

A NOISY ISSUE



DID YOU KNOW EXPOSURE TO NOISE CAN DAMAGE YOUR HEARING?

A hearing loss often results in difficulty hearing and/or understanding speech and sounds around you. It can occur when any part of the ear or the nerves that carry the information from the ear to the brain are damaged or do not work correctly.

In the case of loud noise, the part of the ear that is particularly vulnerable is called the inner ear or the cochlea. The average person is born with about 16 000 hair cells in their cochlea. A single exposure to an extremely loud sound or listening to loud sounds for prolonged periods of time can damage these hair cells. Up to 30% - 50% of hair cells can be damaged before a change in your hearing can be measured by a hearing test therefore, by the time you might become aware of a hearing loss, many hair cells may already have been damaged. Once these cells have been damaged, they cannot be repaired. Consequently, a hearing loss caused by exposure to loud noise is generally permanent.



If you work in the presence of loud noise, or have ever attended a loud event, you might have noticed that your hearing changed after the event. You might struggle to hear whispers or sounds might seem muffled. You might even hear a ringing sound in your ears. When our inner ear is exposed to a loud sound, the hair cells in the inner ear, like strands of seaweed bend more. Generally, these hair cells become straight again after a recovery period and your hearing will return to normal over a period of hours or days. However, if the loud noise damaged too many hair cells they might die and repeated exposure to loud noise can result in permanent hearing loss. This is then referred to as a NOISE INDUCED HEARING LOSS.

WHAT CAN CAUSE A NOISE INDUCED HEARING LOSS?

Noise induced hearing loss can be caused by a one-time exposure to an intense impulse sound (e.g. explosion/gun shot at close range) or prolonged exposure to loud sounds over an extended period of time (e.g. working with noisy machinery, listening to music at a high volume, or playing in a band).

AVERAGE DB LEVELS OF FAMILIAR SOUNDS

- **Normal Conversation:** 60-70 dB
- **Lawn Mower:** 90 – 95 dB
- **Motorcycle/Dirt Bike:** 80 – 110 dB
- **Music through headphones at maximum volume:** 94 – 110 dB





WHEN DOES NOISE BECOME HARMFUL?

Decibels (dB) are the units used to measure sound. Sounds below 70 dB are unlikely to cause hearing loss even with prolonged exposure. However, exposure to sounds at or above 85 dB, whether it is a single long exposure or short repeated exposure, can lead to hearing loss. The risk of noise-induced hearing loss increases with the loudness of the sound, therefore, the louder the sound the less time it takes for a noise induced hearing loss to occur.

See the following table for the average time of exposure and dB level before damage can occur.

Noise Exposure Limits	
Exposure Time	OSHA (dB SPL)
8 hrs	85
4 hrs	90
2 hrs	95
1 hr	100
30 min	105
15 min	110
7.5 min	115
3.75 min	120

WHAT ARE THE SIGNS OF A NOISE INDUCED HEARING LOSS?

Because noise induced hearing loss can develop gradually you might not notice the early signs of hearing loss. As your hearing deteriorates, certain sounds might become distorted or muffled. You might find it difficult to understand people when they speak, particularly in the presence of background noise. You might also notice that you are turning up the television volume or the volume of your car radio.

Loud noise exposure can also result in a loud buzzing, ringing or roaring sound heard in the ears or head. This is often referred to as Tinnitus.



Damage as a result of exposure to loud noise, together with the effect of aging, can lead to a hearing loss severe enough that you might need hearing aids to help you hear better, communicate more effectively and participate in certain daily activities.

THE GOOD NEWS? NOISE INDUCED HEARING LOSS CAN BE PREVENTED!

It is entirely possible to prevent a noise induced hearing loss. By being aware of the risks associated with loud noises and practicing good hearing health, you can safeguard your hearing for a lifetime. Here are some steps you can take:

- Understand which sounds are harmful and try to avoid them.
- Use ear plugs, ear muffs, or customized hearing protection when exposed to loud noises.
- If it's not possible to reduce the noise or protect yourself from it, move away from it.
- Make sure to protect the ears of young children who are unable to do so themselves.
- Inform your loved ones about the dangers of noise.
- If you suspect you may have hearing loss, schedule a hearing test.



National Institute on Deafness and Other Communication Disorders. (2022, March 16). Noise-Induced Hearing Loss. Retrieved April 20, 2023, from <https://www.nidcd.nih.gov/health/noise-induced-hearing-loss#:~:text=Sounds%20at%20or%20below%2070,takes%20for%20NIHL%20to%20happen.>

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