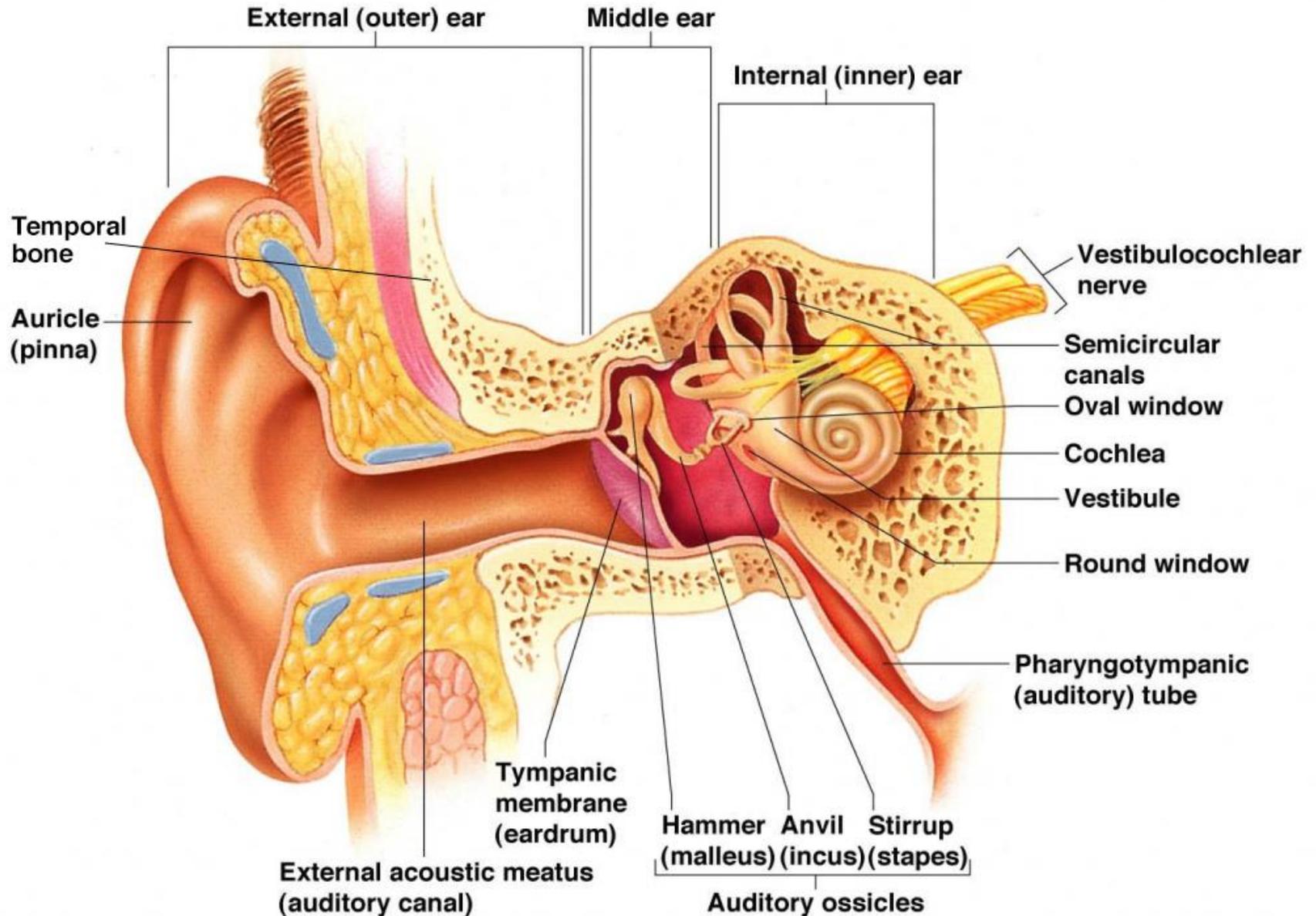
# *Grammar & Deaf Culture:*

## Chapter 21:

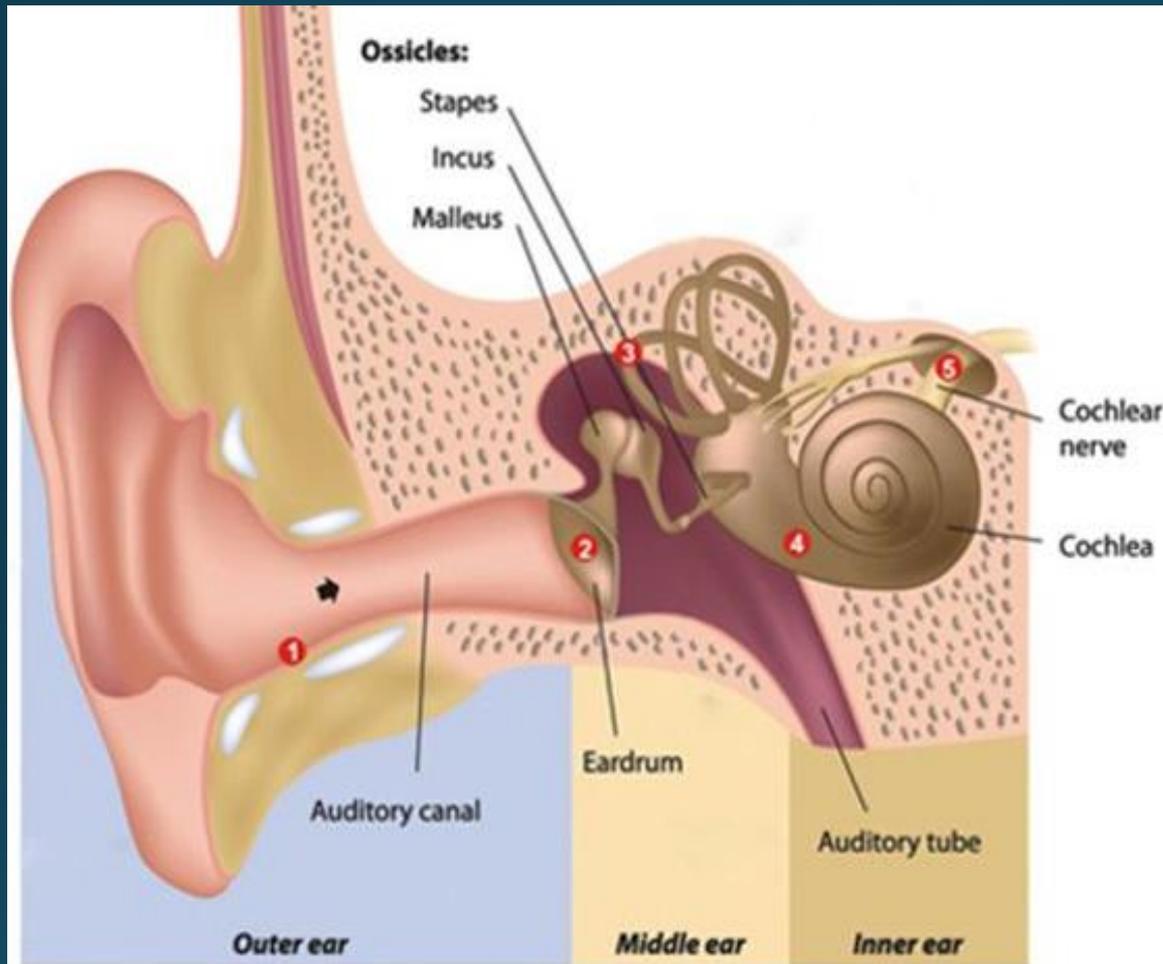
### *Health (Part 1)*



# Anatomy of the Ear



# Process of Hearing



- 1 Sound waves enter your outer ear and travel through the ear canal to your eardrum.
- 2 Your eardrum vibrates with the incoming sound and sends the vibrations to three tiny bones in your middle ear.
- 3 The bones in your middle ear amplify the sound vibrations and send them to your inner ear or cochlea.
- 4 The sound vibrations activate tiny hair cells in the inner ear, which in turn release neurochemical messengers.
- 5 Your auditory nerve carries this electrical signal to the brain, which translates it into a sound you can understand.

# Anatomy of the Ear

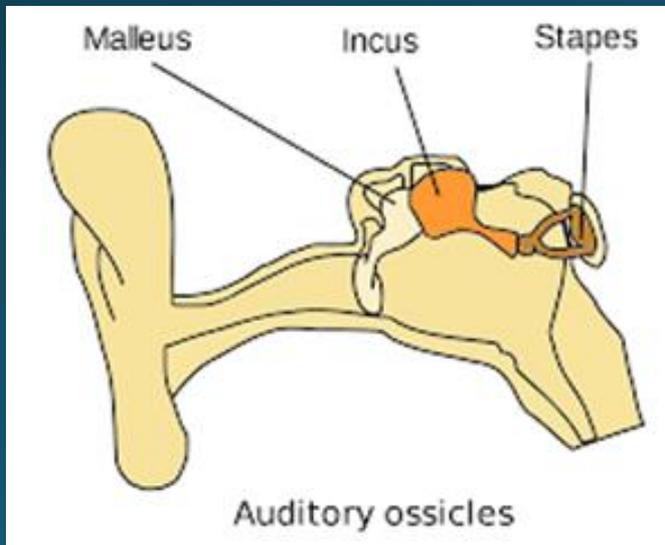
**Pinna:** (also called the auricle) the visible part of the outer ear. It collects sound and directs it into the outer ear canal.

**Auditory Canal** (external auditory canal); the tube through which sound travels to the eardrum.

**Eardrum** (tympanic membrane); a thin membrane that vibrates when sound waves reach it.

# Anatomy of the Ear

**Auditory Ossicles:** the three small bones in the middle ear, known as the hammer (malleus), anvil (incus) and stirrup (stapes) which are connected to one another. Their purpose is to lead the sound striking the eardrum further into the inner ear.



# Anatomy of the Ear

**Semicircular Canals:** three loops of fluid-filled tubes that are attached to the cochlea in the inner ear. They help us maintain our sense of balance.

**Cochlea:** a spiral-shaped, fluid-filled inner ear structure; it is lined with cilia (tiny hairs) that move when vibrated and cause a nerve impulse to form.

# Anatomy of the Ear

**Auditory Nerve** (8<sup>th</sup> Cranial Nerve): Nerve that transmits electro-chemical signals from the inner ear (the cochlea) to the brain.

**Eustachian Tube:** A tube connecting the middle ear cavity and the back of the throat. It can be opened by coughing or swallowing, though it is normally closed. The occasional opening of the Eustachian tube is necessary to equalize the middle ear cavity.

# Types of Hearing Loss

There are two main types of hearing loss:

1. **Conductive Hearing Loss:** A hearing loss that occurs due to problems in the outer or middle ear, which stops the sound getting through to the cochlea.

Generally, conductive hearing loss doesn't cause a total inability to hear, but it does cause a loss of loudness and a loss of clarity. In other words, sounds are heard, but they are weak, muffled, and distorted.

# Types of Hearing Loss

**2. Sensorineural Hearing Loss:** (also known as nerve deafness or neural hearing loss); A hearing loss that occurs due to damage in the inner ear (auditory nerve or cochlea). A sensorineural hearing loss can cause a loss of loudness, a loss of clarity in sounds, and often a greater severity of deafness.

**Note: *Mixed Hearing Loss*** refers to a combination of conductive and sensorineural hearing losses.

# Causes of Deafness

**Obstruction of the ear canal:** The most common cause is wax. For example, when you swim or wash your hair, wax absorbs water and blocks the ear canal.

**Inflammation of the ear canal:** This can be caused by a skin infection. The ear canal becomes swollen and blocked.

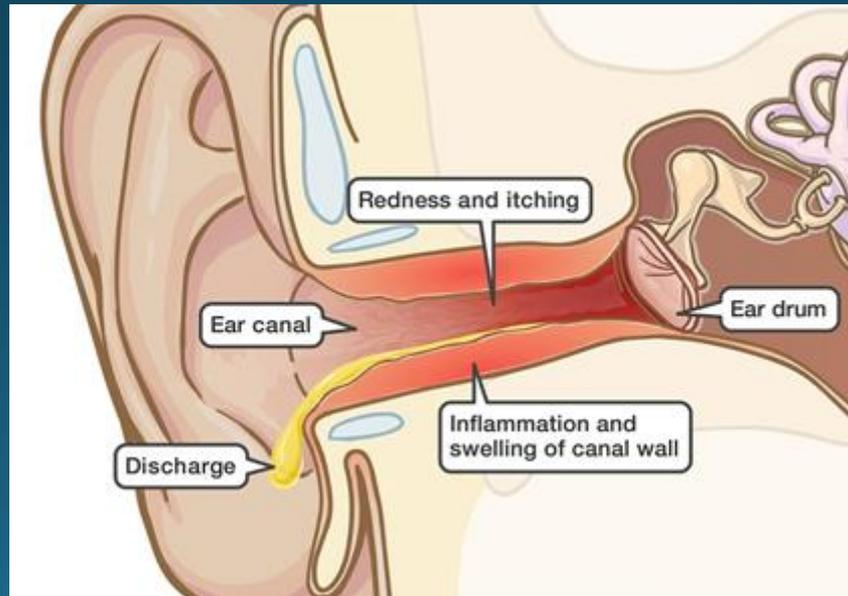
# Causes of Deafness

**Otosclerosis:** This is the most common type of conductive deafness in older people. The bones in the middle ear grow too big and this prevents them from vibrating and transmitting sound to the cochlea.

It is a hereditary disease in which portions of the middle ear or inner ear develop growths like bony sponges. The disease can be in the middle ear, the inner ear, or both places. This condition can be treated by an operation called stapedectomy.

# Causes of Deafness

**Otitis Externa:** (Also called “Swimmer’s Ear” or “Glue Ear”): an inflammation of the ear canal caused by infection with bacteria or fungus. When swimmer’s ear is unchecked and advances into an infection, extreme pain, yellowish pus, and even temporary hearing loss can occur.

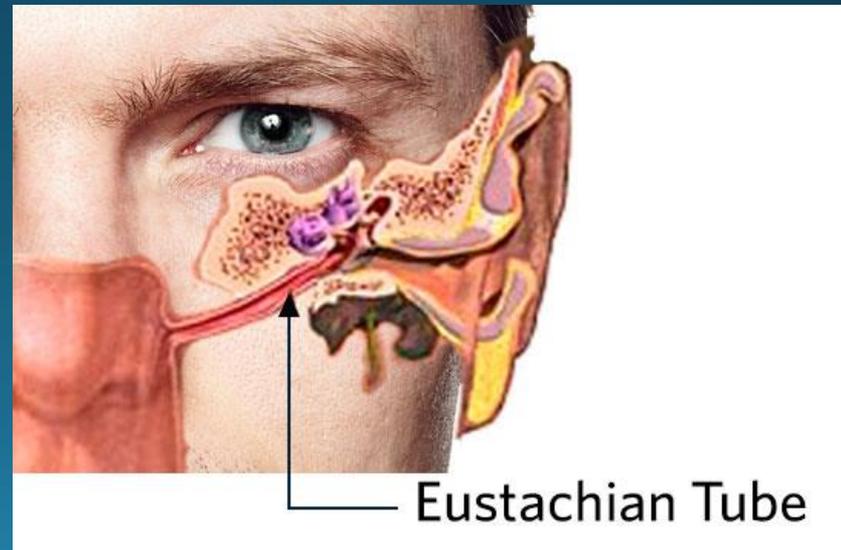


# Causes of Deafness

**Otitis Media** (middle ear infection): The eustachian tube becomes blocked and the middle ear fills up with fluid. This fluid hinders the vibration of the bones. This can damage the bones in the middle ear and cause hearing loss. Most common in children.

Ear infections are diseases which can cause fluid or mucus to build up inside the ear; Pressure builds up inside the ear, eardrum is less flexible.

Some hearing may be lost during the infection; it may or may not return when the infection is healed.



# Causes of Deafness

**Heredity** (RARE): Some people are born deaf. Usually the cause is unknown. Occurs in 1/2,000;

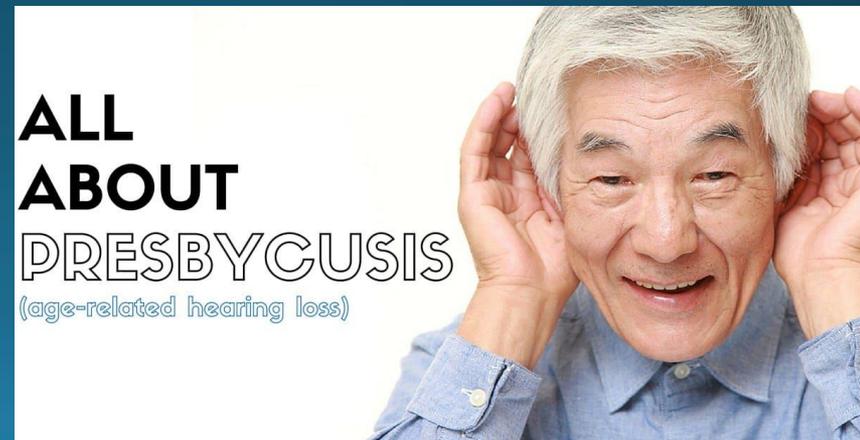
**Meningitis:** an inflammation of the membrane (called the meninges) that surrounds the brain and the spinal column. Meningitis itself doesn't cause deafness, but since the brain is so close to the ears, sometimes the inflammation of the meninges can cause the inner ear to become inflamed also, and this can result in deafness.

# Causes of Deafness

**Presbycusis:** the gradual loss of hearing that occurs as people age. It is a common disorder associated with aging. Presbycusis usually occurs gradually, with some people not immediately aware of the change.

## *Contributors to presbycusis include:*

- cumulative effects of environmental noises
- loss of hair cells (sensory receptors in inner ear)
- hereditary factors
- aging
- health
- side effects of some medications



# Causes of Deafness

**Tinnitus:** the term which refers to **ringing in your ears**. Most often a person with tinnitus also has a hearing loss, but not always.

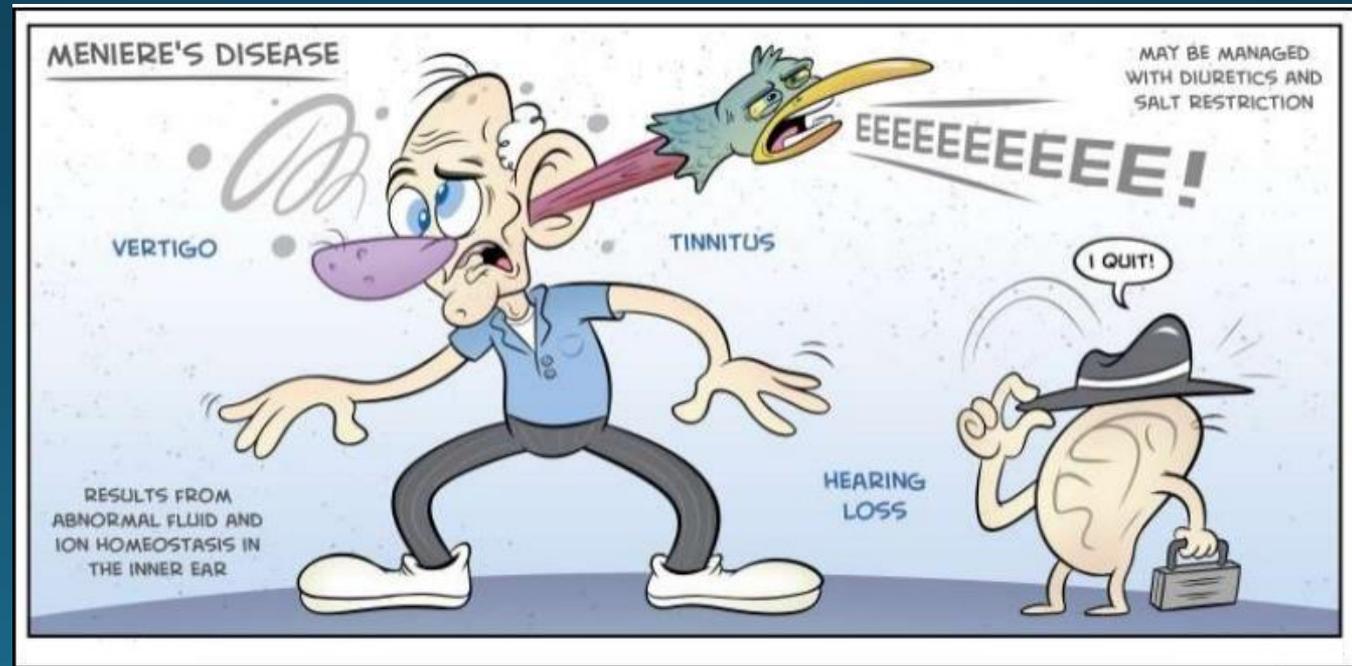
There are number of causes of tinnitus including:

- hearing loss
- allergies
- medications
- physical damage to the ear
- other medical problems.



# Causes of Deafness

**Meniere's Disease:** a disorder of the inner ear that causes episodes of **vertigo**, **tinnitus**, a feeling of fullness or **pressure** in the ear, and **fluctuating hearing loss**. An acute attack of Meniere's disease is believed to result from fluctuating pressure of a fluid (endolymph) within the inner ear. The underlying cause of Meniere's disease is unknown.



# Causes of Deafness

**Premature Birth:** being born premature can sometimes lead to a hearing loss due to an undeveloped auditory nerve or other parts of the ear. The auditory nerve fully develops late in pregnancy, often causing deafness to premature babies.

**Lack of oxygen or cerebral hemorrhage:** can damage the nervous system resulting in a hearing loss.

# Causes of Deafness

**Rubella (German measles);** an epidemic occurred in the mid 1960's which affected many pregnant women which caused thousands of babies to be born deaf. Rubella is a contagious viral infection with mild symptoms associated with a rash. The disease is caused by a virus that is spread through the air or by close contact. Defects may occur in an infected fetus and include deafness, cataracts, mental retardation, congenital heart defects, and other problems. Rubella is preventable with vaccination.

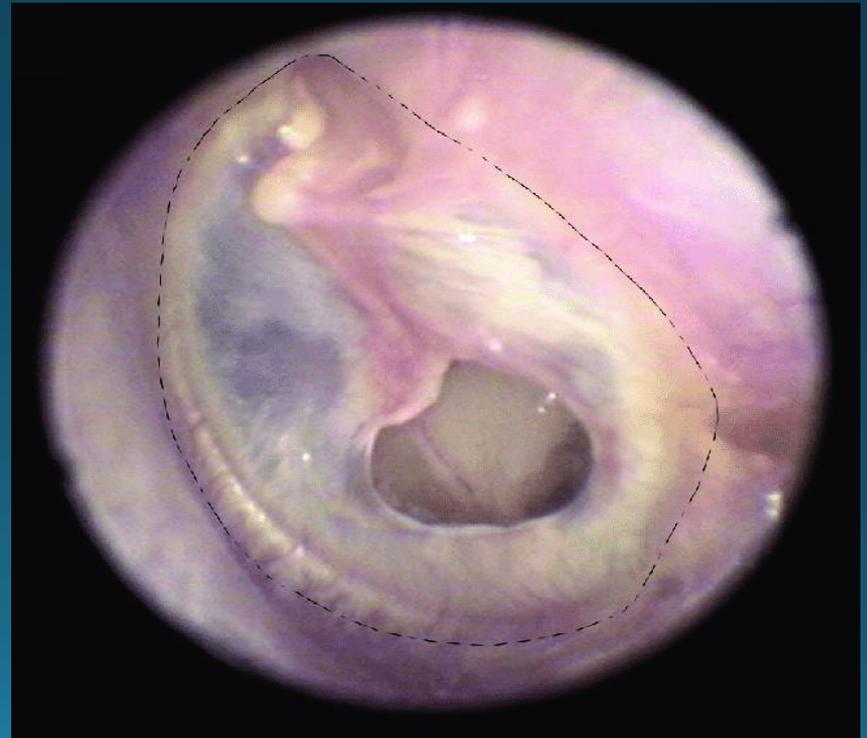
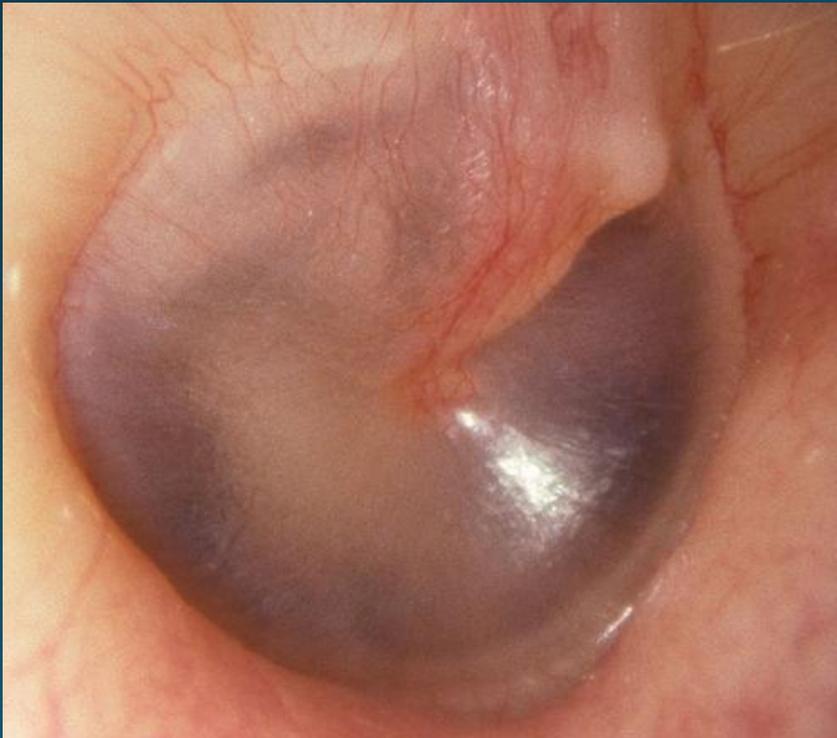
# Causes of Deafness

**Trauma:** physical injury may cause deafness such as a blow to the head or a car accident.

**Unknown:** many times, the exact cause is not known. There might be some theories or guesses or a combination of factors mentioned above.

# Injuries of the Ear

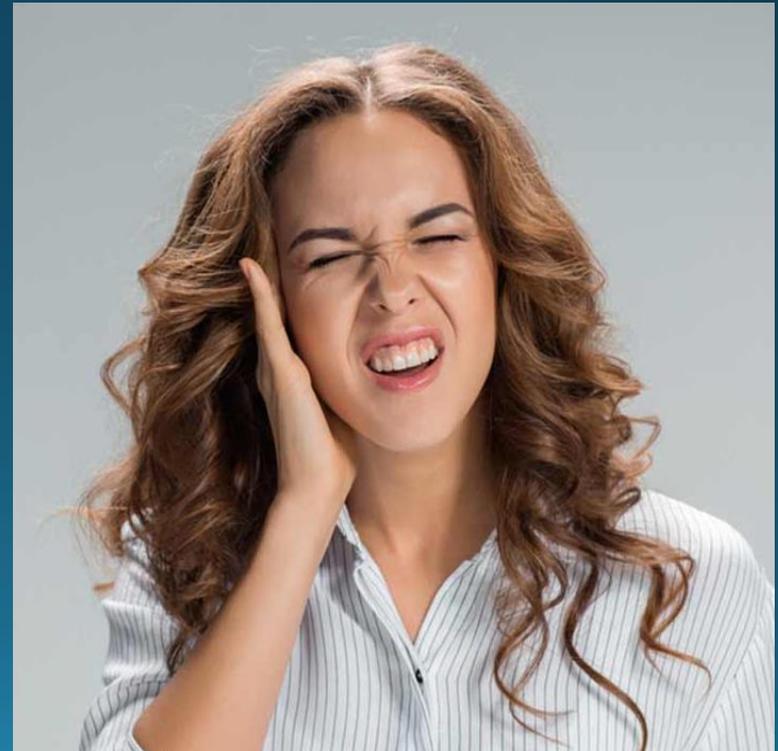
**Perforated eardrum:** Interrupts the proper vibration to transfer sound; this can also allow fluid into the middle ear and cause hearing problems. Luckily the eardrum usually heals itself, although it can take a few weeks or months. Surgery is an option if healing does not happen.



# Injuries of the Ear

## *Sources of injury:*

- Foreign objects, such as Q-tips or hairpins, which are pushed too far into the ear canal.
- Explosions, which cause an abrupt and very big change in the air pressure, which can cause an eardrum to tear.
- Car wrecks, fights, and sporting injuries.



# Injuries of the Ear

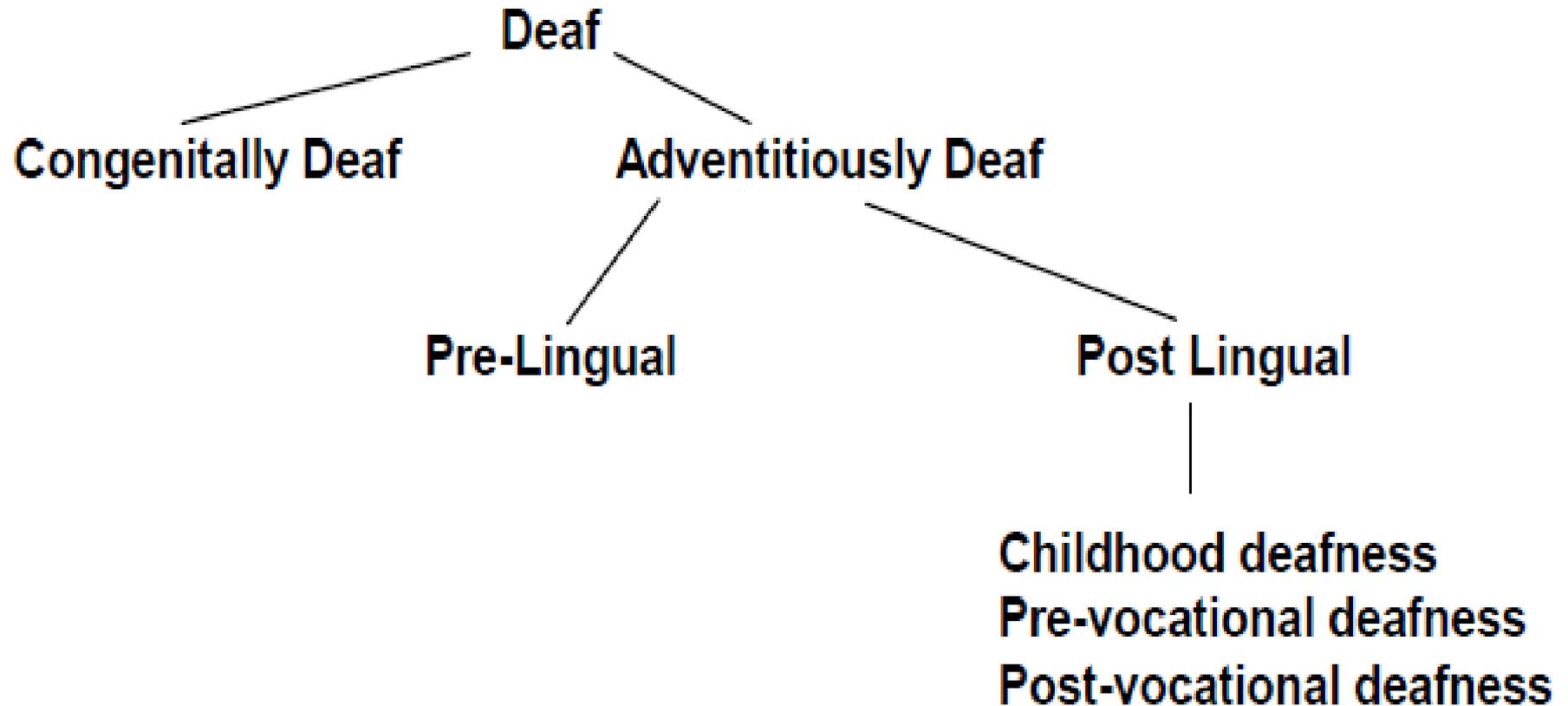
**Nerve Damage:** Damage to the auditory nerve can also be the result of an injury or a disease. Injuries can happen in auto accidents or falls.

The result of nerve damage is that the electrical signals of sounds do not get transmitted from the ear to the brain.

# Injuries of the Ear

**Loud Noises:** A very common cause of deafness is repeated or long-term exposure to loud noises. This is why heavy equipment operators, firefighters, factory workers, and especially rock musicians suffer hearing losses after years of their work. Usually a single incident of exposure to loud noises will not cause deafness, but a repeated exposure to loud noises over a period of time will often cause moderate to severe hearing loss. However, one incident of a loud noise can permanently cause deafness such as a bomb blast or jet engine. The loud noises destroy the hair cells in the cochlea causing hearing loss.

# Categories of Deafness

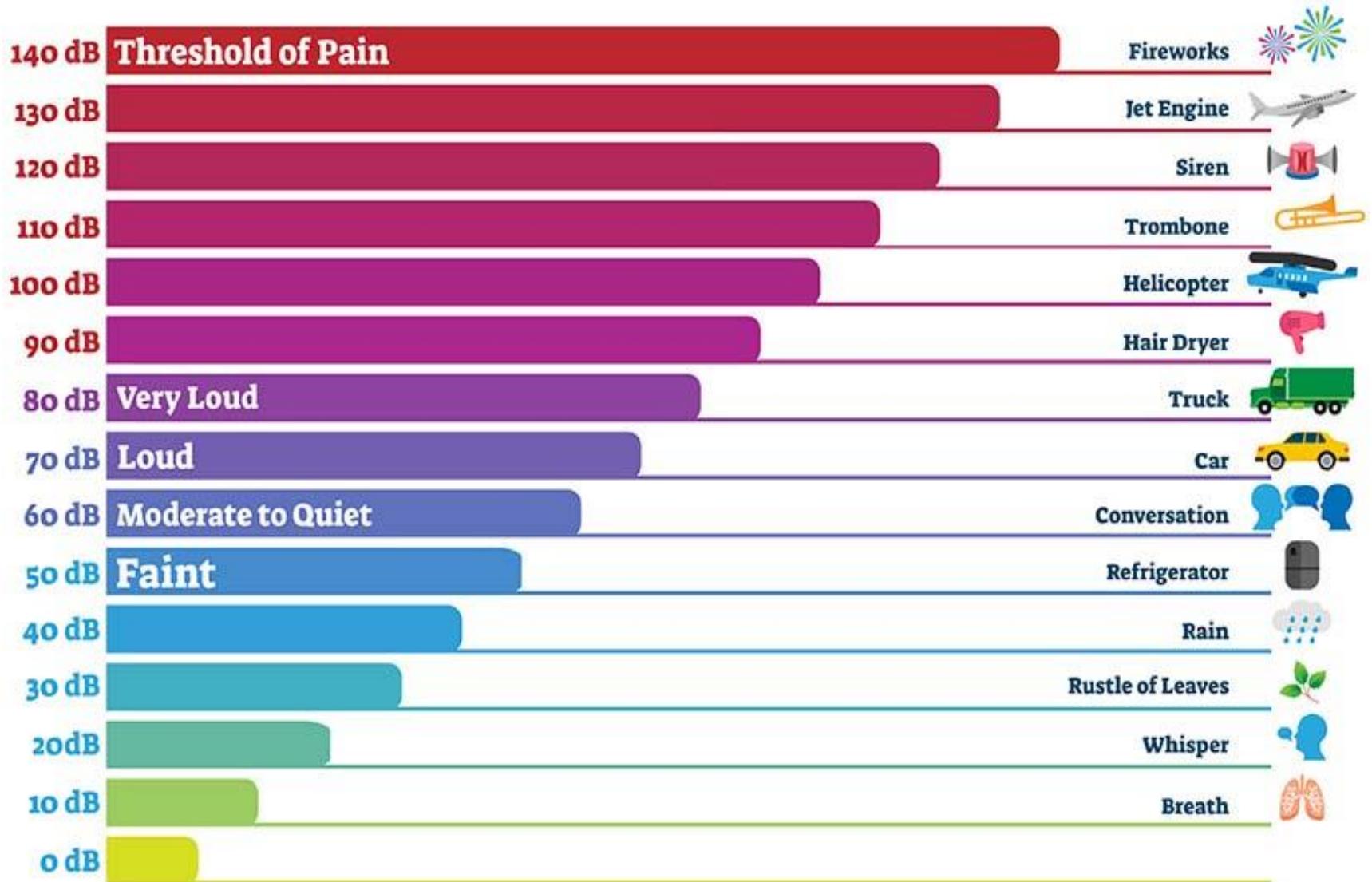


# The Decibel

The **decibel** (abbreviated dB) is the unit used to measure the intensity of a sound. The decibel scale is a little odd because the human ear is incredibly sensitive. Your ears can hear everything from your fingertip brushing lightly over your skin to a loud jet engine. In terms of power, the sound of the jet engine is about 1,000,000,000,000 times more powerful than the smallest audible sound.

- Loudest recommended exposure WITH protection: 140dB
- Hearing Pain begins: 125-130dB
- Loudest sound possible (in our atmosphere): 194 dB
- Hearing Loss begins (with sustained exposure): 90-95 dB
- A typical conversation: 60dB

# DECIBEL SCALE



# Degrees of Hearing Loss

**Mild:** (26-45 dB), a little difficulty hearing speech. Even a mild hearing loss can be serious for children still learning to talk.

**Moderate** (46-65 dB), more difficulty hearing speech.

**Severe** (66-85 dB), a lot of difficulty hearing speech. It is at this level that we begin to use the term "deaf."

**Profound** (>85 dB), With this level of hearing loss, hearing aids may or may not help;

**Cerumen:** (also called ear wax), can cause hearing loss by blocking sound waves in the ear canal.

**deaf:** having a hearing loss that prevents you from understanding speech.

**Deaf:** People who are members of the Deaf community.

**Hearing Impaired:** a generic term used to describe all levels of hearing loss from very mild losses to severe losses. This term is offensive to many Deaf people.

**Hard-of-Hearing:** a hearing loss of some degree from mild to severe.

**Hearing loss:** the total or partial inability to hear sound in one or both ears.

**Congenital deafness:** (prenatal deafness); born deaf.

**Adventitious deafness:** when a person becomes deaf who was not born deaf.

**Pre-lingual deafness:** becoming deaf before language is learned (first 3 years).

**Post-lingual deafness:** becoming deaf after language is acquired (after first 3 years).

**Childhood deafness:** becoming deaf while still a child.

**Pre-vocational deafness:** becoming deaf while still a teenager.

**Post-vocational deafness:** becoming deaf while an adult.

**Deafened adult:** a person who became deaf after age 19. "Early deafened adult" and "late deafened adult" are also used.

**Unilateral hearing loss:** People suffering from unilateral hearing loss face difficulty in hearing with one ear, while they can hear normally by the other one.

**Bilateral hearing loss:** hearing loss in both ears.

**Central Hearing Loss:** In central hearing loss, the problem lies in the central nervous system, at some point within the brain. Interpreting speech is a complex task. Some people can hear perfectly well but have trouble interpreting or understanding what is being said. Although information about central hearing loss is accumulating, it remains somewhat a mystery.

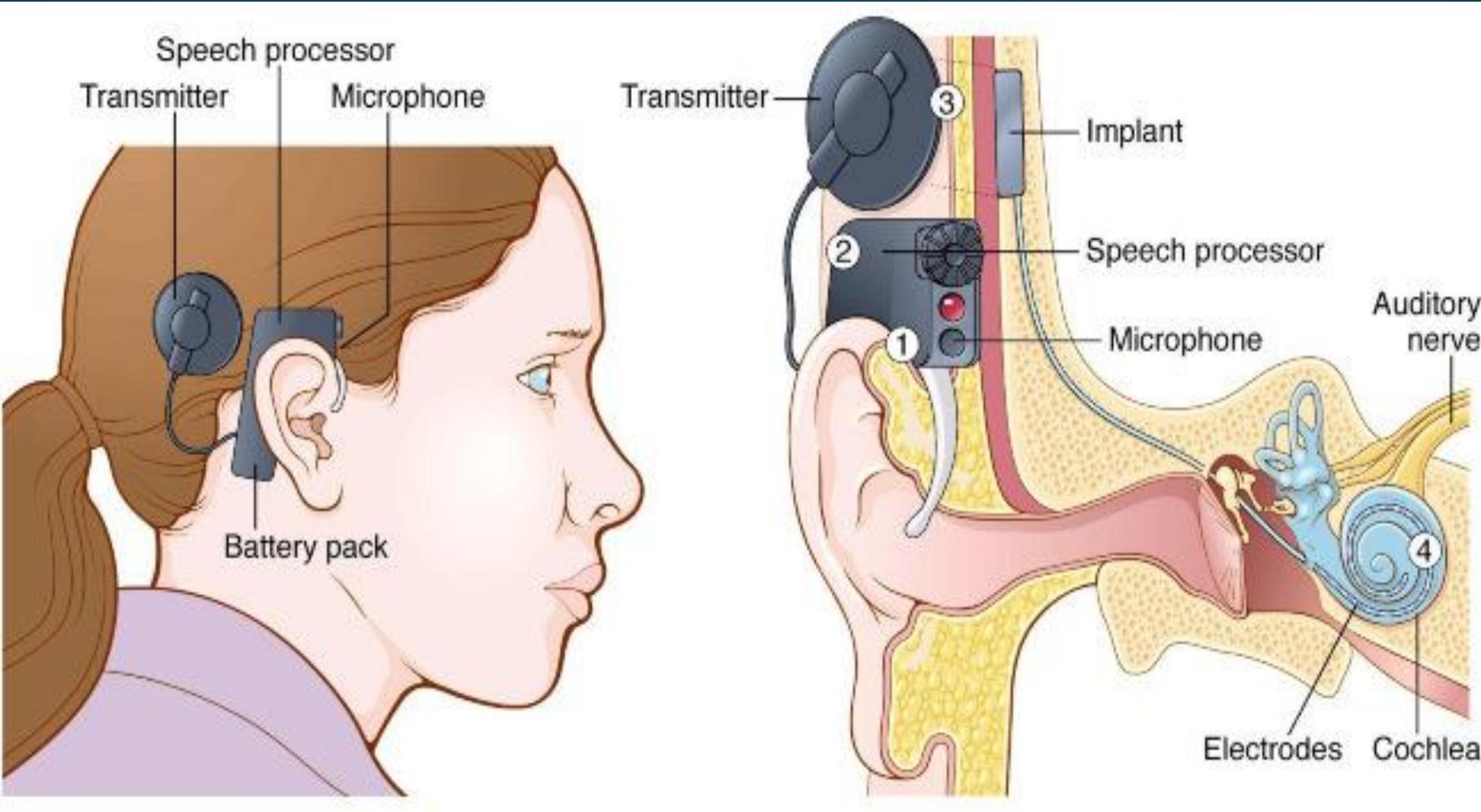
# Cochlear Implant

A cochlear implant (CI) is an electronic device that **partially** restores hearing. It can be an option for people who have severe hearing loss from **inner-ear damage** who are no longer helped by using hearing aids.

Unlike hearing aids, which amplify sound, a cochlear implant bypasses damaged portions of the ear to deliver sound signals to the auditory nerve.



# Cochlear Implant



# Cochlear Implant Sound?

Cochlear Implant sound is very different, it is **NOT a cure for deafness**.

Sound impressions from an implant differ from normal hearing, according to people who could hear before they became deaf. They describe the sound as "mechanical", "technical", or "synthetic".

# Cochlea vs. Cochlear Implant?

- The human cochlea contains approximately 16,000 hair cells capable of a wide range of frequencies and sound perception.
- A cochlear implant has around 120 channels.



# Cochlear Implant Complications

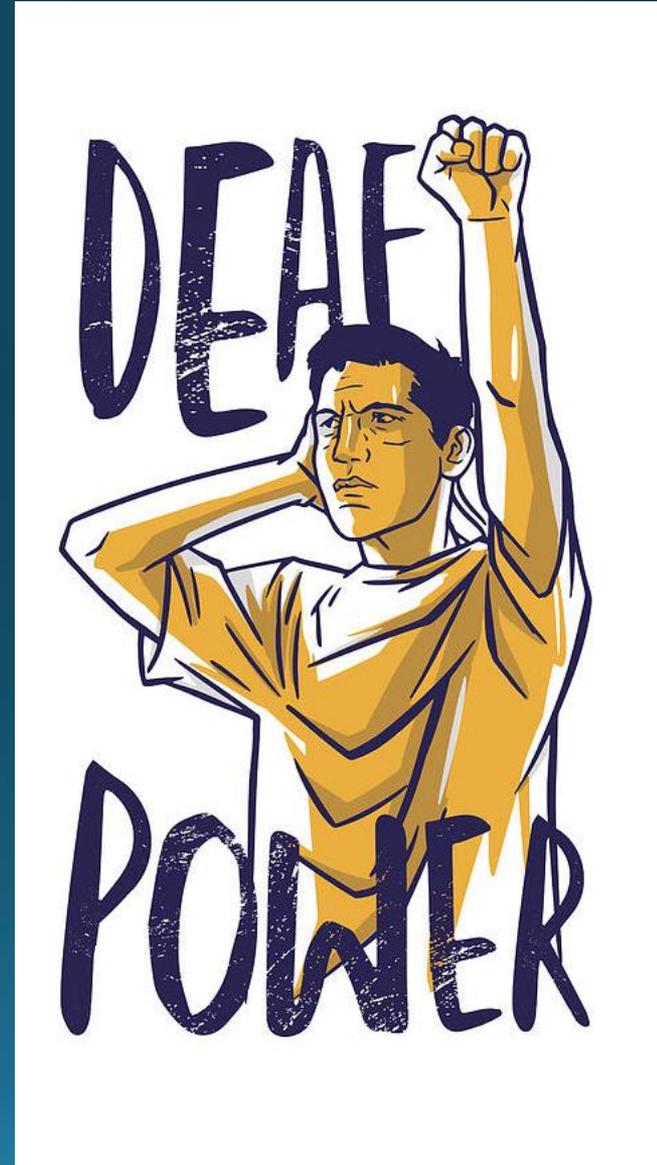
- **Injury to the facial nerve:** this nerve goes through the middle ear to give movement to the muscles of the face. It lies close to where the surgeon needs to place the implant, and thus it can be injured during the surgery. An injury can cause a temporary or permanent weakening or full paralysis on the same side of the face as the implant.
- **Meningitis:** this is an infection of the lining of the surface of the brain. People who have abnormally formed inner ear structures appear to be at greater risk of this rare, but serious complication.
- **Cerebrospinal fluid leakage:** the brain is surrounded by fluid that may leak from a hole created in the inner ear or elsewhere from a hole in the covering of the brain as a result of the surgical procedure.

# Cochlear Implant Complications (cont.)

- **Perilymph fluid leak:** the inner ear or cochlea contains fluid. This fluid can leak through the hole that was created to place the implant.
- **Infection** of the skin wound.
- **Blood or fluid collection** at the site of surgery.
- Attacks of dizziness or **vertigo**.
- **Tinnitus**, which is a ringing or buzzing sound in the ear.
- **Taste disturbances:** the nerve that gives taste sensation to the tongue also goes through the middle ear and might be injured during the surgery.
- **Numbness** around the ear.
- **Reparative granuloma:** this is the result of localized inflammation that can occur if the body rejects the implant.

# Cochlear Implant Controversy

- Most Deaf people are strongly opposed to cochlear implants
- Embraces the **medical model** of Deafness
- **Ignores** Deafness as a Culture
- Implanted children are **denied** their Deaf culture and ASL
- **Forced** into the hearing culture
- Many consider it a **threat** to Deaf culture



# REVIEW

- adventitious deafness
- anatomy of the ear
- auditory canal
- auditory nerve
- auditory ossicles
- bilateral hearing loss
- categories of deafness
- central hearing loss
- cerumen
- childhood deafness
- cochlea
- cochlear implant
- cochlear implant controversy
- conductive hearing loss
- congenital deafness
- deaf
- Deaf
- deafened adult
- degrees of hearing loss
- eardrum
- eustachian tube
- hard-of-hearing
- hearing impaired
- hearing loss
- heredity
- incus
- inflammation of the ear canal
- injuries of the ear
- lack of oxygen
- malleus
- Meniere's disease
- meningitis
- obstruction of the ear canal
- otitis externa
- otitis media
- otosclerosis
- pinna
- post-lingual deafness
- post-vocational deafness
- pre-lingual deafness
- premature birth
- presbycusis
- pre-vocational deafness
- process of hearing
- rubella
- semicircular canals
- sensorineural hearing loss
- stapes
- the decibel
- tinnitus
- trauma
- types of hearing loss
- unilateral hearing loss

