

Hear for Good

Preventing noise exposure at work





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Hearing loss: what you should know

Most of us know how important health and safety is to the workplace. What we might tend to overlook are invisible risks — like the noise that leads to hearing loss.

Exposure to excessive noise is, in fact, the most common industry health hazard, as well as being the most difficult hazard to detect.

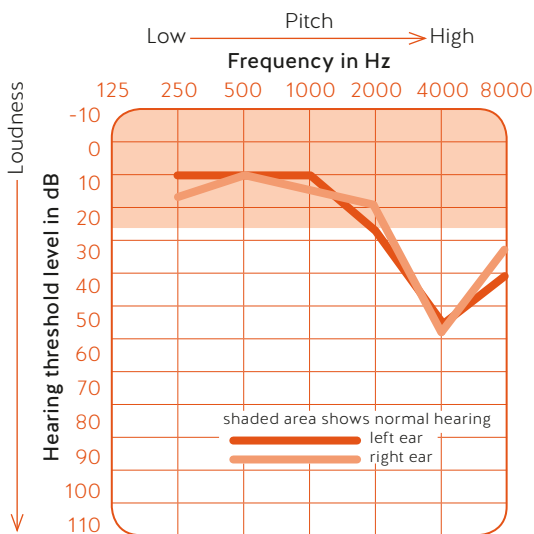
If you work in British Columbia, you're among one-quarter of those exposed to occupational noise that's loud enough to damage your hearing. And that hearing loss can occur so gradually, you won't realize it's happening. Yet, once the damage is done, it's permanent: noise-induced hearing loss can't be cured or improved.

The key is to know whether or not you're at risk. But hearing loss isn't easy to detect.

When you're exposed to excessive noise, damage occurs to tiny sensory cells deep inside your ear, so there is no way for you to see the damage. The first danger sign will be the reduced ability to hear high-pitched sounds.

As noise-related damage continues, hearing loss will affect your ability to understand what others are saying. Noise exposure can also cause ringing in your ears. At the end of a day's work, you may notice that sounds seem muffled.

A graph of your hearing ability, known as an audiogram, may show a high-pitched hearing loss as follows:



Such irreversible damage can be prevented. It's all the more reason to take necessary measures to protect yourself and others against work-related hearing loss.

How much is too much?

Every workplace is governed by maximum noise exposure limits, both in terms of loudness and duration.

A simple way to test your degree of exposure to noise is to talk to someone who is standing an arm's length away from

you. If you need to raise your voice for that person to hear you, you're likely being exposed to excessive noise.

You should consider the duration of noise exposure to be just as important as its loudness. Continuous noise throughout a shift is more damaging than being exposed a few minutes at a time.

If your ears ring or the sounds seem muffled after the noise stops, your hearing has been affected — at least temporarily.

If you expose yourself to a noise level greater than 85 decibels (dBA) (about the equivalent of sustained traffic noise) during an average eight-hour day, it can permanently damage your hearing.

Noise control and hearing protection

Remember that it's your employer's responsibility to reduce workplace noise.

And, the best way for your employer to decrease noise exposure is to permanently alter the design of your workplace.

In an industrial setting, for example, he or she can house the source of noise by creating sound-muffling enclosures, such as enclosures for air compressors or punch presses. If this isn't practical, you

can be enclosed in a booth to protect you from noise; in sawmills, headrig sawyers and edger operators work in sound-proof enclosures.

Another way to reduce noise is to install sound-absorbent materials on walls or ceilings near noisy machinery.

Your noise exposure can also be reduced through job rotation, which decreases the time spent in noisy areas.

In the meantime, until your employer can safely reduce noise levels, he or she must provide you with appropriate hearing protection — at no cost to you.

Choosing the right hearing protection

The Canadian Standards Association (CSA) currently rates hearing protection as meeting Class A, B, or C, depending on how much noise reduction the protection provides. The recommended protection for eight hours of exposure is as follows:

Exposure: $L_{ex,8}$ (dBA)	Recommended class
< 90	C
> 90 up to and including 95	B
> 95 up to and including 105	A
> 105	Dual *

* Dual hearing protection shall be used. A minimum of a Class B earmuff and a Class A earplug is required.

You will also often see a noise reduction rating (NRR) on hearing protection devices. NRRs are computed differently than classes, but there is much overlap in NRRs between Classes A and B. As a rough guide, a hearing protector with an NRR of at least 24 falls into Class A, a protector with an NRR of at least 17 falls into Class B, and one with an NRR of less than 17 usually falls into Class C.

The recommended class of protection increases with the noise level. For example, Class C protection is recommended for driving a heavy truck (89 dBA); Class A is recommended for operating a pile driver (104 dBA). For extremely high noise levels, you should be wearing double protection (earplugs and earmuffs).

Consider the following factors equally important to the noise level on the job:

- Your hearing ability
- Your need to communicate on the job
- The other personal protective equipment you're wearing, such as safety glasses or a hard hat
- The temperature and the climate
- The size of your ear canal, and the shape of your head and jaw

Types of earmuffs

Earmuffs can be Class A, B, or C.

Earmuffs have a hard outer shell to bounce the sound away from the ear, and a sound-absorbent cuff to fit snugly around your head and stop sounds from leaking in.

Some earmuffs have fluid-filled cuffs. if you work in cold conditions, you'll need to check the freezing point.



Finding earmuffs that work for you

It's essential that your earmuffs fit properly. Earmuffs can be worn in various positions, according to the manufacturer's instructions. They are held in place with metal or plastic spring-loaded headbands.

The cuffs must fit snugly over your entire ear, and the headband must be adjusted to keep the muffs comfortably in place.

Push your hair back so that the cuffs fit comfortably and make a good seal around your ear. Make sure the cuffs aren't resting on anything that will break the seal and let noise in, such as a hard hat suspension band, hair-band, or barrette.

If you wear glasses, try wearing the kind with thin wire pieces at the temple. Foam pads are available to cushion the place where glasses pass under the earmuffs. This helps to keep noise out.

Taking care of your earmuffs

Replace the cuffs if they become hard or cracked. Kits are available with replacement cuffs and liners. You'll likely need to replace the cuffs every six months to a year.

Check the tension of the headband. If it's too loose, the entire earmuff must be replaced.

Keep the cuffs clean with mild soap and water. Don't use alcohol or solvents; they can crack the material or irritate your skin.

Never drill a hole in an earmuff to reduce pressure on the ears. It lets in sound. If you feel pressure, try a more comfortable set of earmuffs.

Types of earplugs and earcaps

Earplugs can be Class A, B, or C. They keep noise out by sealing off the ear canal. Several types of earplugs are available, as follows:

- Push-to-fit earplugs can be foam or have one or more flanges or sealing rings on the end of a flexible stem, such that the stem can be used with a pushing and twisting motion to insert the foam tip into the canal.
- Compressible earplugs are made from foam. Some models are offered in more than one size. They are often referred to as “disposable plugs,” but most brands can usually be reused a few times.
- Canal cap earplugs (also called “semi-insert”) are held together with a band worn over the head or under the chin. Some cover the ear canal opening; others are inserted into the ear canal.
- Custom-molded earplugs are intended to fit precisely into a particular ear. Most of these are manufactured from silicone, vinyl, or acrylic compounds.



Choosing your earplugs

Ask a trained person to select your earplugs. Some plugs come in different sizes. You need the right-sized plug for your ear canal; your ears may even need two different sizes.

If the plug doesn't make a good seal in your ear canal, it won't protect your hearing.

Fitting plugs into your ears

Before inserting a foam plug, remember to first roll the plug firmly between your thumb and forefinger. Use your free hand to lift your ear up, and back — this will straighten the ear canal.

While you're inserting the plug, hold it in place for a few seconds to allow the material to expand.

If the plug feels tight at first, it's probably a good fit. If it feels loose, it's too small. When a plug is properly fitted, your voice will sound to you as though it's lower and more muffled, as though you were inside a barrel.

Head movements, talking, and chewing can all loosen earplugs. So be sure to take the plug out and refit it several times during the day. Do so whenever you're safely away from hazardous noise.

If you ever feel pain while inserting an earplug, you'll need to see your doctor. You may have an ear infection or some hard wax in the ear canal that needs to be removed.

Plug and cap wear and care

Wash reusable earplugs and canal caps with soap and water, and keep them in a case. Some earplugs come on a cord, which makes them easier to keep track of.

Replace reusable plugs when they become hard or cracked, usually about every six months. Custom-molded earplugs can last many years, but should be replaced if they begin to feel loose.

Discard compressible plugs as soon as they become dirty or hard. If you're not sure, replace them every day.

Don't tamper with the plug to make it comfortable — try a different size or a new type of plug.

Getting used to plugs and muffs

While you're wearing earmuffs or plugs, you'll notice that noises will sound different from usual, and it may take you some time to get used to these new sounds.

Once you've become accustomed to these devices, you may find that you're less tired at the end of the day — noise, after all, can be stressful.

While you're getting used to locating the direction of sounds, you may feel a little disoriented — especially with earmuffs. You'll adjust to this after a while. If you feel any dizziness, it won't be caused by your hearing protection. Instead, you should contact your doctor.

if you're wearing hearing protectors, you might worry that you'll miss important warning sounds. Keep in mind, if your hearing is good, you should be able to pick out important sounds while your ears are covered. Earmuffs and plugs mainly screen out high-pitched noises, but they won't stop you from hearing voices or alarm signals. Test them out for yourself.

If you're already have a hearing loss, hearing protection can interfere with your ability to communicate. Class B or Class C protectors may allow you to better communicate and detect warning signals. If you're still having problems, you can try other specialty hearing products. The most important thing to remember about hearing protection is to use it. For hearing protection to be effective — regardless of its class — you'll need to wear it every time you're exposed to hazardous noise.

Noise exposure outside the workplace

Hearing damage can happen anywhere. Remember to consider off-the-job or recreational noise as a potential hazard.

Noise above 85 decibels, combined with long exposure, can permanently damage your hearing. Lawnmowers, power tools, firearms, and stereo headsets all produce high noise levels.

Anywhere your hearing is at risk, wear protection.

Looking for help? Talk to us

Our Hearing Loss Prevention staff can provide information about hearing protection classification, and authorize industrial audiometric technicians to test your hearing and advise you on the proper use and care of your hearing protection.

If you aren't wearing the correct form of hearing protection, the technician can advise you on the safest choice. He or she can check the condition of your hearing protection, and let you know whether or not it needs replacement or repair.

For more information, contact:

Hearing Loss Prevention Section
WorkSafeBC
PO Box 5350 Stn Terminal
Vancouver BC V6B 5L5

Phone: 604.276.3100 in the
Lower Mainland

Toll-free: 1.888.621.7233 within
B.C. and Alberta

For additional materials on hearing loss
prevention, go to worksafebc.com.

WORK SAFE BC