



October marks [National Protect Your Hearing Month](#), an annual public health campaign spearheaded by numerous federal agencies in order to raise awareness about noise-induced hearing loss and to provide useful steps that people can take to protect their hearing. According to the [Centers for Disease Control and Prevention](#) (CDC), **22 million** workers face dangerous levels of noise exposure on the job each year, and millions of other American adults report never or rarely wearing hearing protection at entertainment venues or loud sporting events. Once a person experiences hearing loss from loud noises, the damage can be irreversible. It is important to take precautions to protect your hearing before it is too late.

How Does Hearing Loss Happen?

Hearing loss occurs when there is a problem with the ear, the nerves connected to the ear, or the part of the brain that controls a person's ability to hear. When someone experiences hearing loss, it not only affects his or her ability to hear or understand speech but also other sounds as well. Per CDC data, when a person sustains short-term or permanent hearing loss, the following factors are usually at play:

- Damaged hair cells in the ear. On average, a person is born with 16,000 hair cells in their cochlea (inner ear). Hearing tests generally cannot detect an issue until 30% to 50% of a person's hair cells have been damaged or destroyed from hazardous levels of noise exposure.
- Damage to the nerves in the ears. Similar to how noise can damage or destroy the hairs in the cochlea, it can also damage the auditory nerve that carries a signal from the ear to the brain.
- Damage to the cells and membranes in the cochlea, which typically results from a single loud noise or repeated exposure to high noise levels.

The Mayo Clinic reports that some of the most common signs and symptoms of hearing loss may include difficulty understanding words, especially against background noise or in a crowd, muffling of speech or other sounds, trouble hearing consonants, needing to turn up the volume of a television or radio, frequently asking others to speak more slowly, clearly, and/or loudly, withdrawal from conversations, and avoidance of some social settings (due to difficulty hearing). If you are experiencing trouble hearing, it is a good idea to set up an appointment with your healthcare provider to discuss how to proceed.

Preventing Hearing Loss at Work

While almost all cases of hearing loss that result from high levels of occupational noise exposure are preventable, millions of workers – like those who go without proper training, supervision, and personal protective equipment (PPE) – sustain irreversible damage to their hearing every year. To reduce noise-related hazards, the Occupational Safety and Health Administration (OSHA) requires that employers take certain steps to protect workers. Here are a few examples of the effective safety standards and engineering controls that OSHA has in place:

- Maintain and lubricate machinery and equipment to avoid excessive noise during start up and operation.
- Choose low-noise tools and machinery.
- Enclose or isolate noise sources.
- Place a barrier between the noise source and employee, like curtains or sound walls.
- Provide workers with a quiet area so they can gain relief from hazardous noise sources.
- Operate especially noisy machinery when fewer people are in close proximity.
- Limit the amount of time that workers spend around known noise sources.

To read more of OSHA's safety tips on how employers can help prevent hearing loss in workers, visit: <https://www.osha.gov/index.php/noise/exposure-controls>.



Monthly Toolbox Talk

Most of us go through life taking our senses for granted. Like touching, tasting, smelling, and seeing, hearing is something we do automatically. But when something goes wrong with any of our senses, we expect that it can be fixed through medical science. Unfortunately, medicine offers only moderate improvement for people with hearing loss. Hearing loss cannot be restored for most people. Exposure to constant loud noises on a construction site can lead to hearing problems if certain precautions are not taken. We need to take a serious look at precautions we can take to prevent hearing loss.

Exposure to normal noise levels does not cause hearing loss. Hearing loss occurs because of overexposure to high noise levels. Noise is measured in units called "decibels" (dB). The higher the decibel, the louder the noise. To help see the difference in the decibel scale, here are a few examples of various noise levels:

- 20 dB - soft whisper
- 30 dB - leaves rustling, very soft music
- 60 dB - normal speech, background music
- 85 dB - heavy machinery with soundproof cab
- 90 dB - lawnmower, shop tools
- 100 dB - heavy machinery without soundproof cab, motorcycles
- 115 dB - loud music, sand blasting
- 140 dB - jet engine, shotgun

In the workplace, hearing protection must be used to reduce noise exposure for anyone who is generally exposed to 90 dB or more over the course of their workday. Hearing protection may be used at lower levels, particularly for people who are very close to the 90 dB exposure level. Sounds above 120 dB can cause hearing damage after brief exposure and should be avoided unless hearing protection is worn.

Most hearing protection is given a Noise Reduction Rating (NRR) between 20 and 30 dB. However, due to complicated scientific reasons, you should deduct 7 dB from the earplug NRR if you want to accurately determine the protection offered. For example, if we say a jackhammer's noise exposure level is 102 dB and we use earplugs with a NRR of 29, you should figure the actual NRR to be 22 dB. This would reduce your noise exposure from 102dB to 80 dB, which also takes it below the OSHA permissible exposure limit.

Speaking of hearing protection, you have probably seen lots of different types. Keep in mind that not every type of hearing protection is good for every type of noise. Disposable foam earplugs may be fine for some noise exposure, whereas earmuff-type protection may be suitable for another.

Remember, equipment operators are not the only ones who may need protection; people who work nearby may also be exposed. If you work in a noisy area, even if you are not the one making the noise, be aware of the hazard and use protection.

