

Hearing problems - reduced tolerance to sound

People who suffer from reduced tolerance to sound often find ordinary noises seem to be too loud, while loud noises can cause discomfort and pain. Damage to the inner ear from ageing or exposure to loud noise is the most common cause.

This condition is often associated with tinnitus (buzzing, ringing or whistling noises in the ears) and distortion so that a pure tone may be split or jangling. Usually both ears are affected, although it is possible to have it in only one ear. Even people with slight changes in their hearing can suffer from the condition.

Symptoms

The onset can be gradual or sudden. Symptoms include:

- Very quiet sounds are well tolerated, while ordinary sounds like voices at conversational volume are experienced as too loud or distorted.
- The person's own voice seems too loud or distorted.
- Low intensity sounds, such as the noise of a refrigerator, seem too loud.
- Sudden, loud noise can cause discomfort and pain.
- A loud noise can worsen sound intolerance for some time.
- Loud noises can worsen tinnitus and distortion.
- Loud noises can cause a 'popping' sensation inside the ear.

Quality of life is reduced

In severe cases, reduced sound tolerance can confine the person to their home and affect their career and social life. Everyday activities such as driving a car, using a lawn mower, vacuum cleaner or power tool, watching the television or listening to music are impossible. Shopping centres, restaurants and movie theatres are usually too loud. Career options may be severely curtailed.

Noise exposure is the most common known cause

The most common known causes are exposure to loud noise and the changes in hearing associated with the ageing process. Other known causes include:

- One-off exposure to loud noise, such as an explosion
- A slap on the ear
- Chronic exposure to noise, such as working in a noisy environment
- Meniere's disease, chronic fatigue syndrome, autism and epilepsy
- Certain drugs
- Head injury
- Noise sensitivity following surgery to the ear
- Paralysis of the facial nerve – in this case, the mechanism in the middle ear that protects us from loud noise is not functioning. This is called hyperacusis
- Medical procedures – clearing a blocked ear canal may cause temporary increased sensitivity to sound.

When intolerance is in one ear only, this should be investigated for an acoustic neuroma (a tumour) on the balance (vestibular) nerve. The tumour is more easily removed if it is detected early.

The underlying causes are not clear

The sensitivity of the human ear has what is known as a 'dynamic range'. This refers to our ability to cope with different sound levels. A person with sensitivity to loud noise has lost the ability to accommodate exposure to loud noise.

There may be damage to some of the hair cells of the inner ear so that the person fails to recognise soft sounds. When the sound becomes loud enough to detect, it is perceived as louder than expected.

The phenomenon of loss of sensitivity to soft sound but distress and distortion from loud sound is called recruitment.

Diagnosis methods

There are no objective tests for diagnosing decreased sound tolerance. Diagnosis depends mainly on the patient's description of their discomfort. Audiometric tests are used to assess the health of the ear. It is, however, possible to objectively assess whether a person is 'recruiting'.

Treatment options

There is usually no cure once noise sensitivity has started because the common causes are noise damage and ageing damage to the inner ear. It is wise to avoid exposure to noise in the first place. There are disorders of the inner ear, which are treatable, so prompt assessment of the ears may be critical to manage the tolerance. Generally, sound sensitivity is managed in a number of ways.

- Avoid raising your voice to someone with inner ear deafness. It not only irritates but also distorts the message.
- The use of personal hearing protection such as earplugs and ear muffs in genuinely noisy environments is advised.
- Reassurance that the disorder of the inner ear is not caused by a sinister disorder can restore the tolerance significantly.
- Counselling may help the person overcome their fear of loud noises. This could include the person coming to understand that their response to noise has been 'learned' and could be modified.
- Tinnitus retraining therapy (TRT) involves wearing special hearing aids called 'noise generators' which can, over time, reduce the person's sensitivity to noise. The ears become accustomed to the barely audible 'white noise' and eventually ignore it.
- Medication to help the person sleep may be needed in the short term.

Where to get help

- Your doctor
- Ear, nose and throat specialist (your doctor can refer you)
- Audiologist (hearing scientist)
- Tinnitus Association of Victoria Tel. (03) 9510 1577
- Vicdeaf Tel. (03) 9657 8199 or TTY (03) 9657 8152
- The Royal Victorian Eye and Ear Hospital Tel. (03) 9929 8666
- Meniere's Australia Tel. 1300 368 818

Things to remember

- The most common known causes of sensitivity are exposure to loud noise and ageing.
- There are no objective tests for diagnosing decreased sound tolerance.
- There is usually no cure once noise sensitivity has started. It is wise to avoid exposure to noise in the first place.
- Treatment focuses on insight, reassurance and protection of the ears.

This page has been produced in consultation with, and approved by:

Royal Victorian Eye and Ear Hospital (RVEEH)

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