Tinnitus Tunes – Medical Causes

Are you afraid your tinnitus is caused by a serious medical problem?

The fear and reality – two very different things - find out the facts.

CONTENTS

INTRODUCTION – SETTING THE SCENE

You may have recently started experiencing unexplained and recurring noises in your ears, or it feels like they are inside your head. You may have done a Google search, or someone has told you that you have tinnitus.

Depending on how intrusive the noises are, common reactions can include:

- Anger
- Frustration
- Fear
- A strong desire to find out more, including how to get rid of it.

Here we will focus on helping tackle the last two (Fear and Desire to find out more).

BUT FIRST A QUICK INTRODUCTION TO TINNITUS TUNES

Tinnitus Tunes was born in 2017 as an online extension of our physical Hearing and Tinnitus Clinic at the University of Auckland. The physical clinic had been helping people like you with tinnitus for over 15 years and was successfully enabling 80% of our clients to significantly improve their tinnitus and overall quality of life.

However, there were three limitations that encouraged us to take the plunge and create Tinnitus Tunes.

- We were mainly restricted to helping people within easy reach of Auckland, New Zealand
- Based on face-to-face appointments we were restricted to helping a few hundred people each year.
- Demand was increasingly outstripping available appointments with the result some people were waiting months for an appointment. Not satisfactory for us, or our clients who sometimes were not in a good physical or psychological place.

We have taken the same treatment approaches used in our physical clinic and working in a co-design mode with our members, improved the treatment approach to be able to help people anywhere, anytime. We are humbled to say that over 2,000 people from over 30 countries around the world have used our content and services so far.

Dr Grant Searchfield an internationally respected leader in tinnitus research and treatment is the Clinical Director of both the physical clinic and Tinnitus Tunes.

I (Tom Donaldson) am joint founder of Tinnitus Tunes and I obtain huge satisfaction from interacting and helping our members every day.

FEAR AND REALITY – PROVIDING ASSURANCE

Let's start with saying we fully understand why you may be scared if you suddenly wake up one day and have this unexplained noise inside your ears or head.

I had a young mother with two children in exactly the above situation ring me (I was overseas on holiday at the time), and I could hear the panic in her voice. I was able to provide reassurance and guidance on a sequence of actions for her to take that helped her gain back control.

So what are your fears?

Number one fear – is being scared the tinnitus is a result of a serious underlying medical condition, for example a brain tumour. We will spend time going through discussing the different causes of tinnitus and the different symptoms and related conditions.

However, to provide immediate reassurance it is extremely rare to find that tinnitus is due to a serious underlying medical condition.

Number two fear – am I going mad?

It is not surprising that you may initially wonder if you are going mad, after all you are hearing things that no one else can hear (assuming you have subjective tinnitus – the most common type).

But the experience and the sound sensations are real and given the fact that between 10 and 25% (depending on age group) of people can describe their tinnitus – please be assured you are not mad. Saying that a significant proportion of people with tinnitus do experience anxiety and some degree of depression due to the impact it has, particularly on the ability to sleep.

All the more reason for taking proactive control and following a structured and proven approach to transforming your tinnitus.

Number three fear – will I lose my hearing? This is for people who have tinnitus, but have not experienced any significant loss of hearing so far.

The simple and quick answer is no, having tinnitus does not mean you are going to lose your hearing.

Saying that, many people who have hearing loss also have tinnitus. This is partly explained by the fact that tinnitus becomes more common as we age, for example 20% of men 70 years old and above have tinnitus (compared to just

10% in the 20 – 44 age bracket). Loss of hearing also becomes more common as we age.

Number four fear – I am coping with my tinnitus now, but I am afraid it will get much worse.

We will spend time discussing the range of factors that can make your tinnitus peak at times. One example being stress. But to give immediate reassurance, there is no standard trend where your tinnitus will get worse over time and in fact as stated earlier, by following the 5 treatment techniques within Tinnitus Tunes you have a very high probability of reducing the impact of your tinnitus.

HOW COMMON IS TINNITUS

Let's begin to address your desire to understand more about tinnitus – which is a good thing and an important part of taking proactive control.

We all have some background noise in our ears caused by baseline electrical activity and natural blood flow. However, for most of us and most of the time we are not aware of this background noise.

Many of us will also experience temporary tinnitus noises, for example if we attended a noisy concert or party the night before. What we are going to focus on here is recurring and persistent tinnitus and this is still very common. The figures given below are from a population sample of 50,000 people.

Age Group	Men Sample Size	% Men with tinnitus	Women Sample Size	% Women with tinnitus
All	23,374	16.4%	26,574	12.1%
20 – 44 years	9,359	10.6%	10,920	8.4%
45 – 64 years	8,618	18.5%	9,246	12.0%
Older than 64	5,397	23.0%	6,408	18.7%

IS YOUR JOB INCREASING YOUR RISK OF GETTING TINNITUS?

There have been several studies including the National Institute for Occupational Safety & Health (NIOSH) 2017 study which indicates you are at greater risk if you work in the following sectors.

Agriculture, forestry, fishing and hunting.

Manufacturing

Armed services – tinnitus is the most common post service problem for our veterans.

Emergency services (fire, ambulance and police)

School teachers, particularly early childhood

Construction, engineering and architecture. The architecture role may initially seem odd, but presumably it is due to architects and probably construction project managers going on site without proper hearing protection.

Airline industry

Contact centres

Musicians, particularly orchestra players. This will include conductors, roadies and sound engineers.

Overall 15% of workers who have been exposed to occupational noise at some point in their careers have tinnitus compared to around 5% who have never been exposed to occupational noise.

It seems that sales or related occupations have the lowest risk of developing tinnitus and hearing difficulty.

COMMON & NOT SO COMMON CAUSES OF TINNITUS

To build on the reassurance we provided at the beginning, the most common causes of tinnitus have no connection with serious underlying medical conditions and we will cover those first.

NOISE EXPOSURE

This can be linked to a single exposure to an extreme noise, for example an explosion, or gunfire. It is more often associated with long-term occupational or recreational noise exposure. There is increasing worry about young people growing up constantly listening to loud music using earbuds or headphones and the impact that will have on their hearing and risk of tinnitus.

Globally it is estimated that 1 in 5 teenagers have a hearing loss and the number is predicted to double over the next 30 years. This update from NFD (National Foundation for Deaf & Hard of Hearing) in New Zealand describes the good work they are doing in schools. They screened 479 teenagers in 2019 and 1 in 3 had an abnormal hearing result.

AGE RELATED HEARING LOSS & TINNITUS

As we saw above, as we age we are more likely to have tinnitus and hearing loss.

STRESS & ANXIETY

There is certainly a connection between stress and tinnitus and the British Tinnitus Association have an excellent article we recommend reading on the topic.

Most people tend to think of tinnitus as a negative experience, but it is interesting some people also find it a useful barometer of other things like stress in their life that they need to take action on.

EAR WAX BUILD UP

Normally earwax is a good thing in terms of protecting your ear canal by trapping dirt and slowing growth of bacteria. However if too much wax builds up it can cause irritation of the eardrum which can lead to tinnitus. Care also needs to be taken if you are having wax removed as if done badly it can cause tinnitus.

EAR INFECTION

I don't have any international figures, but here at Tinnitus Tunes we have at least 2 or 3 people every week contacting us and saying their tinnitus has started as a result of an ear infection.

REACTION TO MEDICATION

A number of medications can either cause tinnitus or make existing tinnitus worse as a side effect. Unfortunately stopping taking the medication or switching to a different type under the guidance of your doctor does not guarantee the reversal of your tinnitus. The brands of medicine on the market change over time, but at the time of writing the drugs of concern include:

Some antidepressants including; erythromycin, tetracycline, amitriptyline, clomipramine and imipramine.

Water pills (diuretics); such as bumetanide, furosemide and ethacrynic.

Cancer treatment; methotrexate Cal, cisplatin & vincristine.

Antibiotics; ciprofloxacin, doxycline, polymyxin B, erythromycin, neomycin, tetracycline, vancocin HCL, Firvanq.

Quinine medications used for malaria including chloroquine & quinine.

HEAD, NECK OR JAW INJURIES

Head or neck injuries while playing sport, in a car accident etc. can affect the inner ear, hearing nerves or brain function associated with hearing. In many cases this type of injury will be associated with tinnitus in one ear only (unilateral tinnitus).

Problems with the Temporomandibular joint (TMJ), the joint on each side of the head in front of your ears and where your jawbone meets your skull, can cause tinnitus.

The good news is treatment for the above conditions if successful will usually also eliminate your tinnitus.

THE MORE UNUSUAL AND POTENTIALLY MORE SERIOUS CAUSES OR CONNECTIONS (REMEMBER THESE ARE RARE)

I wish to accredit the Mayo Clinic website for providing much of the material given below.

MENIERE'S DISEASE

Tinnitus can be associated with Meniere's disease, an inner ear disorder that can be caused by abnormal inner fluid pressure. The combination of vertigo (sensation of spinning), nausea, hearing loss and tinnitus is very unpleasant and difficult to treat.

ACOUSTIC NEUROMA

This benign (non-cancerous) tumour develops on the cranial nerve that runs from your brain to the inner ear and helps control balance and hearing. This condition is sometimes also called vestibular schwannoma and generally causes tinnitus in only one ear.

MUSCLE SPASMS IN THE INNER EAR

Muscles in the inner ear tense up (spasm), which can result in tinnitus, hearing loss and a feeling of fullness in the ear. This sometimes happens for no explainable reason, but can also be linked to neurological diseases including multiple sclerosis.

EUSTACHIAN TUBE DYSFUNCTION

The tube connecting the middle ear to your upper throat is expanded all the time and you may feel like your ears are full. Loss of a significant amount of weight, pregnancy and radiation therapy can sometimes cause this type of dysfunction.

WHEN SHOULD YOU SEE YOUR DOCTOR?

We recommend always discussing your tinnitus with your doctor as it can reduce the risk of being prescribed medication that either triggers or makes your tinnitus worse. Always consult your doctor before changing or stopping medication.

You should also see your doctor if you experience any of the following:

- Sudden onset of tinnitus, particularly pulsatile tinnitus. This is where you hear the tinnitus noises at the same beat as your pulse or heart.
- Severe vertigo (spinning sensation or loss of balance).
- Tinnitus alongside other factors like a droopy face
- Sudden unexplained hearing loss
- Tinnitus developing after a head or neck injury, for example whiplash
- Severe mental distress associated with your tinnitus

Your doctor may refer you to an Ear, Nose and Throat (ENT) specialist if you exhibit any of the first 5 conditions listed above. Often this is simply to rule out any underlying serious medical problem.

SO WHAT ARE SOME OF THE CONNECTIONS WITH PULSATILE TINNITUS

HIGH BLOOD PRESSURE

Hypertension and factors that increase blood pressure, such as stress, alcohol and caffeine can make tinnitus more noticeable.

TURBULENT BLOOD FLOW

Narrowing or kinking in a neck artery (carotid artery) or jugular vein can cause turbulent, irregular blood flow, leading to tinnitus.

MALFORMATION OF CAPILLARIES

A condition called arteriovenous malformation (AVM), abnormal connections between arteries and veins can result in tinnitus. This normally only affects one ear.

ATHEROSCLEROSIS

Increasing age and the build-up of cholesterol in the major blood vessels close to your middle and inner ear can cause a loss of their elasticity – the ability to flex or expand slightly with each heartbeat. That causes blood to become forceful, making it easier for you to detect the beats. Generally you will hear them in both ears.

HEAD AND NECK TUMOURS

A tumour that presses on blood vessels in your head or neck (vascular neoplasm) can cause tinnitus.

OTHER CONDITIONS SOMETIMES ASSOCIATED WITH TINNITUS

HYPERACUSIS (ONE FORM OF SOUND SENSITIVITY)

A conservative estimate is about 2% of the adult population have some degree of hyperacusis (this compares to between 12% and 16% for tinnitus).

A small percentage of people with tinnitus will also suffer from hyperacusis to some degree.

By contrast, most people with significant hyperacusis also have tinnitus.

We will expand this section in the future, to provide more information about hyperacusis and other forms of sound sensitivity.

CONCLUSION

We were slightly nervous about creating and sharing the information given above in case it created more worry for people who have recently experienced tinnitus.

However, we believe the more you have access to well informed and factual information, the better you are able to understand and take control of your tinnitus. We trust we have also sufficiently emphasised that at least 95% of people with tinnitus will find it has been caused by one of the following:

- Noise exposure (either brief and intense), or prolonged recreational or occupational high noise levels.
- Simply getting older, you are more likely to get tinnitus as you hit your 60s and 70s.
- A head, neck or jaw injury which is often also linked to tension in the facial, neck or shoulders.
- High levels of stress, particularly prolonged stress.
- Ear infection or side effect of taking medication or cancer radiation.

We also want to reassure you that you can take proactive control and significantly improve your tinnitus.

Our recommendation is to take a structured approach to taking proactive control of your tinnitus. Tinnitus Tunes is a good example with the five treatment stages:

1. Stage 1 – Education and Relaxation

The more you learn about tinnitus, the more you will feel in control. Relaxation is so important to calm your overactive mind, reduce stress, improve your sleep quality and prepare yourself for the tinnitus treatments in the following stages.

2. Stage 2 – Consult one or more specialists, for example audiologist, physiotherapist, psychologist etc. depending on your situation.

If you are finding it difficult to hear conversations, consider a "hearable device like the Nuheara, or have your hearing tested by an audiologist – hearing aids are one of the main ways of helping tinnitus.

If you have had a head, neck or jaw injury have a session with a physiotherapist who has experience of helping people with tinnitus. A good self-test is to gently move your jaw, or head and see if your tinnitus changes. If it does then you are

more likely to benefit from easing the tension in your upper body (shoulders, neck and face) through physiotherapy and massage.

3. Partial Masking

Try out different types of masking sounds (nature or white noise) and different intensities to find one, or more you like.

4. Brain Training

The brain training exercises on Tinnitus Tunes are very powerful and take advantage of the natural plasticity in your brain to open up new neural pathways and stimulate existing neural connections. Many people find the tinnitus shifts into the background and you begin to enjoy times when you are no longer ware of your tinnitus.

5. Adaptation and lifestyle changes to reinforce the improvements in your tinnitus.

Regular exercise, a good diet and continuing with the relaxation exercises will reinforce and increase the improvements to your tinnitus.