

## MANAGEMENT OF TINNITUS

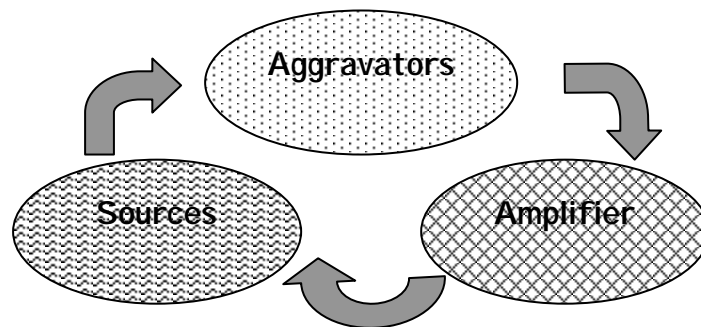
*Normal Tinnitus* is the background 'hum' of the hearing system which is often noticeable when in quiet surroundings, or present for a time after exposure to loud noise.

*Annoying Tinnitus* is any sound (e.g. ringing, buzzing, whistling, hissing, pounding, roaring) present for more than five minutes and not only after exposure to loud noise.

From recent research we now understand that it is normal to experience some tinnitus, but abnormal attention to it can cause it to become a problem. Your attention may be drawn to the normal hum of the hearing system, either because it becomes louder or because something happens to make you focus upon it. A model of tinnitus causes and awareness has been developed, which is used to guide the management of annoying tinnitus.

### NEUROPHYSIOLOGICAL MODEL OF TINNITUS AND TINNITUS RETRAINING THERAPY

This model of tinnitus awareness puts forward three contributors to the tinnitus annoyance: sources, aggravators and an 'amplifier'.



#### Sources

Historically, tinnitus has been thought of as a symptom of disorder within the hearing pathways – the path from the ear canal to the brain which results in the recognition of a sound. This disorder may be simple, such as wax on the eardrum; or more complex, such as damage to the inner ear through exposure to loud noise.

Research has focused upon damage to the tiny hair cells of the cochlea (the inner ear) and the nerve fibres which connect to them. Some things which have been suggested to affect these cells, or others connected with the hearing system, include:

- physical trauma, e.g. motor vehicle accident
- acoustic trauma, e.g. one-off exposure to blast
- prolonged exposure to noise, e.g. tractor engines, industrial noise
- barometric pressure change, e.g. flying
- an upper respiratory tract infection
- some drugs
- strong emotional or psychological states have also been known to trigger tinnitus

#### Management of the Source

It is important to have a consultation with an Ear, Nose and Throat specialist to eliminate any source of the tinnitus which could be treated. The Specialist may recommend some tests, e.g. sinus Xrays or a scan of the head. Treatment might then be as simple as changing your medication (under medical supervision), removing obstructive wax, or treating a middle ear infection. Very often, no particular source for the tinnitus can be found. If the ENT Specialist can do nothing more for your annoying tinnitus, a consultation with an Audiologist or Psychologist should be suggested.

## Aggravators

Some things will make tinnitus worse for a short time in some people. Such aggravators may include:

- Stress, worry, fatigue, depression, anxiety
- Caffeine drinks: coffee, cola, cocoa
- Some medications, e.g. high doses of aspirin or anti-inflammatory agents
- Silence
- Loud noise
- Vigorous exercise
- Clenching or grinding your teeth
- Dental work
- Neck or jaw stiffness or mis-alignment

## Management of the Aggravators

If you notice that particular drugs or substances you consume or some things you do worsen your tinnitus, you might choose to avoid those things. (Changing your medications should only be done with the advice of your doctor.) Typically, these things affect your tinnitus for only a short time and it will not be louder or more annoying indefinitely. Generally speaking, people have reported that their tinnitus became quieter over time rather than louder, therefore aggravators have an insignificant effect in the long term.

Stress and anxiety can trigger tinnitus as well as aggravate it. It is important to learn to recognise and manage stress and anxiety as these things affect your overall feelings of health and well-being, apart from heightening awareness of the tinnitus. Relaxation training and hypnotherapy may be important techniques to help you to relieve mental and physical tension. If you feel marked anxiety or depression, you should consult your doctor about medications and/or seek assistance from a psychologist or counsellor.

Jaw-joint problems can cause an increase in muscle tension and intensify your tinnitus. You may wish to consult a dentist or orthodontist about a splint to relieve the pressure on your jaw. Some physiotherapists also provide therapy for jaw and facial tension.

(Contact Tinnitus SA for more detailed information about the management of tinnitus aggravators.)

## Amplifier

If the nerves in your hearing system are ‘humming’ at a low level all of the time, why are you not aware of them all the time? The things which determine whether a sound attracts your attention are experience, meaningful associations and emotional content.

Between the ears and the processing of meaning in the brain there is a network of processors, such as pattern receptors. These pattern receptors ‘recognise’ some sounds and allow them pass through to be attended to, but ‘ignore’ other sounds. So, when listening in a crowd you react to hearing your name but not to many other parts of the conversation (meaningful associations). Similarly, the mother of a young baby will wake when the child cries, although she may sleep through many louder, less meaningful sounds (emotional content). The pattern receptors are related to both the meaning or consequence of the sound and to its emotional importance.

Because pattern receptors have been ‘set’ to exclude unimportant sounds and to respond to important sounds, the loudness of the sound is seldom a major factor. For instance, if you move from a quiet neighbourhood to a house beside a railway line it can take several weeks to adjust to the new sounds, after which you’ll ignore them.

### **How Does the Tinnitus Sound Become Important?**

Several things may happen when you become aware of tinnitus. First, you may worry about what it means: Do I have a brain tumour? Am I having a stroke? Does this mean I’m going deaf? Does this mean I’m going mad? How can I cope with this unending noise in my head?

These feelings may be encouraged by the comments of some health professionals who tell you to ‘go home and learn to live with it’. You may come to associate quite strong emotions with the tinnitus. because you have been worrying about it and paying it a lot of attention you have successfully tuned your pattern receptors to attend to the tinnitus.

### **Habituation**

Many people who notice sounds in their ears pay them little attention. In other words, though they have tinnitus they pay it no attention they quickly learn to ignore it. This is called ‘habituation’ – the tinnitus becomes a ‘habit’ which they no longer notice consciously. Habituation doesn’t happen all at once – it is gradual, and several stages can be recognised:

#### Stage One:

- You are aware of the tinnitus sound ALL THE TIME
- You may have frequent worrying and depressing thoughts
- You may find it hard to sustain concentration on mental tasks
- You may have severe insomnia

#### Stage Two:

- You are unaware of the tinnitus for brief periods
- Your concentration improves – you can return to usual activities
- You begin to accept the tinnitus instead of rejecting it all the time
- Your sleep pattern gradually returns to normal

#### Stage Three:

Toll free: 1300 789 988  
E-mail: [tinnitussa@chariot.net.au](mailto:tinnitussa@chariot.net.au)  
[www.tinnitussa.org](http://www.tinnitussa.org)

- You are mostly only aware of the tinnitus sound when you are tired or stressed or in quiet
- The tinnitus intrudes mainly when listening and mental concentration are important

Stage Four:

- You rarely attend to the tinnitus
- The tinnitus does not intrude into your normal activities
- You find the noises 'neutral' – they do not evoke any strong feelings

## What is Tinnitus Retraining Therapy (TRT)?

The goal of TRT is to remove the tinnitus perception from the person's awareness and to help them habituate to it. This is done by an Audiologist in the following ways:

- ◆ By acknowledging the reality of the tinnitus and its impact on the person
- ◆ By providing a thorough explanation of the tests and measures already undertaken to determine the 'location' or 'cause' of the tinnitus and why they indicate that there is nothing seriously wrong with the hearing system
- ◆ By describing the structure and function of the hearing system and explaining the mechanisms by which tinnitus becomes dominant
- ◆ By providing advice on techniques for relaxing and dealing with tinnitus, to reduce the impact of stress and anxiety
- ◆ By providing noise generators which can assist the habituation process - this helps to de-tune the pattern processors so that they no longer recognise the tinnitus as something which should be attended to
- ◆ By providing hearing aids for people with hearing loss as well as tinnitus – so that the real world of sound can assume importance over the perceived world of tinnitus
- ◆ By identifying aggravators and recommending other health professionals who can assist with their management.

Consult the Tinnitus SA information sheet: 'Public and Private Sector Services for People With Tinnitus' for services which provide tinnitus management or click on 'Our Services' on the website.

### Websites

Alliance Tinnitus and Hearing Center	<a href="http://www.tinn.com">www.tinn.com</a>
International Tinnitus and Hyperacusis Society	<a href="http://www.iths.net">www.iths.net</a>
Tinnitus and Hyperacusis Centre, Emory University	<a href="http://www.tinnitus-pji.com">www.tinnitus-pji.com</a>
University of Maryland Tinnitus and Hyperacusis Centre	<a href="http://www.tinnitus-hyperacusis.com">www.tinnitus-hyperacusis.com</a>