

Paying attention to noise

Did you know that noise exposure may affect your quality of hearing, even if no hearing loss is measurable? Millions of years of evolution have allowed the development of an extremely sophisticated human auditory system. However our hearing system is not prepared to deal with the large amount of noise and high-level sounds to which many of us are exposed, both in leisure and work activities. Just to mention a few examples, the sound of a crowded city may reach 85 dB sound pressure level, an ambulance siren is about 120 dB, musicians who rehearse with amplified music or workers in a nightclub are usually exposed during long hours to sounds greater than 90 dB, and hunters or soldiers, place a noise source of more than 150 dB peak levels just next to their ears.

Day after day, week after week, exposure to noise leads to a progressive hearing loss, of which many people remain unaware until the damage is well advanced. The noise-induced hearing loss may be caused either by impulse high-level sounds or by the constant exposure to noise. Recent animal studies have shown that noise exposure, even as short as 2 hours, can affect the auditory nerve fibres that convey high-level sounds to the brain. These particular fibres are important in challenging daily activities like listening in noise. The loss of these fibres inevitably leads to a loss of quality of hearing, and very often, the perception of a buzzing or ringing sound called tinnitus. However, their loss has no effect on our ability to hear very soft sounds, and hence the damage is not measurable as a hearing loss using a standard hearing test.

The diagnosis of noise-induced hearing damage is not, therefore, an easy task. There is no available clinical test able to evaluate the damage to these nerve fibres, so people may have these hearing problems without being diagnosed. A team of researchers at the National Acoustic Laboratories is currently investigating this pathology in Australian society, its effects on daily life, and designing new strategies that will eventually be useful in diagnosing what is nowadays called "hidden hearing loss".

It is important to bear in mind that there is no cure for hidden hearing loss, and the treatment can be difficult even with the most advanced hearing aid. The key is prevention, and being aware of the potentially damaging effects of loud noise, even for relatively short durations, is the first step.

If you are an adult aged 30-55, particularly if you've had some exposure to noise, you can be part of the study in Sydney. Email prevention@nal.gov.au



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