X-Plain
Tinnitus

Reference Summary

Introduction

Tinnitus causes a person to hear a persistent sound in the ear when no sound exists.

According to the American Tinnitus Association, at least 12 million Americans have tinnitus. Of those people, at least 1 million experience it so severely that it interferes with their daily lives.

Tinnitus is associated with many forms of hearing loss. It can also be a symptom of other health problems.

This reference summary will help you understand tinnitus. Included are its symptoms, causes, treatment options, and tips for coping with tinnitus.

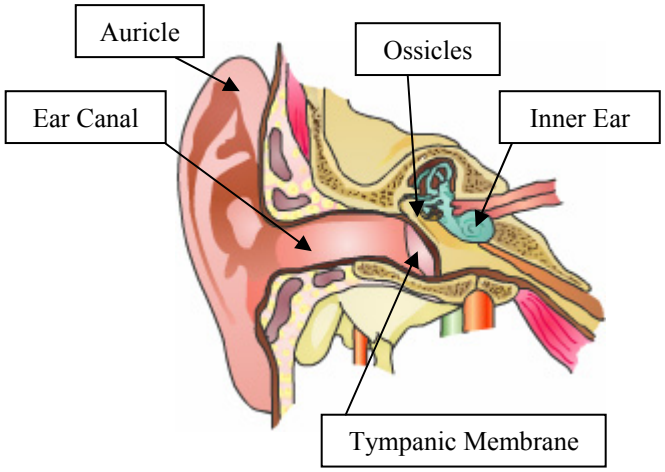
Anatomy & Hearing

The sound people with tinnitus hear is not present in the environment. It comes from inside the ear.

Our ears are very specialized organs that allow us to hear and to keep our balance.

The ear has three parts:

- The outer ear, which includes the auricle and the ear canal. The ear canal goes inside the ear to the tympanic membrane.
- The middle ear, which is made of three small bones called the ossicles.
- The inner ear.



The *auricle* is cartilage covered with skin. Unlike bone, ear cartilage continues to grow throughout life,

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which is why older people usually have bigger ears than younger people.

The auricle acts like a satellite dish that collects sound waves, which are vibrations in the air.

Sound waves enter the ear canal and cause the eardrum to vibrate. When the eardrum, or tympanic membrane, vibrates, the three small bones of the middle ear also vibrate and send the vibration to the inner ear.

Vibrations sent to the inner ear are relayed to an organ inside the inner ear called the *cochlea*. The cochlea has a snail-like shape and inside of it vibrations are changed into electrical signals.

The surface of the cochlea is covered with thousands of microscopic hairs that come out of hearing cells.

When sound vibrations enter the cochlea, the hairs move accordingly. The movement of the hairs starts an electrical signal in each hearing cell.

A nerve called the *eighth nerve* carries the electrical signals to the brain, which understands them as sounds.

If the hearing cells of the cochlea are damaged, they incorrectly start electrical signals that the brain interprets as sound.

Symptoms

Tinnitus occurs when a person hears a persistent sound in the ears and no sound really exists. The sound is usually a ringing, clicking, roaring, or hissing. Tinnitus may be heard in one or both ears.

The sound from tinnitus is never words or melodies.

Causes

Many diseases can cause tinnitus. For this reason, tinnitus is often viewed as a symptom of other conditions rather than a disease with its own symptoms.

The most common cause of tinnitus is damage to the auditory cells in the inner ear. This is due to age-related hearing loss or exposure to very loud noises.

Other causes of tinnitus include:

- medication: more than 200 medicines can cause tinnitus
- injury to the head or neck
- stiffening of the bones in the middle ear
- tumor in the brain or ears

The ear itself can sometimes hear the blood flow around the ear. This is usually because of hypertension or problems with arteries. This can result in tinnitus like symptoms.

Hearing loss can also worsen tinnitus because without the ability to hear noises outside the ear very well, it becomes easier to hear noise from inside the ear. This is true for the following conditions that can cause tinnitus:

- a ruptured eardrum
- an ear infection
- build-up of wax in the ear

Diagnosis

You should see a doctor if tinnitus is persistent or experienced along with hearing loss or dizziness.

An otolaryngologist is a doctor that specializes in ear, nose, and throat problems. Otolaryngologists are also called ENT doctors.

In order to find the cause of tinnitus, an otolaryngologist takes a detailed medical history and a physical exam, including the ears and hearing. The ENT doctor may also request a hearing test. An audiologist, a person who is specially trained to measure hearing, usually performs the hearing test.

If you have tinnitus, remember to tell the doctor about all medications you may be taking. Tinnitus can be caused by more than 200 medications.

The doctor may also request a CAT scan or MRI of the ears and brain to make sure a brain tumor is not causing it.

Treatment

The treatment of tinnitus depends on its cause. If tinnitus is due to medication, stopping the medication may help.

If tinnitus is due to a build-up of wax or an ear infection, draining the wax or treating the infection may help.

If the tinnitus is due to tumors or blood vessel problems, treating these conditions may help or cure tinnitus.

Tinnitus caused by damage to hearing cells cannot be cured. However, several treatments exist. A patient may need to try more than one treatment to find the one that works best. Hearing aids and maskers are examples of such treatments.

Wearing a hearing aid makes it easier for to hear sounds by making them louder. The better outside noise can be heard, the less a patient will notice tinnitus. Maskers are small electronic devices that use sound to make tinnitus less noticeable. Maskers do not make tinnitus go away; they make the tinnitus sound seem softer.

Some people sleep better when they use maskers. Listening to static at a low volume on the radio or using *bedside maskers* can help. Bedside maskers are devices that are placed by the bed instead of behind the ear. They can help the patient ignore tinnitus and fall asleep.

Some medicines may ease tinnitus. However, any medication may have side effects, so it is important to be aware of them.

Patients with tinnitus can learn how to stop thinking about their tinnitus. This is the purpose of tinnitus retraining therapy. This treatment uses a combination of counseling and maskers. Tinnitus retraining therapy takes time, but it can be very helpful.

Coping Tips

If you have tinnitus, here are some tips for coping with it.

Relaxation

Relaxing is very helpful if the noise in your ears frustrates you. Stress makes tinnitus seem worse. By relaxing, you have a chance to rest and deal with the sound.

Control blood pressure and cholesterol

Smoking, alcohol, and caffeine can make tinnitus worse. This is mostly true if tinnitus is caused by blood vessel problems.

Protect your hearing

If you are regularly exposed to loud noise at home or work, wear earplugs or special earmuffs to preserve your hearing and keep tinnitus from getting worse.

Body language

If it is hard for you to hear over your tinnitus, ask your friends and family to look at you when they talk so you can see their faces. Seeing facial expressions and body language may help you understand them better.

Communicate

Ask people to speak louder, but not shout. Also, tell them they do not have to talk slowly, just more clearly.

Share your feelings

Counseling can help patients with tinnitus who become depressed. Talking with a counselor or people in tinnitus support groups can help. They share experiences, offer support, and learn about different coping strategies.

Summary

Tinnitus occurs when a person hears a persistent sound in the ear when no sound really exists. Tinnitus is a common condition that affects about 12 million Americans.

Tinnitus is mostly due to hearing loss caused by aging. However, several other diseases and conditions can cause it.

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Thanks to advances in medicine, treatment options and medical devices are available to treat tinnitus.

Tinnitus is more of an uncomfortable symptom than a sign of a serious underlying medical condition. Most people with tinnitus live healthy lives and learn how to cope with the condition!