



LET'S TALK ABOUT . . .

TINNITUS

Key points

- A person with tinnitus often hears “ringing in the ears.”
- Tinnitus is a symptom of an underlying condition.
- Tinnitus is common and potentially distressing.
- Most people with tinnitus have some form of hearing loss.
- Most tinnitus is due to damage to the inner ear.

What is tinnitus?

Tinnitus, from the Latin word *tinnire* (to ring), is the perception of sound generated in the head. Tinnitus (pronounced “TIN-ni-tus”) is not a disorder or disease – it is a symptom of an underlying condition. Tinnitus ranges in severity from a temporary inconvenience to a chronic, lifestyle-threatening condition.

Tinnitus is caused by the background hum of the brain. Neurons (tiny fibres) in the brain continuously send information back and forth to the rest of the body. At rest, these neurons have some background activity. With tinnitus, the neurons are hyperactive, firing spontaneously with each other when there is no sound to be heard. That information is sent to the brain where it is mistaken as sound.

You may be aware of the sound in one ear or side of the head, in both ears, or in the centre of the head. The quality of sound heard ranges in pitch (highness or lowness of tone) and loudness. The sound may or may not pulse. Commonly described sounds include clicking, humming, ringing, buzzing, hissing and sizzling. The perception of music, indistinct voices with no meaning, and explosions are less common.

Tinnitus can start abruptly but usually comes on gradually. It may be continuous or may come and go.

Most people with tinnitus have some form of hearing loss, even though they may not recognize it. If the causes of hearing loss are temporary, the tinnitus often goes away.

There are two forms of tinnitus:

- **subjective tinnitus** is heard only by the patient (at least 95% of cases are subjective)
- **objective tinnitus** can be heard by a doctor with a stethoscope

People with either type of tinnitus may also have pressure in the ears (aural fullness) and dizziness.

Tinnitus is common. 43% of Canadians aged 16 to 79 experience tinnitus in their lifetime. More men than women are affected, likely because of greater exposure, in general, to loud noise at work, school or leisure. Tinnitus becomes increasingly common with greater age. It is rarely a sign of a serious medical condition. About 90% of sufferers have some hearing loss in one or both ears. 40% of people with tinnitus also have decreased sound tolerance (*hyperacusis*).

Though not life threatening, tinnitus can have a serious impact on some people’s lives and livelihoods. For example, it is the top condition for which male RCMP qualify to receive a disability pension. In most cases, however, people with tinnitus can learn to manage the condition and get on with their lives.

What causes tinnitus?

Tinnitus may happen with no apparent cause (idiopathic) or secondary to other factors including:

- **Vestibular (inner-ear) disorders** such as *acoustic neuroma*, *age-related hearing loss (presbycusis)*, *cholesteatoma*, *Ménière’s disease*, *otosclerosis*, *perilymph*

fistula, secondary endolymphatic hydrops (SEH) and semicircular canal dehiscence (SCD).

- **Other ear-related problems** such as middle ear infections, hearing loss secondary to infectious disease, ruptured eardrum, trauma and earwax blockage.
- **Neurologic injuries or disease** such as concussion, multiple sclerosis and seizure disorder.
- **Blood vessel problems** such as atherosclerosis, head and neck tumours, high blood pressure, narrowing or kinking in a neck artery or vein and malformation of capillaries. Tinnitus caused by blood vessel (vascular) problems is called **pulsatile tinnitus**. It is rare, accounting for about 5% of all tinnitus, and warrants thorough medical investigation. People with pulsatile tinnitus hear a rushing, wave-like sound that is often synchronized to their heartbeat. There have been advances in surgical treatments for pulsatile tinnitus.
- **Metabolic conditions** such as thyroid disorders, anemia and diabetes.
- **Musculoskeletal conditions** such as temporomandibular joint (TMJ) disorders and neck problems.
- **Ototoxic medications** such as aminoglycoside antibiotics, some cancer therapies (in particular platinum-based drugs), some antidepressants, and non-steroidal anti-inflammatories (NSAIDs), including high daily doses of aspirin, quinine and loop diuretics.
- **Psychogenic conditions** such as chronic or acute stress, depression and anxiety.

Acute or long-term noise exposure is a common and preventable cause of tinnitus. For example, risky listening habits - such as continuous use of ear buds or headphones and exposure to noise at rock concerts – are contributing to rising rates of tinnitus among young people.

Other suggested risk factors include obesity, smoking and exposure to second-hand smoke, alcohol use, history of arthritis, and high blood pressure (hypertension). Some studies suggest a small genetic predisposition.

The noise of an MRI scan may trigger or worsen tinnitus. Scanning sequences for the internal auditory canal (IAC) are especially noisy. Hearing protection should be available, and equipment can be set up to reduce noise exposure.

Diagnosis of tinnitus

A general practitioner usually makes a diagnosis of tinnitus. There is no objective test to measure most tinnitus. It is based on symptoms and the patient's medical history rather than lab tests, vestibular tests, or medical imaging. The doctor will ask questions about the location and type of perceived sound, particularly whether it is rhythmic or pulsing. In rare cases a stethoscope can be used to detect pulsatile tinnitus.

More investigation by an otolaryngologist is called for if tinnitus is:

- unilateral (only in one ear)
- pulsatile (the sound has a steady beat that seems in sync with the pulse)
- accompanied by a sudden change in hearing, ear pain or dizziness

Further testing and specialist referrals will likely be requested in cases where there are signs of a serious underlying medical condition.

Impact of living with tinnitus

When the brain gives tinnitus signal priority, the impact can be considerable. 7% of Canadians report having tinnitus that is bothersome enough to cause:

- disturbed sleep
- problems with concentration and focus
- difficulty hearing other sounds
- greater awareness of tinnitus in quiet surroundings
- experiencing a range of feelings including anxiety, despair, hopelessness, anger, frustration, persecution and loss of control

Treatment and management

There are no effective medical treatments for tinnitus. Surgery may be an option for people with pulsatile tinnitus.

If you have a treatable medical condition connected to your symptoms, the doctor may be able to reduce the noise. For example:

- removing impacted earwax
- treating a blood vessel condition
- treating an infection in the ear
- changing, stopping or reducing a medication
- treating a TMJ (temporomandibular joint disorder) with physiotherapy – use the Physiotherapy Association of BC's *Find a Physio* webpage to find a TMJ specialist.

Fortunately, a variety of options are available to improve a tinnitus patient's quality of life. Which option is used depends on factors such as:

- The severity of the tinnitus and how much it impacts your life. Tinnitus is not equally distressing to everyone; about 25% of people seek help.
- How hearing loss also affects you.
- Individual preference.

A personalized approach is recommended and may include one or more of the following:

Tinnitus retraining therapy (TRT)

TRT can help people habituate (grow accustomed) to their tinnitus. TRT combines sound therapy with informational counselling to reduce the emotional and fearful associations of tinnitus. TRT can also help to partly or completely reverse hyperacusis.

Research shows improvement in over 80% of people after TRT. This is significantly above the placebo effect of 40% and higher than any other available treatment or therapy. Most people notice improvement in as little as 6 to 8 weeks.

Therapy is usually done over 16 to 24 months. The average patient reports that perceived tinnitus loudness decreases by 50% after TRT. More importantly, with TRT therapy tinnitus becomes a neutral signal and no longer causes emotional reactions.

Group and individual TRT sessions are offered at the [Tinnitus Clinic at St. Paul's Hospital](#) in Vancouver. A copy of the "consult" letter from your otolaryngologist (ENT doctor) and copies of any hearing tests are required to make an appointment. Fees are not covered by MSP. Audiologists at a number of hearing clinics in BC offer private TRT sessions. Fees are not covered by MSP.

Wideband sound therapy using a sound generator

Benefits of sound therapy include making tinnitus less noticeable, fostering a sense of self control, helping retrain neural networks involved with tinnitus generation, promoting relaxation, and improving sound tolerance. Pink (more bass than white) and brown (more bass than pink) noise may be most comfortable for people with tinnitus. Use of a tabletop sound machine or sound pillows rather than in-ear devices is recommended at night to improve sleep quality.

Sound amplification

Tinnitus can be helped with sound amplification with or without a sound generator using hearing instruments (aids). Most modern hearing aids have a sound generator option. Addressing even mild hearing loss can decrease tinnitus awareness.

Other benefits of using hearing aids include improving listening ease and sound tolerance, promoting relaxation, and disrupting neural activity. The success rate of using hearing aids as a standalone treatment for tinnitus is about 15%. It goes up to over 80% when used in combination with [tinnitus retraining therapy \(TRT\)](#). [Financial help](#) to purchase hearing aids may be available.

Medication

Drugs cannot cure tinnitus but, in some cases, antidepressants and anti-anxiety medications may help reduce symptoms or complications.

Complementary and alternative medicine (CAM)

There is little evidence that CAM treatments such as acupuncture, hypnosis, ginkgo biloba, melatonin, zinc supplements and B vitamins work for tinnitus.

Surgical treatments

Minimally invasive surgery may be done on patients with pulsatile tinnitus caused by narrowing of veins in the brain (venous sinus stenosis). A metal stent is inserted in the narrowed vein to restore healthy blood flow. The procedure can reduce or eliminate

the pulsating noise in about 90% of these patients.

Lifestyle changes

For some people, certain lifestyle changes reduce the annoyance of tinnitus sound. These ideas may help:

- Reduce your exposure to loud noises that may make your tinnitus worse. Wear hearing protection when you cannot avoid being in a noisy environment.
- Evaluate your diet. Some people find tinnitus improves by reducing salt consumption.
- When in a quiet room, mask the noise from tinnitus by using a fan or playing soft music.
- Manage stress – it can make tinnitus worse for many people. Practicing mindfulness-based stress reduction can help you learn to refocus your mind on something other than your tinnitus. It can be done through self-study, classes or through an online course tailored for tinnitus relief such as Mindfulness Based Tinnitus Stress Reduction. Other approaches to managing stress include practicing relaxation techniques, therapeutic massage, and physical activity.
- Reduce alcohol, caffeine and nicotine consumption. They may increase tinnitus symptoms by increasing greater blood flow, particularly in the inner ear area.
- Get adequate sleep – lack of sleep often makes tinnitus worse.
- Avoid medications known to increase tinnitus such as aspirin, non-steroidal anti-inflammatory (NSAIDs) and preparations containing quinine.

Coping and support

Cognitive behavioural therapy (CBT) can be an effective tool for developing strategies to move forward with your life despite your tinnitus.

Simply understanding tinnitus better makes it less annoying for some people. You may find it helpful to learn as much as you can about tinnitus, both from this site and elsewhere.

Some people find it helpful to connect with others who have the same condition. Support groups, whether online or in-person, can help you share information and tips and reassure you that you're not alone.

What to expect in the future

Treatment of underlying conditions is essential and may resolve tinnitus.

There is no cure for the vast majority of tinnitus. However, evidence-based research suggests a combination of education, sound therapy and CBT-based counselling is most effective. Although this doesn't stop the perception of tinnitus, it can improve quality of life by reducing awareness of – and reaction to – tinnitus.

Hopefully research will lead to the development of new technological devices to improve treatment for patients with tinnitus.

More resources and sources

View more tinnitus resources as well as sources used for this handout: <https://bit.ly/35gkACv>

Reviewed August 2019

If you find the information in this handout valuable, **we ask you for your help**. The cause of supporting those affected by balance and dizziness disorders with up-to-date, evidence-based information written for Canadians, needs you.

Will you consider becoming its champion by making a gift online or by mail?

This handout is intended as a general introduction to the topic. As each person is affected differently, speak with your health care professional for individual advice. Copyright © BC Balance and Dizziness. Individuals may print a copy for their own use. Professional members of BC Balance and Dizziness may distribute copies for their own clients. Written permission is required from BC Balance and Dizziness for all other uses.

Contact BC Balance and Dizziness:

325-5525 West Boulevard
Vancouver, BC V6M 3W6

info@balanceanddizziness.org

Lower Mainland: 604-878-8383
Toll free: 1-866-780-2233