

Preventing noise-induced hearing loss at work

Employers must implement a noise control and hearing conservation program if noise levels exceed 85 decibels (dBA) over an eight-hour period or 140 dBC peak sound level. Use the hierarchy of controls to reduce noise in your workplace and protect workers from occupational noise-induced hearing loss.

Noise-induced hearing loss typically occurs gradually as a result of prolonged exposure to noise levels greater than 85 dBA. This is the level at which people generally have to raise their voices to be heard when someone is about a metre away, or at arm's length.

Though less common, noise-induced hearing loss may also result from exposure to brief, intense sounds, such as explosive blasts or gunfire. This is often referred to as acoustic trauma.

Damage is permanent

Noise-induced hearing loss is permanent. Excessive noise damages sensitive structures in the inner ear that can't be repaired, resulting in irreversible hearing loss. This type of hearing loss distorts sound, making it less clear.

People who have hearing loss miss out on conversations and interactions with their family and friends. They are less likely to engage in social activities. Hearing loss is also associated with other harmful health effects, including stress and dementia.

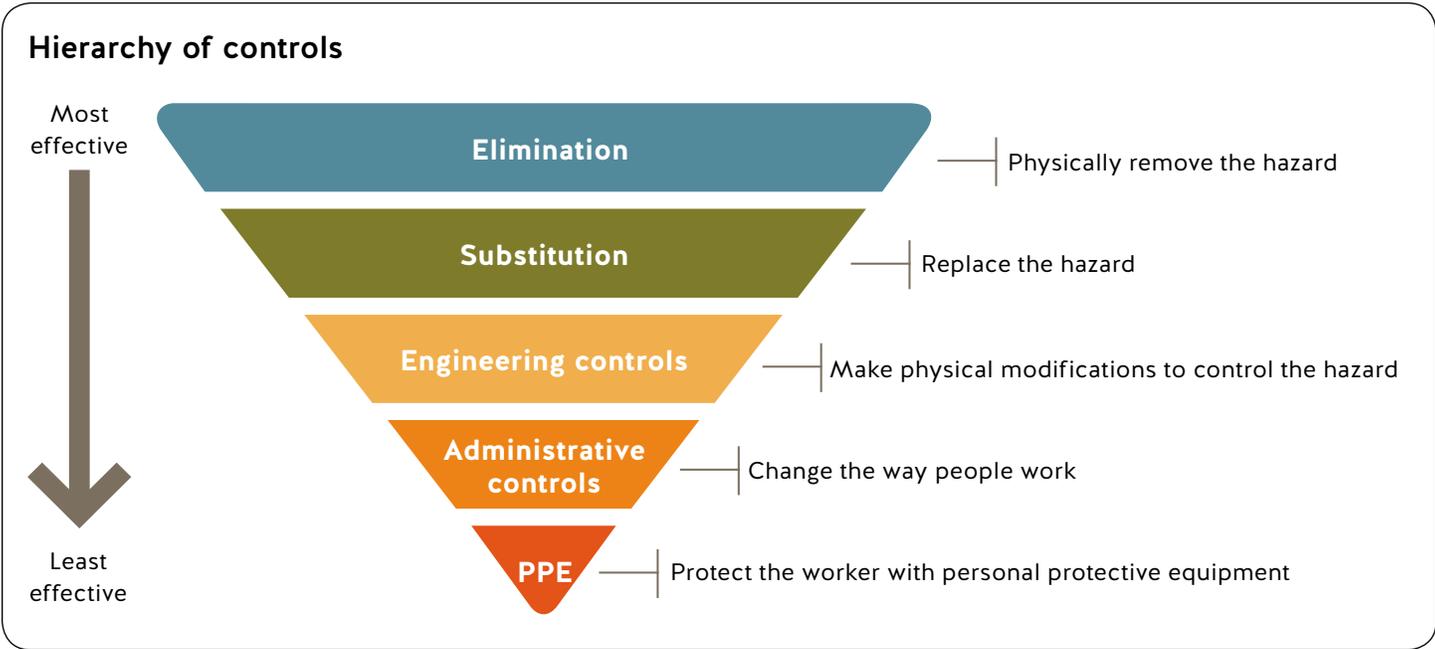
But there is good news: You can prevent noise-induced hearing loss.

Noise control and hearing conservation program

As an employer, you must implement a noise control and hearing conservation program if your workers are exposed to noise levels greater than 85 dBA (over an eight-hour workshift) or 140 dBC peak sound level. Your program must include specific elements, such as noise measurement, hearing tests, hearing protection, and engineered noise controls. For a complete list of requirements, see section 7.5 of the Occupational Health and Safety Regulation.



Noise control and hearing conservation programs must include engineered noise control.



Risk controls

Your program must include risk controls that address noise hazards. Choose controls according to the hierarchy of controls, from most effective to least effective.

Elimination or substitution

The first and best option is to eliminate the noise source. If that isn't possible, try to substitute a quieter process or material. Consider elimination or substitution every time a new space or process is being designed. If you can keep noise levels at 85 dBA or lower, you won't need a hearing conservation program.

Ask yourself the following:

- Can we use a quieter piece of equipment?
When purchasing new equipment, check the specifications to see if there's a limit on the noise generated or if the vendor provides noise data.
- If items are dropped into a holding container, can we replace the metal container with a quieter plastic or rubber container?
- Can we reduce noise to safe levels through regular equipment maintenance, such as lubrication or gear maintenance?

Engineering controls

Engineering controls involve making physical modifications to control the hazard or reduce exposure. If noise exposure at your site is at a level requiring a noise control and hearing conservation program, you must investigate engineering controls and then make physical modifications to facilities, equipment, and/or processes to reduce exposure to noise, where practicable.

Engineering controls are only effective if they're installed, used, and maintained properly. Make sure this is done according to the manufacturer's instructions or as specified by a professional engineer. If engineering controls are dismantled, improperly set, or not maintained, they could stop controlling the hazard or even become hazardous themselves. Make sure your engineering controls are working as designed on an ongoing basis. Inspect the equipment and test noise levels.

Ask yourself the following:

- Can we reduce noise at the source, such as by adding a muffler?
- Can we enclose the noise source?
- Can workers be enclosed or shielded from noise?

- Can we acoustically treat the room to reduce the noise level?
- Can we use a process that generates less noise? For example, if items are dropped into a holding container, can you raise the container to reduce the impact and noise?

Administrative controls

Administrative controls alter the way work is done. They include timing of work, policies and rules, and safe work practices. Awareness tools and training are also considered administrative controls.

Administrative controls are only effective if they are followed consistently. This requires a commitment by the employer, and supervision to ensure workers are following the practices and procedures.

Ask yourself the following:

- Can noisy jobs be shared to minimize exposure time for any particular worker?
- Are workers located as far away from the noise source as possible?
- Have workers been trained in methods to reduce their noise exposure?
- Are warning signs posted in work areas?
- Have workers had their annual hearing tests?

Personal protective equipment (PPE)

PPE is the least reliable control. It may be used if other controls are not practicable, or in addition to other controls.

Ask yourself the following:

- Do workers have appropriate hearing protection that fits them and is suitable for their work activities and noise exposure?
- Are workers wearing and maintaining their hearing protection properly?

You may need to combine controls to reduce noise exposure to safe levels. For example, an engineering control may help reduce the noise level, but workers may still need to wear hearing protection to bring noise exposure down to a safe level.

For more information

Visit the following pages on [worksafebc.com](https://www.worksafebc.com) for more information and additional resources:

- [Noise](#)
- [Hearing loss prevention](#)
- [Annual hearing testing](#)

OHS Regulation:

- Section 4.3(2), [Safe machinery and equipment](#)
- Sections 7.1 to 7.9, [Noise exposure](#)

Other resources:

- [Noise-induced hearing loss](#) (Health Canada webpage)
- [Noise from machinery intended for the workplace](#) (Health Canada webpage)
- [CSA Standard Z1007-16, Hearing loss prevention program \(HLPP\) management](#)
- [CSA Standard Z107.56-18, Measurement of noise exposure](#)