

# Hearing (Loss) and Related Items: Tinnitus<sup>1</sup>

By [Barry Blesser](#)

## Medical Definition and Symptoms

Tinnitus is the medical term for the subjective perception of sound at one or both ears, or localized in the head, yet without any corresponding external sounds. Tinnitus is the personal and internal experience of ringing, hissing, buzzing, sizzling, whooshing, pulsing, whistling, humming, pounding, clicking, popping, ocean waves, pure tone, multiple-tones, high-tension wire, transformer noise, and even music or musical noise. The sensation of these sounds may be temporary or permanent, loud or soft, inconspicuous or overwhelming, subtle or shattering. Because of this broad definition, symptoms are generally unique to each individual. Information about tinnitus comes from research studies and from anecdotal reports from those that suffer from tinnitus. Within the general medical community, experience with diagnosing and treating tinnitus is inconsistent because it is only now being recognized as a widespread health condition. The ATA estimates that over 50 million Americans experience tinnitus to one degree or another.

For more information, visit the non-profit organization [American Tinnitus Association](#) (ATA), join their [Listserve](#), or see a list of other useful links at the end of this article.

## Situations that Trigger or Exacerbate Symptoms

Although the detailed physiological causes of tinnitus are not understood, there are several likely sources that are known to either trigger or worsen tinnitus. A few of the more common mechanisms are listed below.

- **Noise-induced hearing loss** Exposure to loud noises can damage and even destroy hair cells, called cilia, in the inner ear. Once damaged, these hair cells cannot be renewed or replaced. Up to 90 percent of all tinnitus patients have some level of hearing loss. With the advent of amplified music, there is an increasing number of young people who already have some degree of tinnitus.

---

<sup>1</sup> Initial version from Wiki pages in [eContact! 9.4 — Perte auditive et sujets connexes / Hearing \(Loss\) and Related Issues](#). Montréal: [Communauté électroacoustique canadienne / Canadian Electroacoustic Community](#), June 2007.

- **Wax build-up in the ear canal** The amount of wax produce in the ear varies by individual, and some people produce enough wax that their hearing can be compromised. With the loss of high frequency transmission, tinnitus either sounds louder or is triggered by the lack of sound.
- **Certain medications** Some drugs are toxic to the inner ear (ototoxic), while other medications produce tinnitus as a side effect without actual damage. Many over-the-counter pain medicines are known to have some ototoxic effects, especially when taken for extended durations. Ototoxicity has been reported for Salicylates (aspirin and medicines that contain aspirin), nonsteroidal anti-inflammatory drugs (Advil, Aleve, Anaprox, Clinoril, Feldene, Indocin, Lodine, Motrin, Nalfon, Naprosyn, Nuprin, Poradol, Voltarin), and antibiotics (Aminoglycosides, Erythromycin, Vancomycin, Aminoglycosidxs, Streptomycin, Kanamycin, Neomycin, Gentamycin, Tobramysin, Amikacin, Netilmicin, and others). While auditory damage is mostly temporary, returning to normal after discontinuing the medicine, there are reports of permanent tinnitus. When in doubt about a medicine, consult your doctor about ototoxic side-effects.

## Explanation for Origin of Symptoms

Psychiatric, audiologic, and neurologic researchers have identified a common basis for all forms of tinnitus: the brain creates the perception of sound. Scientists theorize that sound in a normal ear produces sufficient neural activity in the auditory cortex to prevent hyperactivity. According to this theory, when the auditory system is deprived of sensory input, it will create its own activity by amplifying its own neural noise, in essence, self-stimulating.

This theory is consistent with the fact that tinnitus is almost always accompanied by hear loss. Permanent damage to the hair cells prevents those neurons from stimulating the corresponding neural structures in the auditory cortex. This is consistent with the fact that noise induced loss usually begins at higher frequencies and tinnitus frequently has a high frequency component. Similarly, excessive earwax on the tympanic membrane blocks higher frequencies from entering the middle ear. Some people find that their tinnitus is worse in a quiet environment and that background noise provides some relief.

## No Magic Cure for Tinnitus

There is neither a miracle cure nor a magic drug that will stop these unwanted noises in your head. While there are many testimonials from individuals who have discovered a recipe for helping themselves, there are only a few scientific studies that confirm or refute these anecdotal reports. There is still much to be learned as the newest neurological research techniques are being used to study tinnitus.

There is no unequivocal evidence that any one treatment is consistently better than another. Treatments for tinnitus, like its causes, are varied. An approach that works for

one person may not work for another. Yet, many people have found relief from tinnitus. While professional experts will provide suggestions, eventually everyone becomes their own experimental guinea pig. However, one should only conduct such experiments while under the supervision of a knowledgeable and experienced medical professional. Some “cures” have dangerous side-effects and may not even be helpful.

The simplest first step is to check for earwax, and to have a medical professional remove it if present. By allowing additional sound to enter the auditory system, tinnitus is either reduced or suppressed.

Some people find that alcohol, nicotine, and caffeine can worsen their tinnitus, as can eating certain foods. Those with high sugar content, or any amount of quinine (tonic water), may make tinnitus louder. Some people with hearing loss experience relief while wearing hearing aids. Some people have used biofeedback to reduce stress, which is sometimes related to tinnitus. Others have used cognitive therapy to manage their emotional reactions rather than to tinnitus itself. Sleep is easier for some who use background white noise or low-level music. But most importantly, avoid exposure to loud noises by using ear protectors when in a noisy environment. Or better yet, avoid such places. An audiologist can conduct hearing tests and prescribe non-medical treatments, like masking or amplification.

Before conducting any form of self experimentation, one should consult with an ear, nose, and throat doctor (ENT), who can first determine if tinnitus is caused by a medical condition that requires medical treatment. Although relatively rare, tinnitus can be an indicator of something more serious.

The ATA maintains lists of self-help groups (503-248-9985 x219), which are a resource for people with tinnitus. They provide a place to share experiences, ask questions, and learning from others who have tinnitus.

## **Links to Information and Organizations Concerned with Tinnitus**

- [British Tinnitus Association](#)
- [Tinnitus Resource Blog](#)
- [Tinnitus Support Message Board](#)
- [Action for Tinnitus Research](#)
- [Tinnitus Association of Canada](#)
- [American Association of Tinnitus](#)
- [Wikipedia Tinnitus Article](#)