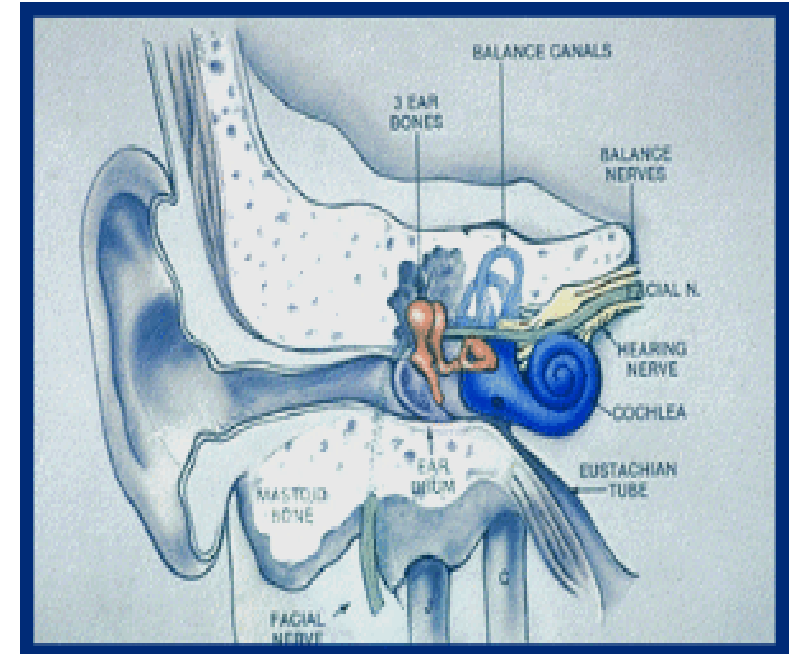


Hearing Protection



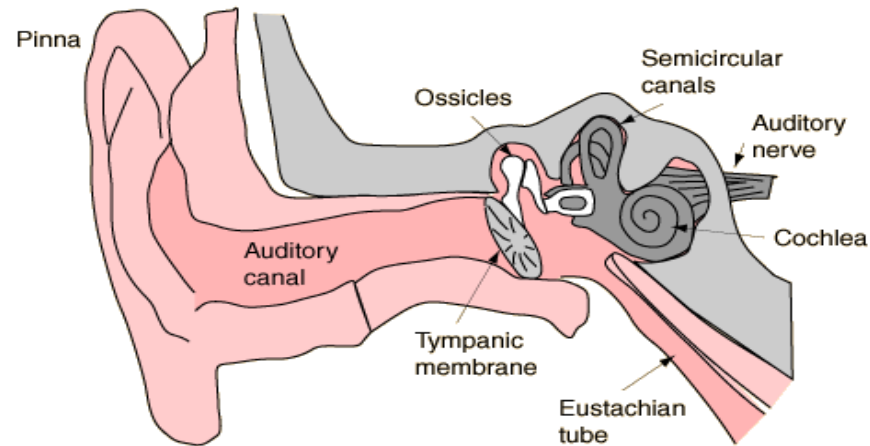
How do Ears Hear?

- Sounds go through the ear canal and vibrate the eardrum.
- Tiny bones transfer these vibrations to a coiled, liquid filled structure called the cochlea in the inner ear.
- The vibrations cause waves in the liquid which in turn move thousands of tiny hairs also in the cochlea.
- These hairs convert the vibrations into nerve impulses which are read by the brain.



What Causes Hearing Loss?

- The hairs in your cochlea are very fragile.
- The hairs can be damaged by drugs, head injuries, infections and especially excessive noise.
- Excessive noise causes nerve cells to gradually die. Often this process is so slow that people are not aware of it until it is too late.



What is “Too Loud”?



- Decibels are used to measure loudness.
 - Quiet Room = 20 decibels
 - Power Saw = 110 decibels
- OSHA requires a hearing conservation program if employees are exposed to noise levels above 85 decibels for 8 hours at a time.
- If you must shout to be heard by a person three feet away, then it is louder than 85 decibels.

Hearing Protection – Earmuffs and Earplugs

- Should be used in accordance with the hearing conservation program.
- Earmuffs and Earplugs can be combined for additional protection.
- Both have Noise Reduction Ratings (NRR) listed on the package.
- Both can reduce noise levels between 20 and 30 decibels.
- For best protection, have your hearing tested at least once a year.

Hearing Protection - Earmuffs

- Earmuffs are easier to take off and put on than earplugs.
- They are bulky and more expensive than earplugs.
- Earmuffs may not fit well with eyeglasses or other PPE.



Hearing Protection – Earmuffs

- Earmuffs must form a seal around the ears without pinching them.
- The earmuff's headband should be neither too tight nor too slack.
- No clothing or hair should be under the cups of the earmuff.



Hearing Protection – Earplugs

Types of earplugs –

- Formable earplugs –acoustical fibers or waxed cotton, can be used for up to a week.
- Premolded Inserts - Soft rubber or plastic, reusable, come in different sizes
- Custom-Molded Earplugs – plastic or silicone molded to fit an individual's ears, reusable



Hearing Protection – Earplugs



- To insert:
 - Grasp your ear with opposite hand
 - Pull up to straighten ear canal
 - Insert earplug until it blocks sound
 - Hold earplug in place until it expands
- To prevent infections, keep earplugs clean by washing them in warm water

Non-Occupational Hearing Loss

Sometimes hearing loss is not related to the job and can be the result of:

- Continuously listening to music over 85 decibels.
- Shooting firearms.
- Other hobbies like working with wood or metal.



Summary

- Hearing loss is caused when excessive noise causes the nerve cells in your ears to die.
- OSHA requires a hearing conservation program in workplaces that have continual (8 hours) noise levels over 85 decibels.
- When properly worn, earmuffs and earplugs can provide a Noise Reduction Rating (NRR) between 20 and 30 decibels.
- Earmuffs and earplugs may be combined for additional protection.