



## Tinnitus Fact Sheet – For Clinicians and Physicians

Tinnitus is a very common symptom of change somewhere in the auditory or associated pathways. It often accompanies hearing loss and can be associated with some sensitivity to sound including in extreme cases hyperacusis.

Patients will commonly describe the sounds they hear as; ringing, buzzing, whistling, hissing or cicada-like sounds. Tinnitus can vary from mild annoyance to causing a severe disruption of a patient's quality of life; affecting concentration levels, ability to sleep, anxiety and potentially depression. Tinnitus is not a disease but is a symptom of change somewhere in the hearing system.

Some people attending clinics will just be curious about their tinnitus and need reassurance as to its cause and effects. Other patients may be distraught about their tinnitus and require ongoing management including, further medical examination, counselling and possibly sound therapy.

### There are two main types of tinnitus:

**Subjective tinnitus; also called “True” tinnitus** can only be heard by the person that experiences it. The sounds may be perceived in one ear, both ears or inside the head. Sometimes there is a sensation of the sound being just outside the head. There may be one type of sound that never changes, a different sound in each ear or potentially a range of sounds that are constantly changing.

**Objective tinnitus; also called somatosounds**, are sounds created by the body. They are sounds that can be heard not only by the patient, but potentially also by a doctor or other interested person using a stethoscope or other listening device. Most commonly it is a regular pulsing noise, sometimes corresponding to the pulsing of blood near the ear tissue. The noises are usually caused by cardiovascular disorders, repetitive muscle contractions, or problems with the inner ear.

### What causes True Tinnitus?

Tinnitus usually begins with changes to the inner ear through ageing or exposure to loud noise. That can be the trigger for the brain to react and try and make sense of changed activity by focussing in and amplifying the new unusual “sound”.

Tinnitus can also develop after neck or head injuries including whiplash, infection of the ear, following stress, raised blood pressure, as a side effect of a drug, following surgery or damage to the ears from scuba diving. Although tinnitus usually can't be medically treated sometimes there is a medical cause that could be as simple as the build-up of ear wax. The most common cause is sound overexposure (noise induced hearing loss) but clinicians should also rule out other serious pathologies. Unilateral tinnitus and pulsatile tinnitus are “red-flags” for referral to an otologist, although most often the cause is benign. Care needs to be undertaken not to raise the anxiety of the patient, a

simple message that you want to be sure of the cause of the tinnitus before progressing to treatment is needed at this stage.

Most tinnitus appears to be the consequence of the auditory system's interpretation of changed activity from within the hearing pathways. Increasing evidence from neural imaging suggests tinnitus is the result of a complex interplay between perception, memory, attention and emotion.

- Unevenness in the background output of the ear is exaggerated by the part of the brain involved in hearing. These hearing centres recycle and enhance what might have been a low level signal to start with.
- Paying attention to the tinnitus increases our ability to hear the tinnitus especially if it is associated with negative thoughts.
- Much of the severity of tinnitus relates to how patients react to the abnormal tinnitus sound. It is important for clinicians to be aware that stress or illness may be the catalyst to severe tinnitus.

### What treatment should be recommended?

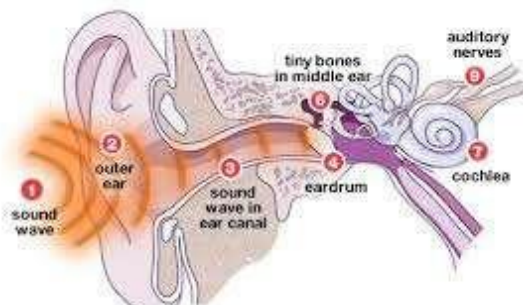
Appropriate treatment needs to be tailored to the individual. There are several steps you can take to help your patient.

We recommend those suffering from tinnitus should first discuss it with their family physician, with possible referral to an otologist to identify any underlying cause of tinnitus that requires to be treated medically. Usually there is no simple medical solution so a visit to an audiologist with an interest in tinnitus is recommended.

There are many therapies that can be implemented by a clinician and many simple solutions patients can try at home, we introduce some of those below and more information is available for you and your patient on the [www.tinnitustunes.com](http://www.tinnitustunes.com) website.

### Tinnitus therapies

The ability to ignore, or adapt to the tinnitus can be the difference between tinnitus being intolerable to it being a minor annoyance.



The brain has an incredible ability to filter out unimportant sounds, while faint sounds that it considers significant are given more attention (e.g. distant sound of an ambulance siren in the din of traffic). If noises associated with tinnitus are viewed as important, threatening or annoying, the auditory system will more readily pay attention to them, making them seem even louder and a vicious circle is established. For this reason it is important to identify ways to assist clients to ignore tinnitus, and reduce their anxiety.

This is not easy because the hearing system automatically works to make tinnitus audible. But there are therapies that help to act against this. For mild tinnitus reassurance and evidence informed information is often all that is needed. For severe tinnitus a systematic program of therapy is most likely needed. The program may include hearing aids, sound therapy and psychological management. Tinnitus Tunes provides a range of resources and tools for clinicians to incorporate into your practice.

### ***Tinnitus education and therapy***

Sound therapy is the use of sound to improve tinnitus. There are many different approaches that can be used. Many clinicians will be familiar with masking and habituation based therapies. We recommend a combination of several techniques over five stages:

1. Education and relaxation
2. Seeking medical advice and input from tinnitus specialists
3. Partial masking
4. Brain retraining using the brain's natural plasticity
5. Adaptation and lifestyle changes to reinforce positive change to the patient's tinnitus.

Most sound therapies work by increasing activity from the ear so that the brain can become accustomed to sound mixed with tinnitus, reducing focus on the tinnitus. If the brain becomes accustomed to the sound generated externally, then it may also learn to ignore the tinnitus itself.

Sound therapy may consist of:

*Relaxation*; most of us can have a strong emotional response to certain types of sound and this approach can help us relax and reduce the stress often associated with tinnitus. Natural sounds and "broad band" music and sounds may be used. This can be effectively combined with the use of progressive relaxation techniques and positive visualisation.

*Masking*; this is using sound to make the tinnitus more difficult to hear and thus providing more control of the tinnitus. Masking may: totally cover, partially cover or mix with tinnitus. The sound provides relief and a degree of control over tinnitus. We believe the best volume of sound is the lowest-effective level for the individual.

*Attention refocussing including brain retraining*; by using attention capturing and interesting sounds, the tinnitus can be easier to ignore. Refocussing on interesting and enjoyable sounds can be a useful strategy.

*Adaptation*; using a range of sounds to progressively provide tinnitus relief and then

improved ability to sustain tinnitus suppression. Long-term experience of an enriched soundscape may reduce the importance of tinnitus.

### ***How is Sound therapy achieved?***

Audiologists specialising in tinnitus sound therapies can access hearing aid and sound therapy strategies and sounds by subscribing to [www.tinnitustunes.com/subscribe](http://www.tinnitustunes.com/subscribe)

*Hearing aids;* as well as helping hearing amplification of sounds or used in combination with broadband noise (e.g. pink noise) they should interfere with listening to the tinnitus. When hearing aids are paired with Bluetooth devices many sounds can be chosen to suit the patient.

*MP3 and smartphones;* can also playback recorded sounds to make the tinnitus less audible. Sounds can be downloaded to a patient's smartphone or MP3 player. Choosing appropriate headphones and volume controls can help especially if clients have a hearing loss.

### **Bedside sound generators and pillow speakers**

Tinnitus can often be particularly disturbing at night, and make it difficult for your patients to sleep. Bedside sound generators are available which can play a number of different masking sounds (e.g. static, rainfall, ocean or surf). Pillow speakers can be used so that others in the room do not hear the sounds. Pillow speakers plug into the standard headphone socket of an MP3 player or bedside sound generator and can be slipped under the listener's pillow. Some people find using small wireless earbuds a good option.

### **Counselling and information.**

Counselling is critical for treatment success. How patients think and react to tinnitus can have a powerful effect on how much of a problem it is. The [www.tinnitustunes.com](http://www.tinnitustunes.com) website has a full suite of information, podcasts, video clips and sound libraries to provide you with many tools. We also provide a weekly email update service for patients that include information on the latest tinnitus research, case studies and a proactive action step to help the patient take control of their tinnitus. Tinnitus Tunes partners with you to extend and enhance your practice.

- Knowledge – typically the more patients understand about tinnitus and what triggers or exacerbates their tinnitus, the more they can reduce its impact.
- Goal-setting – a key part of improving the quality of their life is for patients to take control.
- Sleep hygiene – simple techniques will improve their sleep quality which in turn will greatly improve other aspects of their day to day living.
- Relaxation techniques – this includes the use of progressive relaxation techniques, meditation and music.
- Attention control includes combining the counselling with specially developed brain training sounds available on the tinnitus tunes website.
- Communication strategies, to reduce the strain of your patient's hearing.

### **Diet & Medication**

Some foods, drinks and medicines, appear to make tinnitus worse for some people,

while making no difference to others. We do not recommend dietary change unless a physician suggests that the patient's health would benefit. Anything which improves your patient's health will likely reduce their levels of tiredness and general stress, which may well help their tinnitus.

### **Ongoing research**

There is tinnitus research taking place world-wide and the team at the University of Auckland Hearing & Tinnitus clinic led by Dr Grant Searchfield are very active in this field.

We will continue to report on the latest research taking place and where appropriate update material on the [www.tinnitustunes.com](http://www.tinnitustunes.com) website to provide you with access to the latest information and treatments.

Published by: Dr Grant D Searchfield  
Clinical Director  
Tinnitus Tunes Limited  
[www.tinnitustunes.com](http://www.tinnitustunes.com)

Email: [info@tinnitustunes.com](mailto:info@tinnitustunes.com)