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N.I.H.L.

NOISE INDUCED HEARING LOSS

Official Publication of Hearing Assessment Center

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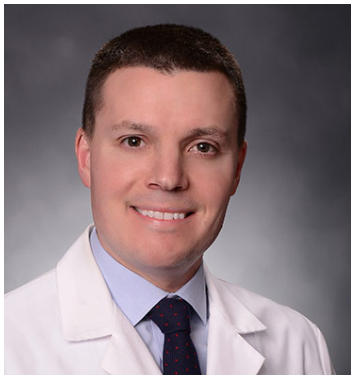
NOISE-INDUCED HEARING LOSS

by Dr. Rory Cernik



Whether it be from normal conversation, television/radio, household appliances, and traffic, you experience a variety of sounds throughout our day. Such sounds, normally, are at safe levels that do not damage your hearing. However, there are times when sound can be harmful.

Noise-induced hearing loss (NIHL) is damage to the auditory system from extremely loud levels of noise, and can be caused by many exposures over time, or by a sudden exposure to loud noise.

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NOISE-INDUCED HEARING LOSS

High-level impact noise, as in the case of gun fire, has been known to cause immediate NIHL. Harmful noise exposure can cause temporary or permanent shifts in your hearing. A temporary shift in hearing, as a result of excessive noise exposure, is very short in duration. Usually hearing is restored to its baseline within a day or two.

We suspect that there may be residual long-term damage to your hearing even with temporary hearing shifts. Most people have experienced this sensation after visiting a bar or going to a concert. Unfortunately, a permanent shift in hearing from noise exposure does not resolve, and subsequently becomes a permanent and irreversible hearing loss.

NIHL can affect one ear or both ears; this is dependent upon the location of the excessive noise as compared to the right or left ear. Regardless of how it might affect you, NIHL is a preventable disease affecting a considerable number of people. Recent research shows the smokers are far more likely to develop NIHL.

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WHO IS AFFECTED BY N.I.HL.?

Exposure to loud noise can affect people of all ages, including children, young adults, and older people. Studies have shown 10 to 40 million adults in the U.S. under 70 years of age and approximately 17% of teens have features of their hearing test that suggest hearing loss in one or both ears from exposure to loud noise.

> ***"MOST YOUNG ADULTS TODAY USE EARBUDS OR HEADPHONES."***

Most young adults today use earbuds or headphones. Unfortunately, many of them are unknowingly damaging their ears. Additionally, according to the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA), 22 million Americans are exposed to "potentially damaging" noise in the workplace every year.

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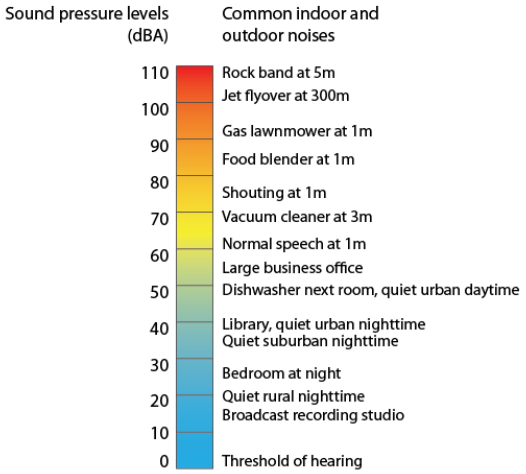
CAUSES OF N.I.H.L.

NIHL can be caused by a single exposure to a loud impulse sound, such as an explosion, or a continuous exposure to loud sounds over an extended period of time, such as noise generated by a power tool. Recreational activities that can put you at risk for NIHL include target shooting and hunting, sirens, listening to loud music through earphones, playing in a band, and attending loud concerts.



Harmful noises at home may come from sources including, but not limited to lawn mowers, leaf blowers, and power tools.

Sound is measured in units called decibels (dB). The National Institute for Occupational Safety and Health reported long or repeated exposure to sounds above 85 dB, equivalent loudness of heavy city traffic, can damage an individual's hearing. Your distance from the source of the sound and the length of time you are exposed to the sound are important factors in protecting your hearing.

As a general rule, you should avoid or take the necessary precautions, such as wearing hearing protection, from noises that are too loud, too close, or last for a long period of time.



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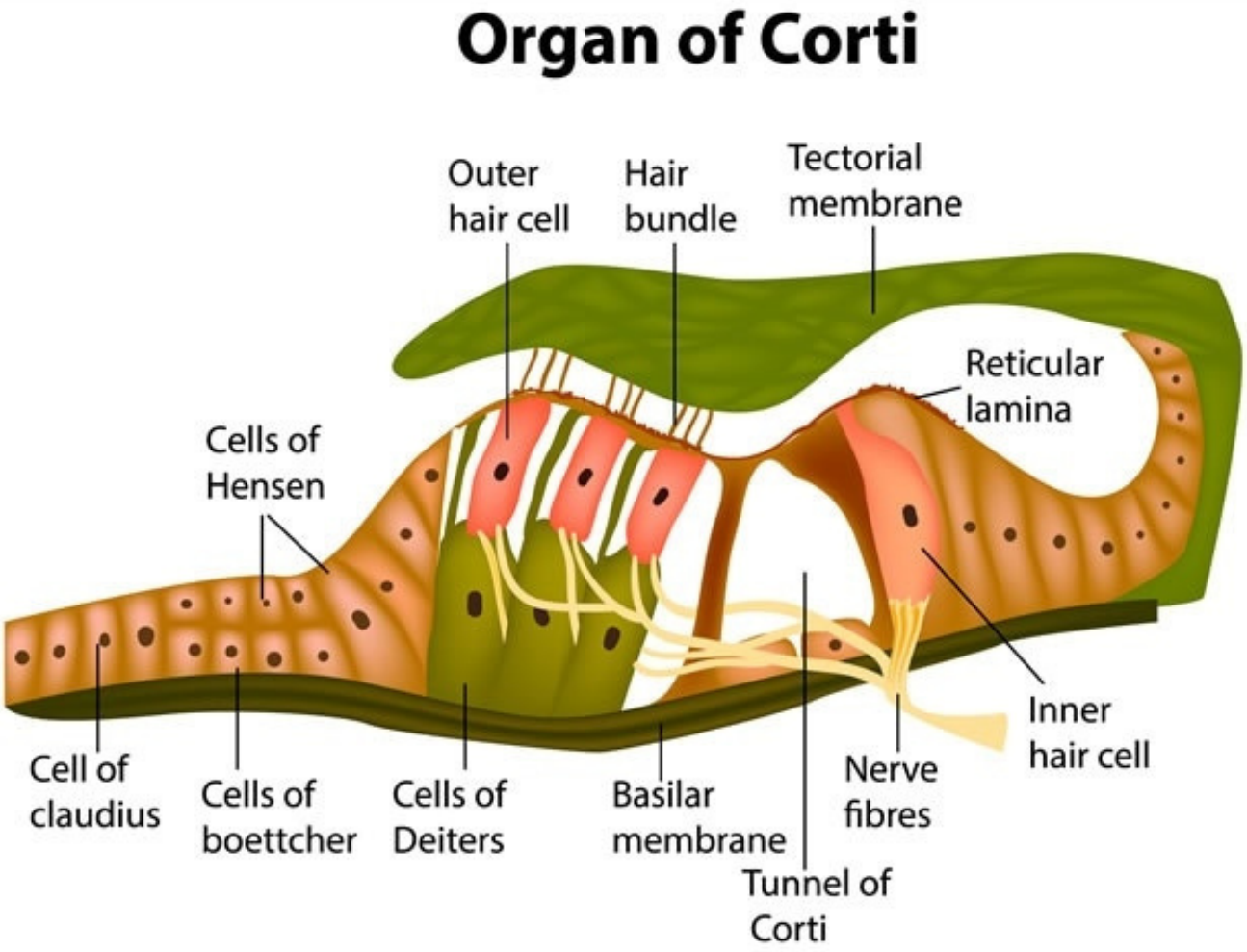
HOW DOES NOISE DAMAGE YOUR HEARING?

NIHL results from damage to the auditory system. A single blast, of short duration, may produce hearing loss. This is caused by excessive movement of the basilar membrane. In an acoustic trauma, the outer hair cells, within the cochlea, are impacted first and as the stress increases, from the noise, supporting structures with cochlea may become compromised. Persistent or sustained, less intense sounds, usually produce a high-frequency hearing loss. Pathologic changes within the organ of Corti occur with 90-130 dB of noise.

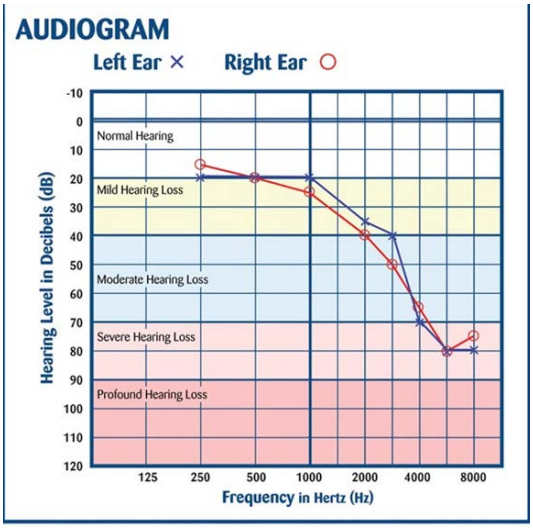


HOW DOES NOISE DAMAGE YOUR HEARING?

Those with a high-frequency hearing loss have difficulty understanding speech in noise, and the voices of women and children, which are higher in pitch. Furthermore, individuals may also have difficulty hearing birds, the doorbell ring, and talking on the phone. Because the damage from noise exposure is usually gradual, you might not notice or start to compensate for the aforementioned signs of hearing loss until they become more pronounced overtime. The damage from NIHL hearing loss, combined with aging, can lead to hearing loss severe enough that you need treatment.

NIHL can also be caused by loud bursts of sounds, such as gunshots or explosions, which can damage parts of the middle ear. This kind of NIHL can be intermediate or permanent. NIHL is characterized by some degree of hearing loss between 3000-6000 Hz, typically creating a 'notch' in the audiogram. See picture below.

Loud sounds can also cause tinnitus, a ringing, buzzing, or roaring in the ears. Tinnitus may subside over time, but can sometimes continue constantly or occasionally throughout the day. This too, can occur in one or both ears. If you have a ringing, buzzing, or roaring in one or both ears, it is highly recommended you seek medical attention.



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BEST PRACTICES TO PREVENT N.I.H.L.

NIHL is the only type of hearing loss that is entirely preventable. Understanding the hazards of noise and how to practice protecting your hearing is important. The following are ways to protect your hearing:

- Know which noises can cause damage (noises greater than 85 dB - see “Typical Sound Levels” picture above).
- Wear ear protection when involved in loud activity (i.e. cutting your lawn, shooting firearms, working with power tools, attending concerts).
- If you are unable to reduce the loud noise or protect yourself from it, move away from the noise.
- Be alert to hazardous noise in the environment.
- Protect the ears of young children who are too young to protect themselves.

If you notice a decline in your hearing, have your hearing tested immediately!

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