

Every year, approximately 30 million people in the United States are occupationally exposed to hazardous noise. Fortunately, the incidence of noise-induced hearing loss can be reduced or eliminated through the successful application of engineering controls and hearing conservation programs

Noise-induced hearing loss is one of the most common occupational diseases and the second most self-reported occupational illness or injury. Industry specific studies reveal:

- 44% of carpenters and 48% of plumbers reported that they have perceived hearing loss.
- 49% of male, metal, non-metal miners will have a hearing impairment by age 50 (vs. 9% of the general population) rising to 70% by age 60.

While any worker can be at risk for noise-induced hearing loss in the workplace, workers in many industries have higher exposures to dangerous levels of noise. Industries with high numbers of exposed workers include: agriculture; mining; construction; manufacturing and utilities; transportation; and military.

---

## What is Work-Related Hearing Loss?

---

Work-related hearing loss continues to be a critical workplace safety and health issue. The National Institute for Occupational Safety and Health (NIOSH) and the occupational safety and health community named hearing loss one of the 21 priority areas for research in the next century. Noise-induced hearing loss is 100 percent preventable but once acquired, hearing loss is permanent and irreversible. Therefore, prevention measures must be taken by employers and workers to ensure the protection of workers' hearing.

---

## How much noise is too much?

---

Sounds at or above 85 **decibels** (dB) can damage your ears. A decibel is a unit that measures the intensity of sound. Sounds that humans can hear are measured on a scale from zero to 140. A normal conversation is about 60 dB. Chainsaws, hammer drills, and bulldozers ring in at over 100 dB. So if you are a construction worker, harmful sounds may be a regular part of your job. The same goes for people working around lawn mowers and factory machinery every day. Airport workers and farmers are two more groups that are regularly exposed to loud noise. However, loud noise does not have to be an everyday happening to cause damage. One-time exposure to very loud noises, such as the sound of a gun firing at close range, can harm your ears permanently.

---

## How can I protect my hearing in noisy situations?

---

Wear ear plugs or special earmuffs when you are exposed to dangerous levels of noise; they can keep your hearing from being damaged. Hearing protection is important any time you're exposed to loud noise.

---

## Where can I buy hearing protection devices?

---

Several types of protective earplugs and earmuffs are available in most construction product distributors, pharmacies, hardware stores, and sporting goods stores.

### **F. A. Q.**

**Q: Don't we lose our hearing as we age?**

**A:** It's true that most people's hearing test gets worse as they get older. But for the average person, aging does not cause impaired hearing before at least the age of 60. People who are not exposed to noise and are otherwise healthy, keep their hearing for many years. People who are exposed to noise and do not protect their hearing begin to lose their hearing at an early age. For example, by age 25 the average carpenter has "50-year old" ears! That is, by age 25, the average carpenter has the same hearing as someone who is 50 years old and has worked in a quiet job.

**Q: Can you poke out your eardrums with earplugs?**

**A:** That is unlikely for two reasons. First, the average ear canal is about 1 1/4 inches long. The typical ear plug is between 1/2 to 3/4 of an inch long. So even if you inserted the entire earplug, it would still not touch the eardrum. Second, the path from the opening of the ear canal to the eardrum is not straight. In fact, it is quite irregular. This prevents you from poking objects into the eardrum.

**Q: We work in a dusty, dirty place. Should I worry that our ears will get infected by using earplugs?**

**A:** Using earplugs will not cause an infection. But use common sense. Have clean hands when using earplugs that need to be rolled or formed with your fingers in order for you to insert them. If this is inconvenient, there are plenty of earplugs that are pre-molded or that have stems so that you can insert them without having to touch the part that goes into the ear canal.

**Q: Can you hear warning sounds, such as backup beeps, when wearing hearing protectors?**

**A:** The fact is that there are fatal injuries because people do not hear warning sounds. However, this is usually because the background noise was too high or because the person had severe hearing loss, not because someone was wearing hearing protectors. Using hearing protectors will bring both the noise and the warning sound down equally. So if the warning sound is audible without the hearing protector, it will usually be audible when wearing the hearing protector. For the unusual situations where this is not the case, the solution may be as simple as using a different hearing protector. Also, many warning systems can be adjusted or changed so warning signals are easier to detect.

**Q: Won't hearing protectors interfere with our ability to hear important sounds our machinery and equipment make?**

**A:** Hearing protectors will lower the noise level of your equipment; it won't eliminate it. However, some hearing protectors will reduce certain frequencies more than others; so wearing them can make noises sound different. In cases where it's important that the sound just be quieter without any other changes, there are hearing protectors that can provide flat attenuation.

There are also noise-activated hearing protectors that allow normal sounds to pass through the ear and only "turn-on" when the noise reaches hazardous levels. There are even protectors that professional concert musicians use that can lower the sound level while retaining sound fidelity.

**Q: Will we be able to hear each other talk when wearing hearing protectors?**

**A:** Some people find they can wear hearing protectors and still understand speech. Others will have trouble hearing speech while wearing hearing protectors. Being able to hear what other people say depends on many things: distance from the speaker, ability to see the speaker's face, general familiarity with the topic, level of background noise, and whether or not one has an existing hearing impairment. In some cases, wearing hearing protectors can make it easier to understand speech.

In other instances, people may be using hearing protectors to keep out too much sound. You may need a protector that reduces the sound enough to be safe without reducing the sound too much to hear speech at a comfortably loud level. For those people who work in noise and must communicate, it may also be necessary to use communication headsets. Allow your employees to try different protectors. Some will work better than others at helping them to hear speech, and different protectors may work better for different people.

**Q: How long does it take to get used to hearing protectors?**

**A:** Think about getting a new pair of shoes. Some shoes take no time to get used to. Others - even though they are the right size - can take a while to get used to. Hearing protectors are no different from other safety equipment in terms of getting used to them. But if hearing protectors are the wrong size, or are worn out, they will not be comfortable. Also, workers may need more than one kind of protector at their job. For example, no one would wear golf shoes to go bowling. If hearing protectors are not suitable for the work being done, they probably won't feel comfortable.

**Q: How long can someone be in a loud noise before it's hazardous?**

**A:** The degree of hearing hazard is related to both the level of the noise as well as to the duration of the exposure. But this question is like asking how long can people look at the sun without damaging their eyes. The safest thing to do is to ensure workers always protect their ears by wearing hearing protectors anytime they are around loud noise.

**Q: How can I tell if a noise situation is too loud?**

**A:** There are two rules: First, if you have to raise your voice to talk to someone who is an arm's length away, then the noise is likely to be hazardous. Second, if your ears are ringing or sounds seem dull or flat after leaving a noisy place, then you probably were exposed to hazardous noise.

**Q: How often should your hearing be tested?**

**A:** Anyone regularly exposed to hazardous noise should have an annual hearing test. Also, anyone who notices a change in his/her hearing (or who develops tinnitus) should have his or her ears checked. People who have healthy ears and who are not exposed to hazardous noise should get a hearing test every three years.

**Q: Since I already have hearing loss and wear a hearing aid, hearing prevention programs don't apply to me, right?**

**A:** If you have hearing loss, it's important to protect the hearing that you have left. Loud noises can continue to damage your hearing making it even more difficult to communicate at work and with your family and friends.