

## Personal hearing protectors – protecting your hearing

In most industries, there are instances where we have to resort to using personal hearing protectors such as earmuffs or earplugs to protect our hearing. It is important to use personal hearing protectors correctly and consider a number of factors.

### How do we hear and why does our hearing need protection?

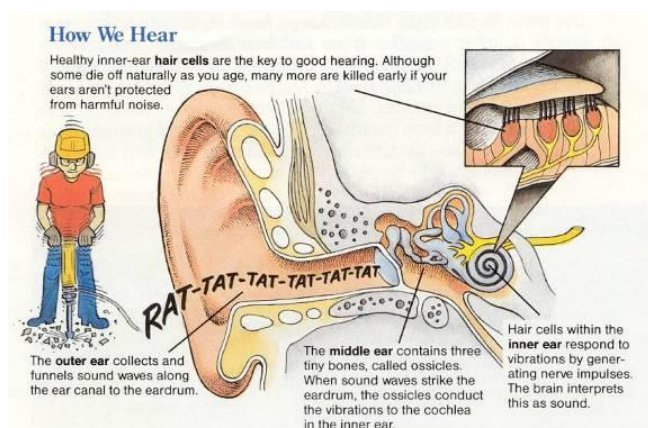


Figure 1: Brief description of how we hear (Courtesy of EAR Cabot Safety Corporation).

Exposure to loud noise at work (or at home or during leisure activities) can destroy the tiny hair cells in our inner ears. When they are damaged hearing is lost, as messages can no longer be sent to our brain to interpret the sounds. Exposure to a number of common industrial chemicals and some medications can also cause hearing loss or exacerbate the effects of noise on hearing. These substances are called ototoxic substances. Hearing loss is permanent and there is no cure. Hearing loss affects not only your own quality of life, but also that of everyone else you deal with. So it is important to protect your hearing, especially at work.

### How to go about protecting your hearing?

#### Risk management

The most important step in the risk management process involves eliminating the risks, or if that is not reasonably practicable, minimising the risks so far as is reasonably practicable using the hierarchy of control. The hierarchy ranks the ways of controlling the risk of hearing loss from noise from the highest level of protection and reliability to the lowest so that the most effective controls are considered first.

The *Managing noise and preventing hearing loss at work Code of Practice 2011* states that personal hearing protectors should not replace the higher order noise controls of substitution, engineering and isolation. Administrative controls and hearing protectors should be used if risk remains after implementing higher order controls.

Higher order controls are available for a wide range of plant and equipment. The *Managing noise and preventing hearing loss at work Code of Practice 2011* provides information on higher order controls. Some common examples are to implement 'quiet' purchasing policies to choose the quietest plant for the job, silencers on air exhausts, acoustic hoods on multi-spindle planers and enclosures to isolate the source of noise from workers.

## Hearing protection

When inserting earplugs clean hands are necessary to avoid infections of the ear canal.

Dirt from your fingers is transferred onto the plug when rolling the earplug tight before inserting it into our ears and so may cause ear infections. If disposable earplugs are used, they should only be worn once.

Earmuffs provide a less critical fit over our ears than earplugs and are less likely to cause ear infections. But they can be uncomfortable to wear in hot environments and can make it difficult for the wearer to enter a confined space or to wear a helmet.

Another form of hearing protector is the ear canal cap. It consists of pods on either end of a plastic tension band. The pods block the entrances of our ear canals rather than being inserted. They are easily put in place and removed when not needed.

Personal hearing protectors must be regularly inspected and maintained to ensure they remain in good, clean condition. Workers must also be provided with training, information and instruction in the proper use, fit, care and maintenance of personal hearing protectors.

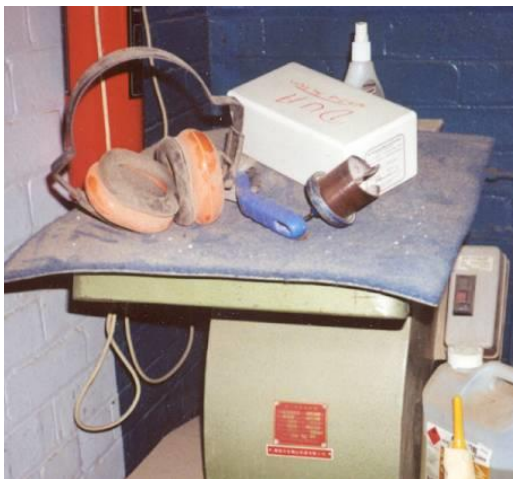


Figure 2: Typical example of an earmuff collecting dust.

The issues that can arise with hearing protectors in the 'real world' are that they are either the wrong rating, not used at all, act as dust collectors, as shown in Figure 2, or are used infrequently and so drastically reduce their effectiveness to insufficient levels.

Hearing protectors are often selected on the basis that the higher the protection rating the better they protect, and consequently in many industrial situations they over-protect. Over-protection hinders communication between workers and the ability to hear machines operating correctly or give the wearer a feeling of isolation from the work environment.

In noisy work environments, you can often see workers lift a cup of an earmuff or pull out their earplugs during conversations. If you do not wear your protector the whole time you are exposed to noise, its effectiveness is drastically reduced as you can see in Figure 3. If the hearing protector rated at 28 dB is not worn for 10 minutes in noise during an 8-hour shift its attenuation is reduced to only 16 dB making the effective protective value 12 dB less than you expected and may result in risk of hearing loss due to insufficient protection.

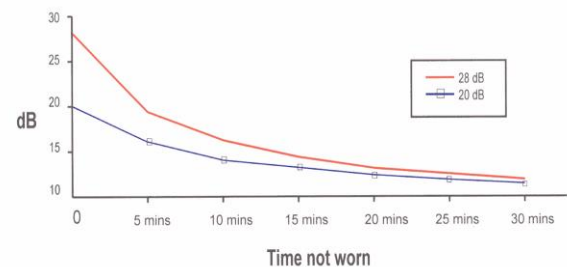


Figure 3: Reducing effectiveness of hearing protectors with time not worn.

Studies demonstrate that the 'real-world' protection from earmuffs and plugs may be up to 6 dB lower for muffs and up to 9 dB lower for plugs when used in the work situation. In the example of Figure 3, this means that the effective rating may be only 10 dB if earmuffs were worn and 7 dB if earplugs were worn (Berger., 2000; Eden and Piesse., 1991).

## More information

For further information visit [worksafe.qld.gov.au](http://www.worksafe.qld.gov.au) or call 1300 362 128.