Audiological Medicine
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713782286

Tinnitus: How you can help yourself!

Richard S. Tyler [ab]; Son-A Chang [a]; Anne Gehringer [a]; Stephanie Gogel [a]
[a] Departments of Otolaryngology Head and Neck Surgery, The University of Iowa, Iowa City, Iowa, USA [b] Speech Pathology and Audiology, The University of Iowa, Iowa City, Iowa, USA

Online Publication Date: 01 January 2008

To cite this Article Tyler, Richard S., Chang, Son-A, Gehringer, Anne and Gogel, Stephanie(2008)'Tinnitus: How you can help yourself!',Audiological Medicine,6:1,85 — 91
To link to this Article: DOI: 10.1080/16513860801912281
URL: http://dx.doi.org/10.1080/16513860801912281

Audiological Medicine. 2008; 6: 85–91

informa
healthcare

Tinnitus: How you can help yourself!

RICHARD S. TYLER [1,2], SON-A CHANG[1], ANNE GEHRINGER[1] & STEPHANIE GOGEL[1]

Departments of [1]Otolaryngology Head and Neck Surgery and [2]Speech Pathology and Audiology, The University of Iowa, Iowa City, Iowa, USA

Abstract
Many tinnitus sufferers are told they need to learn to live with it. In some areas there may be no local services that provide competent counseling and sound therapy. In other cases, a sufferer might simply choose to help himself or herself. We provide a detailed example of a program to facilitate a self-help approach to tinnitus. This includes: 1) a description of tinnitus; 2) comments about what causes tinnitus; 3) a description of treatments available; 4) a discussion about things tinnitus sufferers can do to help themselves; 5) advice on seeking professional help; 6) strategies for assessing claims of new treatments; and 7) a positive discussion of hopeful future directions and approaches.

Key words: *Tinnitus, self-help, Tinnitus Activities Therapy, counseling, sound therapy*

Overview for the professional

Although there are several options available to assist healthcare professionals in treating tinnitus, for most tinnitus patients there is no cure. A wide variety of counseling and sound therapies is available, and most are likely very helpful (for a recent review of different procedures, see Tyler (1)). In many situations it will be necessary for the patient to take an active role in either coping with or accepting tinnitus. In addition, there are tinnitus sufferers who are not yet ready for formal counseling and sound therapy procedures. Thus, many patients would benefit from information and activities to facilitate helping themselves. Several self-help books are available for tinnitus patients (2–8), and suggestions have been made for producing brochures (9) and even providing information on the internet (10). The purpose of the following article is to provide a model of both the information that might be included as well as an example of how patients can be encouraged to participate in a positive self-help approach. The article is structured as if it were to be given as a handout to the patient, since that is the final product we are attempting to demonstrate.

Introduction

What on earth is this? This might be the question that people can have when they first notice a sound from inside their own head. Tinnitus is the perception of a sound in the ear or head, in the absence of an external sound. It is frequently called 'ringing in the ears', but people describe tinnitus in many different ways (e.g. buzzing, cricket sound, hissing and more). The sound may be constant or intermittent, may occur in one or both ears, and may vary in pitch and loudness. People with tinnitus often report problems in four general areas:

- Thoughts and emotions
- Hearing
- Sleep
- Concentration

These difficulties can lead to problems at work, among family and friends, and interfere with social outings and hobbies, but as everyone is different, the way one is affected by tinnitus is different. There are many things you can do to lessen and even eliminate the problems that some people first associate with tinnitus.

One of the first things you can do when you are concerned about tinnitus is to acquire some knowledge about what it is, what causes it, and what treatments are available.

What is tinnitus?

Tinnitus is not a disease, but a symptom. Many people have 'tinnitus', but it likely has many different

Correspondence: R. S. Tyler, Department of Otolaryngology, University of Iowa, 200 Hawkins Dr, 21167 PFP, Iowa City, IA 52242, USA. E-mail: Rich-Tyler@uiowa.edu

ISSN 1651-386X print/ISSN 1651-3835 online
DOI: 10.1080/16513860801912281

causes and there are many different mechanisms responsible for it. It will likely need many different treatments or cures, so basically tinnitus is when you perceive an external sound, but there really isn't a sound there outside of your head. It is not a phantom sound, it is a real sound that you hear.

Tinnitus does indicate that something is wrong with your auditory system. While a number of theories exist, the actual mechanism responsible for coding tinnitus in your nervous system is unknown. And remember, because tinnitus is a symptom, there might be many different mechanisms responsible for tinnitus.

We do know that when you hear real sounds in the environment, a bird chirping or someone's voice, it causes activity in the hearing nervous system. This activity starts in the cochlea (the peripheral sensory organ of hearing) and is carried by nerve fibres through your brainstem up the brain. When the hearing region of your brain is active, the brain can send signals such as ''I hear a bird'', or 'that man just asked 'how are you today?' '' Tinnitus arises because, in the absence of external sounds, the hearing nerve fibres become active. The cause of this hyperactivity might be in the cochlea, the brainstem, or the higher brain. Wherever it originates, spontaneous nerve activity works its way up the brain. The brain signals ''I hear a ringing'' or ''I hear a cricket'' even when there is no ringing or cricket out there. Of course, if you become anxious, depressed, or concerned about your tinnitus, other areas of the brain, called the autonomic nervous system, or the amygdala, also become activated.

What causes tinnitus?

There are many different causes of tinnitus. For many, the cause is unknown. The most common cause is noise exposure (protect your ears from noise – it can make your tinnitus worse). Tinnitus can be a side-effect of taking medications. It can even occur as part of the normal aging process. It also can coexist with various ear problems, such as Menière's disease.

Noise induced hearing loss and noise-induced tinnitus often go hand in hand. Environmental sounds that can cause noise-induced hearing loss can also cause tinnitus. There are three factors that contribute to noise-induced tinnitus. First is the noise level. The higher the noise level, the more likely you will get tinnitus. Second is the duration of noise exposure. The longer the duration of your exposure, the more likely you will get noise-induced tinnitus. Having brief periods of rest (quiet periods), between noise exposures, will likely reduce the chance of noise-induced tinnitus. Third is the presence of impulsive sounds. The presence of impulses in a sound is known to make the sound more hazardous to your hearing. This is the reason that music can cause hearing loss and tinnitus just like other forms of sound (or noise). Usually music is composed by impulsive sounds, sometimes fluctuating drastically, and if a person listens to loud music for a long time, tinnitus might be induced.

Generally speaking, anything that causes hearing loss can also cause tinnitus. In the general population about 1 person in 100 has a bothersome tinnitus, so it is quite common! In the older population, about one in ten or even one in five people have problematic tinnitus. However, many more people experience tinnitus but are not disturbed by it.

What treatments are available?

There is no cure for tinnitus, at least not yet (more about this under 'Hope').

Medications

There are no medications that are widely agreed upon to treat tinnitus, no well-controlled studies with appropriate measurements that have been replicated by others. There are medications for the general treatment of sleep, depression and anxiety, and some tinnitus sufferers use these successfully. Medications (even aspirin) can cause tinnitus. Sometimes you might be able to stop taking a medication prescribed for you, and your tinnitus might go away. However, if someone has prescribed the medication for you, it is essential that you discuss this with your healthcare provider before you stop taking the medication.

Surgery

There are rare forms of tinnitus that might arise behind your eardrum in the middle ear cavity. These are caused by muscles twitching or from blood-vessel abnormalities. Sometimes these can be remedied with an operation. Also rare is a hearing/balance nerve tumor. It is very rarely a dangerous tumor but this can be surgically removed if necessary. (See your physician).

Hearing Aids

Tinnitus is almost always accompanied by hearing loss. If your hearing loss is sufficient and you are having trouble with communication, you could very likely benefit from using hearing aids. Many people are reluctant to admit to their hearing loss, but once they hear so much better from their hearing aids,

they don't want to be without them. Hearing is critical to our socialization as well as communication.

Hearing aids can help tinnitus by:

- improving your communication and therefore relieving you of some of the stress of trying to listen very carefully.
- amplifying some background sound, which can provide relief to many tinnitus sufferers.

Furthermore, your audiologist can set or adjust your hearing aids to maximize the likelihood that they will help you with your tinnitus. See your audiologist!

Patients who have both hearing loss and tinnitus are often encouraged to manage their hearing loss first. As hearing loss can often be dealt with through amplification and communication may be easier, some patients report that dealing with their tinnitus is more manageable.

Other wearable devices that produce noise or music

In addition to hearing aids, there are other wearable devices intended to help tinnitus patients. First, there are noise generators that look like hearing aids, only instead of amplifying sound, they produce a low-level 'sssshhhhhhhhh' sound. For many with tinnitus, the low-level background noise reduces the loudness or prominence of the tinnitus. It also gives the patient some control. Secondly, there are hearing aids that are combined with a noise generator in the same unit. These are for people with communication difficulties due to hearing loss, and who also wish to use the background noise. Thirdly, there is a new approach that uses noise and specially altered music. Both sounds are frequency shaped based on your hearing loss. There are two phases to the program along with a specific counseling package. See your audiologist.

Counseling and sound therapy

There are many different approaches to what is generally referred to as Counseling and Sound Therapy. These are usually administered by an audiologist and/or a psychologist. The goal is usually not to make your tinnitus go away. Instead, the idea is that:

- you don't notice your tinnitus as often.
- when you do notice your tinnitus, it is not as troublesome.
- when it is troublesome, you have some coping strategies.

Counseling. This typically examines the reactions one has to the tinnitus and discusses strategies to learn to respond to tinnitus in a more positive way. Often, patients are experiencing difficulty related to their hearing, sleep, concentration, and overall emotional well-being. Many of the counseling procedures examine how you react to things you are concerned about, and discuss how you can change your reactions. Some procedures examine your thoughts and beliefs about tinnitus, whereas others might emphasize acceptance.

Sound therapy. This is the use of background sound to reduce the prominence of the tinnitus or to reduce its loudness. Hearing aids and the wearable devices mentioned above are part of sound therapy. Sound therapy can be used to partially mask an individual's tinnitus, in which the patient hears both their tinnitus and the background sound. It can also be used to totally mask a patient's tinnitus in some situations. You need to be cautious that the noise is not damaging or making your tinnitus worse.

Non-wearable devices can also be used in sound therapy. These include radio, television, music playback devices and specific sound machines (for example, some produce the sound of waves or waterfalls). Some devices can be used at bedtime to facilitate sleep (and have accessories designed to go under your pillow).

Other treatments

There are many other treatments that have been offered, and there will be many more in the coming months. Remember, there is no cure. No treatments have been shown to cure tinnitus. There is no evidence to indicate that acupuncture is helpful. The usefulness of dietary supplements is not clear. Some of these treatments might help some patients. Remember, there are different types of tinnitus that might need different treatments. However, in our opinion, most of the scientific community would agree that there is insufficient evidence to agree that any should be seen as a cure. Furthermore, some 'treatments' can even be harmful.

Things you can do!

In this section, we discuss some things for you to do on your own. They are based on what we refer to as Tinnitus Activities Therapy (e.g. Tyler et al. (11)) and have evolved from our tinnitus management program from the 1980s. There are also several excellent self-help books for tinnitus, including ones by Hallam (3), Henry and Wilson (4), Davis (2) and

Tyler (5). There are also some chapters written for professionals to motivate their patients (9,10).

Thoughts and emotions

The way you think about your tinnitus can influence how you react to it. Some people hear their tinnitus in the background, consider it insignificant, and don't seem to have a negative reaction to it. Others consider the tinnitus to be quite intrusive, focus on their tinnitus and become anxious or frustrated. One important first step is to make sure you understand what tinnitus is, what causes it, and what treatments are available.

One way of thinking about tinnitus is to understand that you cannot change the tinnitus, but you can change the way you react to it. Consider a doorbell. You hear it ring, and someone crying as a result of a car accident outside your home. The next day, the doorbell rings, and a neighbor complains about your tree that fell on her property. Later, the doorbell rings again. What thoughts and feelings do you have? The next day, the doorbell rings and it's a friend you have not seen in many years. Later, the doorbell rings again. Someone has sent you flowers! Later, the doorbell rings again. What thoughts and feelings do you have now? In all these situations, it is the same doorbell; only your reactions are different.

Tinnitus is a sound, but it need not threaten you. Can you find ways to make your tinnitus less loud or less prominent by using sound therapy? Can you learn different ways of interpreting the importance of your sound? Can you learn different ways of reacting? These possibilities of course are easier said than done, and we all have different ways of thinking and reacting.

You could also examine the importance you have placed on tinnitus in your life. For some, it is eventually helpful to stop reading and talking about tinnitus. Are there some things you can do to stop focusing your attention on your tinnitus?

All of us should get involved in new activities that will bring us enjoyment. Most people who have tinnitus are able to live happy and satisfying lives. If you think your tinnitus is preventing you from leading a productive life, you might want to consider talking to a psychologist or audiologist about your tinnitus and its impact on your life.

Hearing

As mentioned earlier, hearing loss often accompanies tinnitus. Additionally, tinnitus can also interfere with your hearing. There are some things you can do to improve your hearing that should be generally helpful with your tinnitus as well. Even if your hearing loss and communication difficulties do not yet warrant a hearing aid, there are strategies and activities you can undertake to improve your hearing.

In dealing with a hearing difficulty, there are many factors that can affect how well one hears in certain situations. It is important for you to determine what factors are affecting your hearing.

- Is there too much background noise?
- Am I too far away from the person talking?
- Can I see their face and facial expressions?

Hearing aids will help you hear better if you have more than a mild hearing loss. If you have a profound loss, you might even be a candidate for a cochlear implant. Many tinnitus sufferers using cochlear implants report that the implant helps their tinnitus as well as helping them to hear better. Additionally, assistive listening devices are usually aimed at increasing the speech signal and/or decreasing the influence of background noise. Eliminating any excess background noise from the environment is beneficial, and may be achieved in various ways. In general, the kinds of things that you can do are:

- Let people know you have a hearing loss, and ask them to speak clearly before the conversation even starts.
- Look at the talker's mouth; lipreading is difficult but it can help all of us.
- When you don't understand, ask the talker for clarification; be specific (e.g. "I heard you say, '. . . went to the store . . . , but that's all.' "
- Move around so you are close to the speaker, can see their face, and are away from the noise.
- Turn off noise sources if possible. Noise is often the biggest problem.

Use as many of these strategies as possible. You will often find that communication can be much easier.

Sleep

Difficulty sleeping is one of the biggest complaints reported by tinnitus patients. Problems can involve falling asleep, staying asleep, or waking too early in the morning. It is important to realize that in the general adult population (without tinnitus), sleep problems are very common. Most of us would benefit from practicing good sleep hygiene. Strategies that can help to facilitate sleep include:

- avoiding caffeine, tobacco, and large meals before bedtime.
- creating a bedroom that will promote sleep by ensuring that your bedding is comfortable and removing all items that might distract you from sleeping.
- maintaining a consistent wake-up schedule and avoiding daytime napping.
- exploring relaxation strategies, such as imagery training and progressive muscle relaxation, and using them before bed and during the night when sleep problems arise.

For people with tinnitus, playing low-level sound in the background can be one of the most beneficial techniques to help with sleep. You may need to experiment to find the sound that will work best for you. Try to find a sound that will be soothing and does not have large fluctuations in volume. Some examples include nature sounds, quiet instrumental music, or even the sound of a fan or air purifier. The key is to find a sound that will decrease the prominence of your tinnitus, without being so loud or distracting that it keeps you awake. Some sound machines or music players can be set to turn off after a certain amount of time. However, if you should awaken during the night, you might be bothered by your tinnitus if your bedroom is quiet. We often recommend that our patients try to leave sound on all night, so they will not need to worry about adjusting the sound in the middle of the night.

If you find that your sleep problems are significantly affecting your ability to function, it is always good to consult with your physician about any possible medical tests or treatment that might be needed.

Concentration

The ability to concentrate is important for completing many tasks, and when we are unable to stay focused we are likely to become frustrated and take longer to complete the activity. Some people with tinnitus complain that tasks such as reading or staying focused at work are more difficult because they find their tinnitus to be a distraction.

Strategies for improving concentration often involve removing the distractions that are interfering with your ability to focus, whether the cause is tinnitus or some other factors affecting your attention. If concentration is a concern for you, some things to consider include:

- Choose a comfortable, quiet, and distraction-free environment in which to work.
- Make sure you feel physically well enough to focus on the task at hand (i.e. avoid being tired, hungry, or sick when you sit down to complete a task).
- Use low-level sound to decrease the prominence of your tinnitus.
- Take frequent breaks and find ways to reward yourself when you have completed activities.
- Stay actively engaged in the task you are working on by using techniques such as taking notes, organizing the information, or asking questions.

Although many of these strategies seem to apply to the school or workplace, do not be afraid to try them even when reading a book for personal enjoyment. Give yourself a little time and practice and you will probably find that concentration will become easier once you are no longer consciously focusing your attention on your tinnitus.

Seeking professional help

While trying to help yourself with these notes and other ideas, please don't forget it is important to obtain a comprehensive evaluation by an audiologist and a physician. Sometimes tinnitus is an important symptom of some other disease in its early stage. For example, symptoms of Menière's disease include spells of dizziness, fluctuating hearing loss and tinnitus. The treatments include medications, special diets, and sometimes surgery. Although rare, it might be important to determine if you have a hearing/balance nerve tumor (acoustic neuroma or vestibular Schwannoma). Usually the tumor is accompanied by unilateral tinnitus and an asymmetrical hearing loss.

Assessing 'new' treatments

We realize that you will probably hear about a new treatment next week and wonder "will this be the one that gets rid of my tinnitus forever?" Probably not. So what should you do when you hear about a new treatment? You should be skeptical. Things reported in the press, or that you read on the internet, are not well monitored, if at all. Sometimes a 'cure' that cannot be replicated even finds its way into the scientific literature.

When we hear of a new cure for tinnitus, we carefully ask:

- is it reported in a refereed scientific journal?
- is it reasonably based, on what we know about tinnitus and human physiology?
- was it a controlled study?

- was tinnitus measured adequately?
- has the study been replicated by another independent group?

You should also know that the search for the magic pill, trying numerous unhelpful treatments and spending time and effort going from one treatment to another, can have serious negative effects. When you hear about a new treatment, visit your audiologist or otologist!

Hope

There are many things you can do to help with your tinnitus right now. There is no cure, but there might be a few around the corner. Recall, there are probably many subgroups of tinnitus. As we determine how to divide these subgroups, there might very well be a treatment for your subgroup.

We have some preliminary data suggesting that one subgroup of tinnitus patients has very severe tinnitus that is very loud and present all the time. Another subgroup might be patients whose tinnitus changes daily as well as those whose tinnitus is made worse in noise. It may be possible that although drug A does not work for the first subgroup, it will for the second.

We have already mentioned that cochlear implant patients with tinnitus, more often than not, report that their tinnitus is reduced when using their implant. In fact, there have been many studies showing that electricity presented to the cochlea can eliminate tinnitus in some patients. We predict that within five years there will be devices like this available for tinnitus sufferers. It will definitely help some of you!

Summary

Our intent here was to get you starting to think about what you can do for your tinnitus. Understanding some of the basic information is the first step. Tinnitus is probably some increase in the spontaneous neural activity. It might have started in the cochlea, but wherever it started, it likely results in increased spontaneous neural activity in the hearing part of the brain. Your tinnitus is not a phantom sound, it is real. Tinnitus likely has many causes, and this is important because it will likely have many cures.

There is at present no cure for tinnitus. Medications can help with depression, sleep and anxiety. Surgery can help in a few rare instances of 'middle ear' tinnitus. Hearing aids should help you if you have a communication difficulty, but they also often help with your tinnitus. Many counseling and sound therapy programs are available, usually offered by audiologists or psychologists. You can help yourself, and we suggest activities in the areas of thoughts and emotions, hearing, sleep and concentration.

New treatments should be approached with caution. That said, there are now numerous researchers around the world exploring new approaches to treating tinnitus. There will, hopefully, be new treatments in five years. See your audiologist, physician or psychologist for help.

Conclusions for the professional

As a tinnitus healthcare provider, it is your responsibility to assist your patients in 'learning to live with tinnitus' (12). One important opportunity you have is to provide them with information and guidance so that they can help themselves. We have provided an overview of some basic information that can be shared. You can produce your own handout or brochure, and also direct your patients to one of the self-help books that are available. It remains important to experimentally verify that such approaches are helpful (13), and this might include determining which subgroup of patients is most to benefit, and which media (brochures, books, internet) are most helpful. In closing, we note that it is important to always let the patient know that we are here for them should they wish to return for further discussion of their tinnitus, should that be necessary.

Acknowledgements

This work is partially supported by NIH/NIDCD R01 DC005972. Richard Tyler is a consultant to Neuromonics.

References

1. Tyler RS, editor. Tinnitus treatment: clinical protocols. New York: Thieme; 2006.
2. Davis P. Living with tinnitus. Rushcutters Bay, NSW: cGore & Osment; 1995.
3. Hallam RS. Living with tinnitus: dealing with the ringing in your ears. Wellingborough, Northamptonshire, Thorsons; 1989.
4. Henry JL, Wilson PH. Tinnitus: a self-management guide for the ringing in your ears. Boston: Allyn and Bacon; 2002.
5. Tyler RS, editor. The Consumer Handbook on Tinnitus. Auricle Inc.: Sedona; 2008.
6. Kellerhals B, Zogg R. Tinnitus rehabilitation by retraining: a workbook for sufferers, their doctors, and other healthcare professionals. Basel: Karger; 1999.

7. Slater R, Terry M. Tinnitus: a guide for sufferers and professionals. London: Croom Helm; 1987.
8. Saunders J. Tinnitus: what is that noise in my head? Auckland, NZ: Sandalwood Enterprises; 1992.
9. Sizer DI, Coles RRA. Tinnitus self-treatment. In: Tinnitus Treatment: Clinical Protocols. Tyler RS, editor. New York: Thieme; 2006. p. 23–8.
10. Andersson G, Kaldo V, Tyler RS. Cognitive behavioral therapy with applied relaxation. In: Tinnitus Treatment: Clinical Protocols. New York: Thieme; 2006. p. 96–115.
11. Tyler RS, Gehringer AK, Noble W, Dunn CC, Witt SA, Bardia A. Tinnitus activities treatment. In: Tyler RS, editor. Tinnitus treatment: clinical protocols. New York: Thieme; 2006. p. 116–31.
12. Tyler RS, Haskell GB, Gogel SA, Gehringer AK. Establishing a tinnitus clinic in your practice. In press, Am J Audiol. 2008.
13. Kaldo V, Cars S, Rahnert M, Larsen HC, Andersson G. Use of a self-help book with weekly therapist contact tinnitus distress: a randomized controlled trial. J Psychosom Res. 2007;63(2):195–202.