TINNITUS TODAY

"An Ounce of Prevention is Worth a Pound of Cure"

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Introduction

Tinnitus is a symptom … not a disease. It's important to always remember this simple fact. When someone begins noticing an unusual sound in his or her ears, whether it's a ringing, buzzing, roaring, cricket sound, or any other sound or combination of sounds, the first logical step is to discover the underlying disorder related to the tinnitus. The exact type of tinnitus sound that a person hears is not important diagnostically. Almost all tinnitus is associated with a disorder in the auditory system, that is, somewhere within the ear or the nerves that carry signals from the inner ear to the hearing parts of the brain. By analyzing information from the patient (a history) in combination with the results of diagnostic test procedures, a physician and an audiologist (non-medical hearing specialist) can usually rule out the diseases that include tinnitus as a symptom. The majority of persons with tinnitus do not have an active disease or pathology but, rather, damage or dysfunction within the inner ear that is related to exposure to high levels of sound and/or to the aging process. Nonetheless, until disease or pathology is ruled out with a thorough diagnostic assessment, it is irresponsible to simply offer to a person with tinnitus reassurance that "it's nothing to be concerned about … most people hear sounds like that".

Persistent or almost constant tinnitus is very different from the temporary ringing type tinnitus that most people notice from time to time. Spontaneous transient tinnitus typically occurs abruptly, often when a person is in a quiet setting. The ringing sound lasts only seconds, and then fades away. Hearing might be muffled during this brief time period. The precise scientific explanation for spontaneous transient tinnitus is not known, but there is general agreement that it is a normal auditory experience, and not a reason for concern about health or hearing.

There is evidence dating back more than 50 years that tinnitus can be viewed as a normal auditory experience. In 1953, an otologist (medical doctor specializing

in the ear) and an audiologist, both from New York City, conducted a very clever study (Heller and Bergman, 1953). Eighty people were enrolled as subjects in the study. Dr. Morris Heller verified by medical history and a physical examination that the subjects had no ear disease, while Dr. Moe Bergman performed an audiogram (simple test of hearing for tones) to confirm that the subjects had normal hearing sensitivity. One by one, the subjects were placed in a specialized sound-treated room (an anechoic chamber). Upon emerging from the room, the subjects were asked if they heard anything. The vast majority (75 out of the 80) of the normal hearing subjects (94%) reported that they heard some type of sound in the room. The three sounds described most often by the subjects were "humming", "buzzing", and "ringing", although a diverse collection of 23 other sounds were also noted (e.g., whistling, squeaking, and a thumping pulsation). This early study reported by Heller and Bergman (1953) showed that almost everyone will hear sounds … that is, tinnitus … in a very quiet setting.

> *"Tinnitus, which is subaudible, may be a physiological phenomenon in an intact auditory apparatus".*
> *(Heller and Bergman, 1953, p. 82)*

In this brief article, I discuss two forms of prevention related to tinnitus. The first is the prevention of damage to the inner ear, and other health factors, that are often associated with the onset of noticeable and persistent tinnitus. It's reasonable to assume that most people who are reading an article in *Tinnitus Today* already hear their tinnitus. You might, therefore, think it's too late to be considering "prevention" of an existing problem. Indeed, you might even regret that you didn't prevent damage to the ear that seems to be associated you're your tinnitus. That consideration actually leads to another example of prevention … the prevention of deteriorating quality of life sometimes brought about by persistent tinnitus. For most people with a hearing loss, tinnitus does not affecting their quality of life.

Hearing Protection … The First Line of Defense

The old adage “an ounce of prevention is worth a pound of cure” certainly applies in any discussion of the best treatment strategy for tinnitus. But how can a person prevent tinnitus or, more accurately, what can a person do to minimize the likelihood of perceiving (hearing) tinnitus? As noted at the outset of this article, the most common audiologic finding in persons with tinnitus is hearing loss due to exposure to high intensity sounds. Also, the most common single cause of hearing loss in adults is the exposure to excessive sound levels. Noise-induced auditory dysfunction can be prevented by adherence to hearing conservation strategies, such as avoidance of extremely loud sounds and the use of sound-attenuating devices (well-fitting earplugs, conventional earmuff, or sound-canceling earphones) during exposure to potentially damaging levels of sound. As a rule of thumb, sound levels are high enough to cause inner ear damage when you need to shout to be heard above the noise. The source or type of sound, for example, rock or classic music, gunfire, machinery noise (e.g., lawn mowers, circular saws), factory noise, or fireworks, is not important in determining risk for hearing loss,. The two most important factors that determine the risk for hearing loss are the intensity (loudness) of the sound and the duration (length of time) that a person is exposed to the sound. However, there is also a genetic factor in the susceptibility to noise-induced hearing loss. That is, some people are more likely to sustain damage to the tiny and delicate hair cells in the inner ear than others. Two people may be exposed to the same levels of noise for the duration of time, for example, two factor workers or two musicians in an orchestra or a rock band. Despite the similarity in sound exposure, one person will develop a significant and permanent hearing loss, whereas hearing sensitivity for the other person will remain normal. In addition to noise-exposure, other risk factors are sometimes associated with the onset of the perception on tinnitus, among them middle ear problems (pressure imbalances behind the eardrum due to Eustachian tube dysfunction), sinus disease, temporal mandibular joint (TMJ) disorders, some chronic diseases (e.g., arthritis), high levels of personal stress,

and drugs used for the medical treatment of health problems apparently unrelated to tinnitus. In my clinical experience, a person will often first notice tinnitus when two or more of these risk factors occur during the same period of time. Prompt medical or, as appropriate non-medical, attention to each of these disorders may be helpful in preventing the perception of persistent tinnitus.

Professional Care… the Second Line of Defense

You may already have bothersome tinnitus, but you can prevent further deterioration in the quality of your life. In fact, you can almost always return to the quality of life you enjoyed in the past …before it was negatively affected by tinnitus. Knowledge is an essential ingredient in the process of restoring quality of life and of 'recovering' from debilitating effects of tinnitus. For a person with tinnitus, knowledge is truly power. What does a person with tinnitus need to know?

"Knowledge is Power"
(Francis Bacon)

- Tinnitus is a symptom, not a disease or pathology. The first logical step in the "treatment" of tinnitus is to determine whether the tinnitus is a symptom of a medically treatable disease, and then to receive appropriate medical management. Each year, millions of Americans experience tinnitus that is unrelated to active ear disease or pathology.
- A person with tinnitus needs to know as much as possible about their hearing. Following a simple clinical examination, a general physician often tells the person with tinnitus "there's nothing wrong with your hearing." This statement is rarely accurate. A detailed audiologic assessment almost always will document disruption in normal auditory functioning. The common and relatively minor form of auditory dysfunction due to aging or noise exposure poses no health risk, and it may not

require audiologic management (e.g., a hearing aid). However, for the person who has very bothersome tinnitus, documentation of the auditory problem validates their concerns about the tinnitus, and provides an understandable explanation for the tinnitus. This is an important step in the effective management of the tinnitus.

- Environmental sound enrichment can minimize the perception of tinnitus and, over time, contribute to retraining of the brain to ignore or become "habituated" to the tinnitus.

> *"Sometimes, the silence can be like thunder."*
> *Bob Dylan (from the album "Time Out of Mind")*

People with tinnitus should avoid silence and, instead, surround themselves with pleasant sound. Inexpensive devices can be purchased at a number of stores for the generation of constant, low-level, pleasant background sound. Sound generation devices should be utilized at all times, in the home and the office, by the person with tinnitus. At bedtime, a difficult time for most people with tinnitus, a special sound-generating pillow will offer the same advantages. In the presence of the soft background sound, the brain must work harder to detect the tinnitus. Since the background sound is not important or meaningful, the brain will gradually tune it out and, usually, along with the background sound the tinnitus.

Closing Comment

Every person with tinnitus has reason to be hopeful. With the adherence to some simple strategies, as noted in this article, it is possible to prevent the onset of bothersome tinnitus. There is no "magic pill" for the treatment of tinnitus. However, with the services of a professional experienced in the assessment and management of tinnitus, people with tinnitus that negatively affects their quality of

life will usually return to the point where the tinnitus no longer persistent, and no longer a concern.

The American Tinnitus Association is a source of information about tinnitus. Accurate and up-to-date information about tinnitus is also available from the American Academy of Audiology (AAA), accessed easily on the website: www.audiology.org.

Reference

Heller MF and Bergman M. (1953). Tinnitus in normally hearing persons. *Annals of Otology, Laryngology, and Rhinology 62*: 73-93.