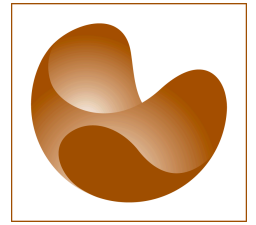
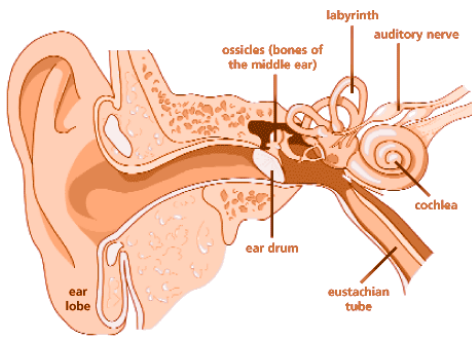


A DISCUSSION OF TINNITUS



Head noise, or tinnitus, is common. It may be intermittent or constant, mild or severe, and vary from a low roar to a high-pitched type of sound. It may be subjective (audible only to the patient) or objective (audible to others). It may or may not be associated with hearing impairment.



Tinnitus must always be thought of as a symptom and not a disease, just as pain in the arm or leg is a symptom and not a disease. Because the function of the auditory (hearing) nerve is to carry sound, when it is irritated from any cause the brain interprets this impulse as noise.

Tinnitus audible to both the patient and others is called objective tinnitus. The most common form of tinnitus is audible only to the patient; this is called subjective tinnitus.

OBJECTIVE TINNITUS

Objective tinnitus may be due to muscle spasms in the middle ear or Eustachian tube; alternatively it may be due to abnormalities in the blood vessels surrounding the ear.

Muscular Tinnitus

There are two muscles in the middle ear; on occasion one or both of these muscles may begin to contract rhythmically for brief periods of time, for no apparent reason. Because the muscles are attached to one of the middle ear (hearing) bones these contractions may result in a repetitious sound in the ear. The clicking, although annoying, is harmless and usually subsides without treatment.

Should the muscle spasm continue, medical treatment (muscle relaxants) or surgery (cutting the spastic muscle) may be necessary.

Muscular tinnitus resulting from spasm of one of the various muscles of the throat attached to the Eustachian tube is uncommon, but can also result in episodes of rhythmic clicking in the ear. This is called palatal myoclonus and usually responds to muscle relaxants.

Vascular Tinnitus

There are two large blood vessels intimately associated with the middle and inner ear: the jugular vein and the carotid artery. These are the major blood vessels supplying the brain.

It is not uncommon to hear one's heartbeat or to hear the blood circulating through these large vessels. This may be noticeable when an individual has a fever; a middle ear infection, or after engaging in strenuous exercise. This circulation increase is temporary and usually subsides when the exertion or fever are reduced. It is not audible to others.

On occasion the sound of blood circulation will be audible to others. This can be due to thickening of the blood vessel wall (a normal occurrence as one grows older), a kink in the vessel or an abnormal growth on the vessel wall. Further testing may be necessary to determine the cause and treatment indicated in these uncommon cases.

SUBJECTIVE TINNITUS

External Ear Tinnitus

Obstruction of the external ear canal by wax, foreign bodies or swelling may produce a hearing impairment or pressure on the eardrum. This frequently results in a pulsating type of tinnitus.

Middle Ear Tinnitus

Disturbances of function of the middle ear may result from allergy, infection, injury, scar tissue or impaired motion of the three middle ear bones. These disturbances often result in hearing impairment and may lead to head noise..

Inner Ear Tinnitus

Any condition which disturbs the fluid pressure in the inner ear chamber may produce head noises. This may be due to infection, allergy or circulatory disturbances which produce changes not only in the fluid, but also in the encasing membranes of the inner ear:

Hearing Nerve and Brain Tinnitus

The nerve pathways and brain are the most delicate structures of the hearing mechanism. The slightest swelling or interference with these delicate cells from any cause readily produces impairment of function and irritation. This may occur from a variety of causes: infection; allergic swelling, systemic diseases, either acute or chronic, sudden exposure to a blast of sound or prolonged exposure to high noise levels in susceptible persons, certain drugs, and minute changes in the blood supply with resultant changes in the nutrition to the cells.

HEARING IMPAIRMENT

Head noise or tinnitus may or may not be associated with hearing impairment. After reviewing the many causes of this symptom it is easy to understand why the hearing may at times be affected when tinnitus is present. If a hearing loss coexists with tinnitus, the severity of the head noise is not an index as to the future course of the hearing impairment. Many persons with tinnitus have the erroneous fear they are going to lose their hearing. This is an unnecessary fear.

STRESS AND DEPRESSION

Stress, physical or emotional, is present in everyone's life periodically. In some it is chronic and can result in symptoms or lead to depression. At times a symptom such as tinnitus may in itself lead to depression and this can then make the tinnitus more bothersome; a vicious cycle develops.

Knowing this, we may recommend that a patient with severe tinnitus be treated with antidepressants or anti-anxiety medications. Patients of this type are also the ones who are most likely to benefit from biofeedback treatment.

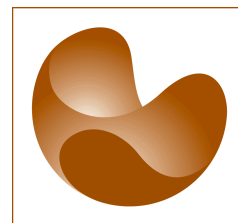
TREATMENT

If the examination reveals a local or general cause of the head noise, correction of the problem may alleviate the tinnitus. In most cases however, there is no medical or surgical treatment which will eliminate tinnitus.

General Measures

1. Avoid all forms of loud sound. If you must be exposed, use ear protectors such as earplugs or earmuffs. If you are exposed to certain sounds which increase our head noise, make it a point not to repeat that experience.
2. Make every effort to avoid nervous anxiety, as this only stimulates an already tense auditory system.
3. Make every attempt to obtain adequate rest and avoid overfatigue.
4. The use of nerve stimulants such as caffeine, alcohol and smoking is to be avoided.
5. Learn as quickly as possible to accept the existence of the head noise as an annoying reality and then try to completely ignore it as much as possible.
6. Tinnitus will not cause you to go deaf and will not result in you losing your mind, so forget such distracting and terrifying thoughts.
7. Tinnitus is usually more marked after one goes to bed and the surroundings become quiet. Any white noise in the room, will serve to mask the irritating head noises and make them much less noticeable. Try tuning the radio in between radio stations and increase the sound level to the same as that of your tinnitus. Alternatively websites such as <http://www.noiserelief.com> provide downloadable white noise tracks.

8. If one sleeps in an elevated position with one or two pillows, less congestion to the head will result and the tinnitus may be less noticeable.
9. Learn relaxation therapies and consider other treatments such as Tai-chi, yoga, massage, acupuncture, acu-pressure and hypnosis



Hearing Aid

When tinnitus is associated with a hearing impairment, even a mild one, the use of a hearing aid in the involved ear is frequently very effective in reducing the awareness of the head noise by "masking out" the tinnitus.

Biofeedback Training

Biofeedback training is effective in reducing the intensity of tinnitus in some patients. Treatment consists of biofeedback exercises in hourly sessions, in which the patient learns to control circulation to various parts of the body and relax muscles attached to the head. When a patient is able to accomplish this type of relaxation, tinnitus often subsides.

Should you be interested in treatment, we are able to refer you to the Concord Hospital Tinnitus Clinic.

Neuromonics Tinnitus Treatment

The Neuromonics device was invented in Australia and is a form of tinnitus therapy, designed to retrain the brain to not hear the tinnitus. The device resembles an MP3 player with headphones and is worn for 1 to 2 hours a day over a period of weeks to months. Research suggests good outcomes. This treatment is a good



option if hearing is near normal. If you are interested in the treatment contact our Norwest office for further advice.

Adapted with permission from the Patient Discussion Booklet American Academy of Otolaryngology Head & Neck Surgery and the Australian Tinnitus Association tips sheet.