



TOOLBOX TALKS

NOISE EXPOSURE

Excessive noise levels over a long period of time will damage your hearing. This may happen so gradually and painlessly that you may not notice the minor deterioration from one day to the next. Excessive noise in the workplace presents a risk of hearing damage and other health problems.

The parts of the ear that process high frequency sounds are usually the first to be affected. The degree of hearing loss depends on the loudness of the noise and how long you are exposed to it. Sudden explosive sounds, such as gunshots, can cause immediate damage.

Some people exposed to excessive noise develop tinnitus, which is described as a constant ringing sound. For most cases of noise-induced hearing loss, there is no cure. Hearing aids only amplify sounds and can't replace normal hearing.

ASSOCIATED EFFECTS OF CONSTANT NOISE POLLUTION

Apart from damage to hearing, exposure to constant and excessive noise can cause other health problems including:

- headache
- elevated blood pressure
- fatigue
- irritability
- digestive disorders
- increased susceptibility to colds and other minor infections.

THE WORKINGS OF THE EAR

The vibration of air molecules makes up a sound wave. Low frequency sounds have waves that are far apart, while high frequency sounds have waves that are bunched together.

Sound waves are funnelled from the outer ear into the middle ear, where they

vibrate the eardrum. The 3 tiny bones lying on the other side of the eardrum pick up the vibration and pass it on to the inner ear.

The vibration is picked up in the inner ear by a small, spiral shaped organ called the cochlea. Hairs on the cochlea sense the vibration and pass on the message to the brain via the cochlear nerve. These sensitive hairs are bent, damaged and broken by excessive noise. The resulting scar tissue can't conduct sound. The parts of the ear that process high frequency sounds are usually the first to be affected.

WHAT IS NOISE INDUCED HEARING LOSS?

The volume of noise determines how much the hairs in your ear move. Hairs may sway in response to conversational noise whilst loud noise causes the hairs to flatten. Hair that is flattened fails to respond to soundwaves, fails to trigger the auditory nerve and the brain fails to interpret sound. This is known as hearing loss, of which there are 2 types:

- Short term hearing loss occurs with exposure to loud noise (above 105dBA) over a short duration. The louder the noise and the greater the exposure, the greater the hearing loss. As the hairs in your ear stand back up, hearing is restored.
- Permanent hearing loss occurs when the hair in your inner ear is exposed to loud and prolonged noise. With repeated loud and sustained noise, these hairs gradually fail to stand back up. This results in a gradual hearing loss that is hard to notice and not reversible.

MAINTAIN APPROPRIATE NOISE LEVELS

You must, so far as is reasonably practicable, make sure that your workers (or people that visit your workplace) are not exposed to noise levels that are:

- equivalent to 85 decibels averaged over 8 hours, or
- a peak noise level over 140 decibels.

This always applies, whether or not your workers are wearing hearing protection.

If you are unsure if the noise levels in your work are harmful, [ask a competent person](#) to come in and complete a detailed noise assessment.

PROVIDE A SAFE AND HEALTHY ENVIRONMENT AT WORK

First, you must try to eliminate the source of noise, for example, by removing the noisy machinery from your work, or by choosing quieter equipment.

If you're not reasonably able to, then you need to consider what you can do to minimise the risk of noise. Some ways you can do this are:

- separating the noisy machinery from where your workers are
- using barriers to block the path of the noise
- using silencers or noise insulated equipment
- limiting the time your workers spend in noisy areas by rotating tasks or shifts.

TRAIN YOUR WORKERS

Find out what your workers already know about noise, and make sure they understand that once hearing is lost, it won't come back. Talk to workers about how noise could harm them, and how to identify hazardous noise sources. Continually address gaps in workers knowledge by providing ongoing training. Remind your workers about safe practices to protect their hearing.

PROVIDE HEARING PROTECTION

Make sure your workers always wear hearing protection if it's needed. Remember, hearing protection is the least effective control measure, and should only be considered after you have tried to eliminate or minimise the noise risk. Train your workers on when and how to use, fit, care for and maintain their hearing protection correctly. You must pay for hearing protection, including maintenance and replacement.

MONITOR THE NOISE LEVELS AT WORK

A [competent person](#) will be able to tell you if a detailed noise assessment is needed. This will identify noise sources and high-risk areas and tasks at your work. Talk with your workers about the results from testing noise levels during work.