

# Tinnitus (Ringing in the ears)

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**Disclaimer: The details in this section are for general information only. Always check with your own doctor.**

Tinnitus is a word used by doctors to describe a condition when patients hear noises in their ears or in their heads.

Tinnitus has sometimes been described as ‘the sound of silence’ because all people, if they are seated in a completely quiet soundproofed room, will hear a type of rushing or hissing sound. Usually this noise is masked by environmental sounds. Hearing words, songs or voices is not included in the definition of tinnitus.

It is when this type of noise becomes intrusive into everyday life that it can become immensely irritating and becomes known as ‘tinnitus’. The noises of tinnitus may vary in pitch from low frequency to high frequency, they may be intermittent or permanent and they usually vary in the intensity of sound. Some people spend a long time looking around the house for whatever it is that must be making the noise, other people fear that they may be developing a brain tumour.

Sometimes people notice that the intensity of the noises can alter according to various activities such as exercise, the drinking of coffee or wine and other stimuli.

Children can suffer from tinnitus as well as adults, which can be frightening for them when they do not understand what is happening. When tinnitus is first noticed, it can be very worrying.

## Types of tinnitus

Tinnitus is generally divided into two types:

- noises that can be heard by somebody examining the patient (objective tinnitus)
- noises that can only be heard by the patient (subjective tinnitus)

### Objective tinnitus

This type of tinnitus is uncommon. Noises may be caused by spasms of small muscles in the middle ear (often heard as a clicking sound) or by abnormalities of the blood vessels in and around the ear.

It is the turbulent bloodflow that is heard directly by the inner ear, and it usually occurs in time with the heart beat (pulsatile tinnitus). Pulsatile tinnitus can occur when there is an increased bloodflow to the ear, such as during an infection and inflammation, but also because of anatomical abnormalities of the blood vessels.

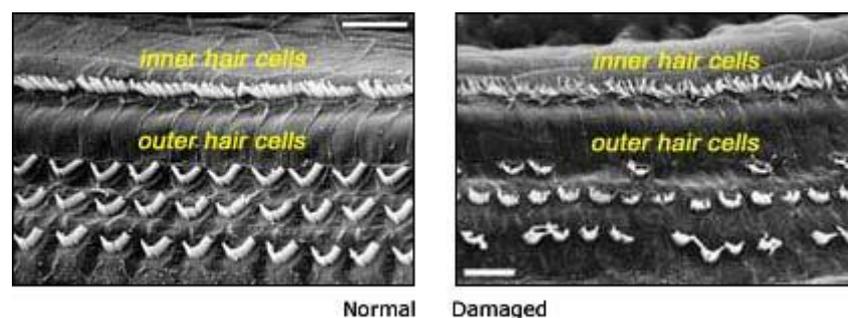
Vascular tumours of the middle ear are rare, but also can give a pulsatile tinnitus. Such objective tinnitus which can be heard by the examining doctor may require further investigation by an ear, nose and throat surgeon or audiological physician, and may in some instances have a surgical cure.

## Subjective tinnitus

This is by far the most common type of tinnitus. Everyone, if sitting in a soundproof room, hears noises in their heads. Usually these noises are masked in everyday life by all the noise going on in the world around us. If you cannot hear sounds in the outside world so well, you tend to notice the natural noises inside your head much more because they are not being masked (drowned out) by the environmental noises.

Tinnitus is often, but not always, linked to a hearing loss. If the tiny hair cells of the cochlea are damaged, for example through certain drugs, noise exposure or as part of the aging process, the cochlea becomes less good at discriminating sounds, and your hearing is affected.

It is possible that these damaged hair cells also give rise to random noises which we hear as tinnitus. This is the reason that when you consult a specialist about tinnitus, you will have a hearing test.



*Damaged hair cells in the inner ear may be a cause of tinnitus*

Hearing loss is not the only cause of tinnitus, but it occurs in many people who do have some problem with their hearing, even if it is only mild, and perhaps unnoticed by the patient themselves.

The loudness of tinnitus is not linked to the degree of hearing loss, nor does the loudness of tinnitus always increase with time. Only about 20% of people with tinnitus perceive it as a great irritation; the majority are able to ignore it most of the time (see treatment below).

Certain types of diseases that affect the inner ear can also be associated with tinnitus (eg Menière's disease)

## Further investigation

If tinnitus is only affecting one ear or if it is causing great distress, further investigation is warranted and is generally carried out by an ear nose and throat surgeon or audiological physician.

Investigations usually include hearing tests, and can also involve blood tests and radiological investigations (x-rays or scans). Not everyone with tinnitus will need every investigation. Sometimes no definite cause for the tinnitus is found. On other occasions a readily identifiable cause will be found such as a hearing loss.

Very rarely a more serious condition will be found, such as a tumour of the auditory nerve. Whilst specific causes such as this will be directly addressed, the majority of patients may benefit from other types of medical treatment.

Fortunately, the majority of patients who suffer from tinnitus will either find it gets better by itself, or that they will learn to tolerate the noises after a short period of time of only a few weeks or months.

## **Treatment**

Generally the treatment of tinnitus falls into two main areas: tinnitus counselling or the use of mechanical devices such as hearing aids or white noise generators to control the symptoms.

Some simple measures can be very effective. If you find that the tinnitus is loudest when you are trying to get to sleep, try putting a small radio next to your bed, turning the tuning dial to a frequency in between two stations so that you hear 'white noise', and turn the volume down low so that you can only just hear the noise.

This will give your ears something else to listen to and many people find it a very useful method of getting to sleep. Other people use relaxation tapes, again with the volume down so that you can only just hear it.

## **Tinnitus counselling**

This is a system whereby the cause of the tinnitus is clearly explained and the approach to understanding and controlling its significance in the patient's daily life is clarified.

Help is given to combat the most debilitating mental effects of such noises. Tinnitus retraining therapy is a type of tinnitus counselling which is extremely effective at reducing the threat and the intrusiveness of tinnitus and consists of a combination of explanation, counselling and controlled use of white noise generators or hearing aids.

It is not a 'quick fix' solution but it does have excellent long-term results. In a large proportion of patients this management will be entirely effective although it may not necessarily totally remove the noises.

## **Mechanical devices**

The use of hearing aids or tinnitus maskers amplify surrounding noises so that the tinnitus is no longer heard. Hearing aids are ideal if there is an associated hearing loss with the tinnitus. Tinnitus maskers are not so commonly used any more, but worked on the idea that a continuous noise, generated in the ear canal by the masker, would

mask the tinnitus and would also provide an effect for several hours after it had been switched off.

### **White noise generators**

These are sometimes used during tinnitus counselling and as a part of tinnitus retraining. Again, they can provide a less threatening, more controllable type of noise than the tinnitus, but need to be used as part of the retraining - they are not a solution in themselves.

### **Other types of treatment**

Multiple types of treatment have been tried for tinnitus, and although they can be helpful for some patients, none of them will help all patients. Hypnosis and acupuncture can occasionally help.

Extracts of *Gingko biloba* (the maidenhair tree) is another method, but no properly controlled study has shown a positive effect. In general, drug treatments are not very helpful. Some types of sedatives have been used, but they are not good for long-term use and do not solve the problem.

It is estimated that about 30% to 40% of the population will suffer from tinnitus at one point in their life, particularly if they have hearing loss. The vast majority will either have intermittent tinnitus which is manageable, or more persistent tinnitus which is can be controlled without any significant treatment.

A small minority will require further management and it is these patients who will require referral to an ear nose and throat surgeon or an audiological physician.