

Ear piece

Former Course Manager and Master Greenkeeper John Ross, who now works to improve health and safety in the workplace, turns his ear to the issue of noise



We ask a lot of our ears, and generally they do what they are designed to - transmitting variations in pressure to our brain where we interpret it as sound. Damage to your ears restricts the ability to interpret sound or in extreme cases even to hear some or all sounds, this has implications on your ability to function normally in society and your safety.

Your ears are not simply a funnel, with noise going in and you hearing it, your ears are a complex structure through which a sound wave moves. Waves are transmitted along the ear canal setting the tympanic membrane (ear drum) in motion, this motion is transmitted to the middle ear via the incus, malleus and stapes (hammer anvil and stirrup) which amplify the vibrations. This causes the fluid in the cochlea (inner ear) to move in response to the pressure wave.

Deep within the cochlea are hair cells that sense that pressure wave, these set off nerve impulses which are carried to the brain via the cochlear nerve. This process is finely balanced and is susceptible to damage in numerous ways. Within the workplace one of the ways your

hearing can be affected is excessive noise, this is called Noise Induced Hearing Loss, the exposure to which the employer has a duty to manage. How it should be managed is what I hope to clarify for you!

Work related damage occurs in the following forms...

Acute / Temporary Threshold Shift

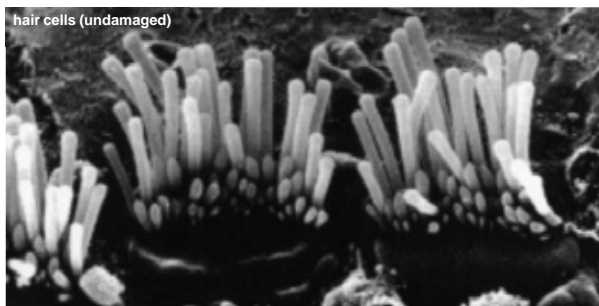
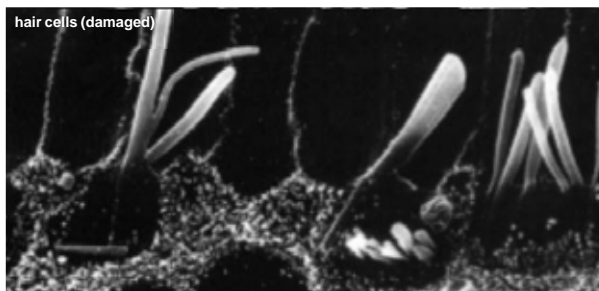
Short periods of excessive noise producing varying degrees of inner ear damage that is initially reversible. Recovery time can be anything from minutes to days.

Chronic/ Permanent Threshold Shift

Permanent damage, known as noise induced hearing loss occurs when exposure to excessive noise continues over a long period of time, and it generally takes a long period to identify. This includes a condition that results in a permanent sound in the ear known as Tinnitus.

What do the Regulations Say?

The duty to manage noise is set out in the Control of Noise at Work Regulations 2005, these introduce the concept of a noise dose - the amount of noise you can be exposed to within an eight hour



about the author

John Ross MG

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period. Noise must be measured, and as we all know it is measured in decibels (dB) therefore, a noise dose is the amount of decibels you can be exposed to over that period. It is important to understand that every 3 dB is a doubling of audible sound meaning 84dB is only half the exposure that 87dB is.

The regulations allow for variations, so if noise exposure varies

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over the day, you are allowed a weekly exposure to be considered, instead of a daily exposure. The regulations also establish three very clear points, called action levels, these are used in controlling noise exposure.

LEAV - Lower Exposure Action
Value of 80dB or peak sound pressure of 135dB - Action is required if this level is exceeded.

UEAV - Upper Exposure Action
Value of 85dB or peak sound pressure of 137dB - Employers have a duty not to expose employees to noise above this level, the employer must reduce exposure to as low as reasonably practicable by establishing or implementing a programme of organisational and technical procedures

ELV - Exposure Limit Value of 87dB or peak sound pressure 140dB - Employers must ensure this limit is not exceeded and if it is, reduce the level immediately, investigate and modify measures to prevent recurrence.

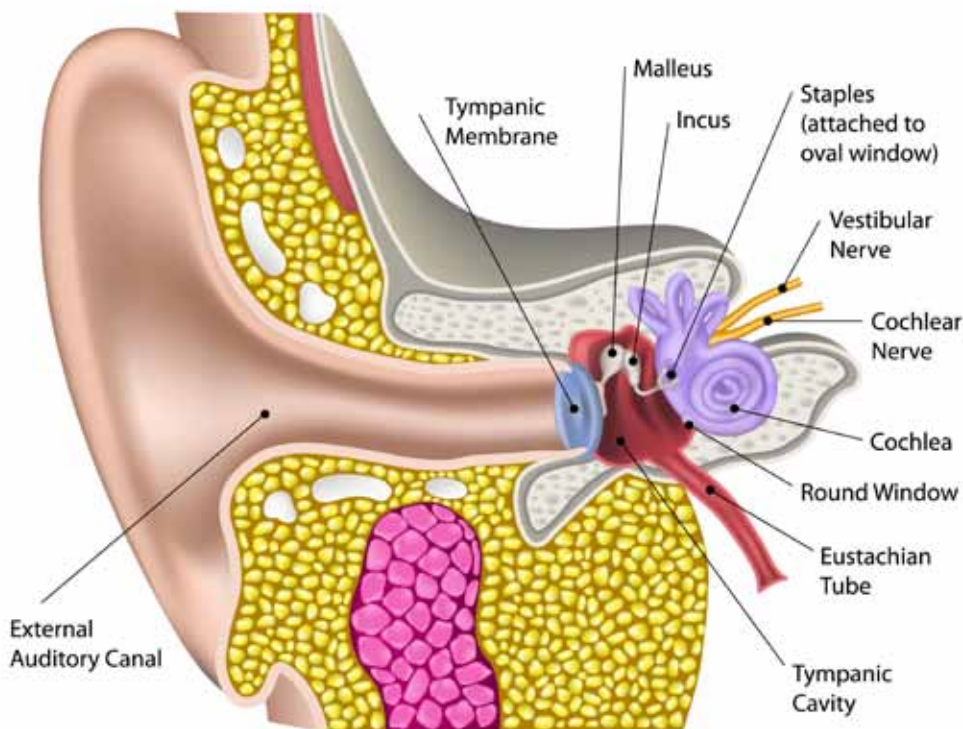
If the noise an employee is exposed to exceeds the ELV, the employer must make a suitable and sufficient risk assessment, that risk assessment should include duration of exposure, and determine the procedures in place to reduce exposure to a level less than 80dB.

Right now I can hear greenkeepers reading this and thinking, how can this be done? We are often using equipment that is running at greater than 100dB, the answer is that CNWR05 and other regulations allow for that situation.

How to manage noise

The relevant Regulations are:
MHSWR1999 (4) The Principles of Prevention – If noise can be enclosed, vibration reduced or if people can be screened or distanced from the noise source, it should be done and there is no need for Personal Protective Equipment (PPE). This is difficult to do with turf maintenance machinery, however we could consider dB output in the purchasing process! One of the objectives of the principles of prevention is that all PPE is only considered as a last resort.
CNWR2005 (4) Exposure Limit Values and Action Values - When exposure is unavoidable, we can supply PPE and consider the protection it offers at the ear in calculating a noise dose.
CNWR2005 (7) Hearing Protection – Any equipment louder than

The Ear (Human Anatomy)



Key points on how to manage noise:

- Know the levels of noise being created
- If it is over 80dB supply PPE
- If it is over 85dB ensure it is worn and not interfered with, declare area a mandatory hearing protection zone
- Understand the PPE you are using and ensure it offers protection at the ear between 70-85dB(a)
- If noise can be enclosed do so (compressors, grinders, pump stations etc.)
- Inform and instruct staff on dangers of NIHL and on how to wear PPE
- If any member of already staff suffers damaged hearing extra consideration must be given to them
- Maintain equipment and machinery according to manufacturers recommendations

Greenkeeper Case Study

Noise induced hearing loss creeps up on you and is a chronic condition that will not go away once you have it. An interview with a well-known course manager who suffers from tinnitus highlighted the need to take it very seriously. He wishes to remain anonymous.

“I became a Greenkeeper in 1966 and spent 15 years as an assistant before becoming a Head Greenkeeper in 1981. In those days no one had heard of PPE, we just used to get on with it, I knew of tinnitus because my dad, suffered it from his time in national service”. He added how, as a hands-on greenkeeper, he spent days using trimmers and chainsaws, sitting on early cutting machinery, walking behind a Ransomes Matador or in tractors that had no cabs.

He said: “It’s not just the tinnitus, but the reduced hearing ability”. This means that often he is lip reading in conversation, unable to hear the doorbell being rung, and having to double check when crossing the road – generally just taking more care in life.

“I saw my first pair of ear protectors in 1994, they were considered a bit of a joke and were worn only on a voluntary basis, we called them ear muffs” he explained, describing the early attitude to hearing protection.

“I first became aware I had tinnitus on the day William and Kate married, I was watching the television and suddenly there was a noise inside my head, I was devastated because I knew straight away from my dad’s experience it was tinnitus. For days it was all I could think of, I have had it ever since, it is constant.”

85dB should have a blue mandatory hearing protection sticker on it, designating it a hearing protection zone.

HASAWA1974 (8) General duties of the employee – If hearing protection is supplied, it must not be impeded, i.e. by wearing music speakers on the inside. This is a duty placed on the employee!

PPE protection - The objective

of hearing protection is to take the noise level at the ear to between 70dB and 85dB.

To protect below 70dB is considered overprotection, meaning the user would not be able to hear alarms, machinery failures or even a simple call of fore from a golfer, this gives the manager or safety consultant a margin of 15dB when selecting hearing protection.