



## Tinnitus (ringing in the ears)

### ABOUT THE CONDITION

#### What is tinnitus?

Tinnitus is a sensation or awareness of sound that is not caused by a real external sound source. It can be perceived in one or both ears, inside the head or in the person's immediate environment.

Although it is commonly assumed to be a ringing noise, tinnitus can take almost any form, including hissing, whistling, humming, or buzzing. Some people hear a single sound whereas others hear multiple noises. For some, the sound is constant: for others it is constantly changing.

A few people have tinnitus that has a musical quality or resembles distant, indistinct speech.

Some people have tinnitus that has a rhythmical nature. This may be in time with the heartbeat in which case it is called **pulsatile tinnitus**. Alternatively, the rhythm may be unrelated to the heartbeat and have a ticking, fluttering or tapping quality. Rhythmical tinnitus can occur on its own or can coexist with non-rhythmical tinnitus.

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#### What causes tinnitus?

There are still many unanswered questions about the exact cause – or causes – of tinnitus. What is apparent, however, is that we need to consider more than just the ear. Although most people with tinnitus have some degree of hearing loss, a significant number have normal ears and a normal hearing test: hearing loss is not essential to develop tinnitus.

Several studies have been performed where people who do not have tinnitus were placed in soundproofed rooms and told to listen intently. In this situation almost everyone becomes aware of a sound sensation. This is because, in the absence of external sound, the brain tunes into random electrical signals in the nerves of hearing and the auditory pathways within the brain itself. We all have this random electrical activity and most of the time we ignore it. Sometimes, however, the brain misinterprets this electrical activity as a sound.

Common triggers for this process are emotional shocks or loss of hearing, either gradual or sudden. However, in many people, the trigger is unknown. Once we become aware of the tinnitus signal, it draws the attention of those parts of the brain that deal with our emotions, making the tinnitus seem more distressing. This in turn makes the tinnitus seem louder and more apparent, setting up a vicious circle. This type of tinnitus is called subjective tinnitus because it is only heard by the sufferer.

A few people have tinnitus that is attributable to a real sound, generated inside the body by blood flow or muscular activity. This type of tinnitus may be detectable by other people, either just by careful listening or by using a stethoscope. This kind of tinnitus is known as objective tinnitus.

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## What are the symptoms?

- Tinnitus is a symptom in itself.
- Tinnitus is often a standalone symptom, but it may be accompanied by hearing loss, dizziness, **pain in the ears (otalgia) or dislike of loud sounds (hyperacusis)**.
- Many people with tinnitus also feel that their ears are blocked.

Your specialist will consider these other symptoms when making a diagnosis and developing a plan for your treatment.

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## How is tinnitus diagnosed?

The first thing your specialist will do to diagnose your condition is **to ask some questions about your symptom**. This is actually all that is necessary to reach a diagnosis and there is no special ‘tinnitus test’. The specialist may ask questions about your sleep, concentration, and mood to determine how the tinnitus is affecting you.

Of course, your specialist will want to know as much as possible about your hearing and will perform a **full examination of your ears**. Other areas such as the nose, jaw joints and throat may be examined. If the specialist thinks that you may have objective tinnitus he or she may listen around your ear and neck with a stethoscope.

In almost all cases the specialist will arrange some tests. The most common test is a **hearing test (pure tone audiogram)**. Because many people with tinnitus complain that their ears feel blocked, your specialist may request a test called **tympanometry** which measures the pressure inside the ears – this is quick and non-invasive.

There are some hearing tests that try to match the loudness and tone of a person’s tinnitus, but these tests can be difficult to perform and do not influence treatment greatly. Many specialists therefore do not request these tests.

For selected patients, the doctor may wish to order an **MRI scan**, particularly if the tinnitus is one-sided or if the hearing test is asymmetrical. For some types of tinnitus, particularly pulsatile tinnitus, other tests such as CT scans or ultrasound scans are sometimes utilised. Blood tests may occasionally be required but this is unusual in the diagnosis of tinnitus.

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## What can I do to help myself?

- Tinnitus is extremely common. Approximately 1 in 8 of the UK population have some degree of tinnitus.
- The number of people who are significantly affected by tinnitus is much smaller – probably around 1 in 200.
- For most people, the symptom is mild and does not interfere greatly with their lives.

- Many people think that tinnitus will never go away. Actually, with time, many people report that their tinnitus lessens or even disappears.
- Tinnitus is rarely a sign of a serious underlying condition.

Knowledge of these simple facts can help many people to cope with it.

Most people with tinnitus find that it appears louder if they are sitting somewhere that is very quiet. Having a little bit of quiet background sound from a radio, CD/MP3 player or television can help.

If tinnitus is intrusive at night-time when trying to sleep, adding some **quiet** sound to the bedroom environment can be helpful. This could be using a ticking clock, an electric fan or simply opening a window to let a little external sound into the room.

Many people notice that their tinnitus becomes more distressing if they become **stressed or anxious**. Learning to try and avoid or cope with these stressful situations can help.

There have been anecdotal reports that certain foods and drinks can exacerbate tinnitus. People may therefore put themselves on exclusion diets. Caution should be urged in this respect: there is a little if any hard scientific evidence to support the theory that food causes or exacerbates tinnitus.

The **British Tinnitus Association (BTA)** is a tinnitus-specific charity that offers clear and up-to-date information on its website. It also runs a helpline which can be contacted by phone or using the internet. The BTA has an online resource for people who have recently developed tinnitus, called Take on Tinnitus, which is free, but you do have to register to access the information. Contact details for the BTA and Take on Tinnitus, can be found below.

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## ABOUT THE PROCEDURE

### Treatment options

Although there is no simple pill or operation to cure most cases of tinnitus, there are several strategies that are very helpful in ameliorating the condition. Most large hospitals offer some form of tinnitus management service, usually delivered by audiologists or hearing therapists.

For people with mild tinnitus, simple explanation and reassurance may be all that is required. For more intrusive tinnitus a form of **counselling** may prove helpful. This can be administered as a standalone therapy or as part of a wider treatment strategy which combines counselling with other approaches such as sound therapy and **stress management training**.

If tinnitus is associated with hearing loss, then trying to correct the hearing loss is usually very helpful. Depending on the cause of the hearing impairment, medication, surgery or hearing aids may be needed. Some therapists will recommend **hearing aids** for tinnitus even if the hearing loss is mild and not causing significant communication difficulties.

In addition to the self-help measures discussed in the previous section, there are more sophisticated types of **sound therapy** that can be used to help people with tinnitus. At night-time this can take the form of an electronic device called an **environmental sound generator** that sits at the person's bedside and produces

low-level soothing sound to distract them from their tinnitus. Alternatively, there are many **apps** that can be downloaded for use with mobile phones, tablets and computers that generate similar sounds.

If sound is helpful but is disturbing to your partner at night time, it is possible to deliver the sound to a Bluetooth headband, a pillow with inbuilt speakers, or to a small speaker that is placed under your pillow.

During the daytime it is possible to wear a **sound generator** (sometimes known as a **masker**), which is a small device that resembles a hearing aid and produces a low level of white noise that helps to divert the person's attention from their tinnitus.

The computer chips of many modern hearing aids contain programs that can generate low levels of sound as well as amplifying external sounds. These aids are called **combination devices** and can be set up so that the patient uses it as a standard hearing aid when they are active and want to communicate, but can switch it to a sound therapy program when they are somewhere quiet.

Some hearing aids can also be used to stream music from a mobile phone or similar device using Bluetooth. Your audiologist or hearing therapist should be able to advise you about the best sound therapy options for you.

Psychological techniques such as **Cognitive Behavioural Therapy (CBT)**, **Mindfulness-based Cognitive Therapy (MBCT)** and **Acceptance and Commitment Therapy (ACT)** have been shown to be useful in the management of tinnitus. Unfortunately, it is often difficult to find a psychologist who feels they have enough knowledge about the auditory system to allow them to deliver these treatments to people with tinnitus. There are ongoing projects investigating whether these treatments can be provided over the Internet or by other healthcare professionals such as audiologists.

**Relaxation training** is helpful for those who find that stress worsens their problem. There are many online resources that can help with this, and most NHS tinnitus clinics can either teach relaxation techniques or direct people to suitable teachers.

For a very small number of people, usually those with **pulsatile tinnitus**, there may be a drug or surgical procedure that can improve or possibly even cure the problem.

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## Monitoring and re-assessment

Tinnitus is such a variable symptom that it is extremely difficult to make any hard and fast rules regarding long-term management. This is a very individual decision that will be made by you and your specialist.

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## Uncertainties

There are many questions about tinnitus that remain to be answered, regarding both the mechanisms by which it is generated and the search for more effective treatments. Various research avenues are currently being explored, including the use of certain types of drugs and electromagnetic stimulation of the auditory system.

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## Further information

Up-to-date advice on all aspects of tinnitus is available from the British Tinnitus Association at [www.tinnitus.org.uk](http://www.tinnitus.org.uk) (helpline 0800 018 0527, Mon-Fri, 9am-5pm; Text/SMS: 07537 416841; web chat via chat icon on the website).

For people who have just developed tinnitus and are looking for a one-stop support resource, Take on Tinnitus is available at [www.takeontinnitus.co.uk](http://www.takeontinnitus.co.uk).

The Royal National Institute for Deaf People (RNID), has comprehensive information regarding tinnitus and other hearing-related conditions at [www.rnid.org.uk](http://www.rnid.org.uk) (information line 0808 808 0123).

The National Institute for Health and Care Excellence (NICE) has produced a very thorough guideline on the assessment and management of tinnitus. Although this is intended for healthcare professionals, it includes a useful section for the public at [www.nice.org.uk/guidance/ng155](http://www.nice.org.uk/guidance/ng155).

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***Disclaimer:***

*This publication is designed for the information of patients. Whilst every effort has been made to ensure accuracy, the information contained may not be comprehensive and patients should not act upon it without seeking professional advice.*

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