

Noise-induced hearing loss

Toolbox Talk



Noise at Work

Every day, millions of employees in Europe are exposed to noise at work and all the risks this can entail. While noise is most obviously a problem in industries such as manufacturing and construction, it can also be an issue in a wide range of other working environments, from call centres to schools, orchestra pits to bars.



Noise at Work

Hearing Loss Causes

Excessive noise exposure damages the delicate hair cells in the inner ear, not dissimilar to the effect of age on the ear (accelerated "wear and tear"). This damage often results in permanent, sensorineural hearing loss and tinnitus (ringing of the ears). Hazardous noise exposures can occur on the job, but also in common recreational activities.



Noise exposure at the work place over many years may lead to irreversible hearing loss if daily sound exposure levels reach or exceed 85 dB(A).

Noise at Work

Warning Signs

Be alert to some of the hearing loss warning signs:

- Ringing or buzzing (tinnitus) in your ears after exposure
- You can hear people talking but you have difficulty understanding them
- You experience "fullness" in your ears after leaving a noisy area
- You miss some letters like the final "s"

Remember, even though you might have experienced these symptoms temporarily in the past, your hearing might not always "recover," leaving you with a permanent and regrettable hearing problem.

Noise at Work

Noise “Thermometer”

Type of noise	dB (decibel)		hearing damage
Night time noises	± 60-80dB		sleep deprivation
Daycare centre	± 80dB		after 8 hours
Noise in passenger airplane	±83dB		after 4 hours
Lawn mower	±90dB		after 1 hour
Compressor	±93dB		after 30 min.
traffic noises on highway	±95dB		after 15 min.
Drilling machine	±100dB		after 5 min.
High pressure washer	± 105dB		after 2 min.
chainsaw	± 110dB		almost direct
Angle grinder	± 117dB		direct
Pile driver	± 120dB		direct
Festival / Concert	± 130dB		direct
Fireworks, pistol shot	± 150dB		direct

Noise at Work

Hazardous Noise Sources

- Heavy industry machinery & equipment (line production equipment)
- Transportation vehicles for contemporary or agricultural use
- Power tools (drills, saws etc.)
- Military firearms and other weapons
- Recreational equipment (firecrackers, hi-fi music equipment, racing cars, motorboats, motorcycles, snowmobiles etc.)
- Construction works tools & equipment
- Generators, air compressors, stationery diesel engines etc.

Noise at Work

High exposure professions

- Heavy industry workers
- Transportation workers
- Military personnel
- Construction workers
- Miners
- Farmers
- Firefighters
- Police officers
- Musicians
- Entertainment industry professionals
- etc.

Hearing Protection

Basic principles

- **THE EMPLOYER**
 - Should conduct noise measurements to assess their employee risk exposure
 - Should specify & buy the lowest noise-emitting machinery and equipment
 - Should train its exposed employees in the effects of noise exposure and the required measures as well as the proper PPE fitting
 - Should provide the necessary PPE to all employees and visitors exposed
 - Should conduct regular hearing loss tests (audiograms)
- **THE EMPLOYEES**
 - Should be (or ask to be) informed on their noise exposure risk
 - Should ask to be informed on the required measures
 - Should avoid staying in high-noise areas if not necessary
 - Should wear the specified hearing protection PPE without exceptions

Hearing Protection

PPE

- There are specific types of PPE depending on the exposure level
 - Foam earplugs are suitable only for temporary exposure (visitors, auditors, inspectors etc.)
 - Molded earplugs are suitable for longer exposures (short-term maintenance personnel etc.)
 - Earmuffs are suitable for all applications



Effective protection is achieved ONLY IF the correct fitting is applied. All employees must be trained as to the correct fitting method.

Noise at Work

How is noise measured?

Noise is measured in decibels (dB). An 'A-weighting' sometimes written as 'dB(A)', is used to measure average noise levels, and a 'C-weighting' or 'dB(C)', to measure peak, impact or explosive noises.



You might just notice a 3 dB change in noise level, because of the way our ears work. Yet every 3 dB doubles the noise, so what might seem like small differences in the numbers can be quite significant.

Noise at Work

Purchasing Policy

Introduce a purchasing/ hiring policy oriented to reducing noise at work by choosing quieter equipment and machinery; such a Policy could comprise the following steps:

- Set a target to reduce the noise levels if possible
- Consider at an early stage how new or replacement machinery could reduce noise levels
- Ensure you specify a realistic noise output level for all new machinery
- Ask the suppliers about the expected machinery noise levels in your particular case
- Compare information from different suppliers
- Try to purchase/ hire only from suppliers who can demonstrate a low-noise design
- Keep a record of your decision process, to help show that you have met your legal duties to reduce workplace noise

Advice

Involving your employees in decisions can help improve working relationships; make your employees more receptive to new ideas and help you control exposure to noise!

