What You Should Know About **Tinnitus**

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INTRODUCTORY LETTER FROM NASHLEA BROGAN

ABOUT THIS NEW AND IMPROVED SPECIAL TINNITUS REPORT:

As an Audiologist, one of the most common questions, and complaints, I get from my patients is about the 'ringing' in their ears! Tinnitus (pronounced tin•ni•tus or tin-night-us), is defined as a sensation of sound in your ears, sometimes in your head. Each person with Tinnitus has a different sound experience; for most it is described as a 'ringing' sound, but many patient's also report a 'shooshing', 'buzzing', 'wooshing' sound – similar to the sounds inside a conch shell.

Too many people dismiss the ringing, when in fact this sound essentially represents an **internal alarm** alerting you that something is not as it should be. Whether the tinnitus is constant, only noticeable in a quiet room or at night, pulsating or seems to have certain triggers (i.e. exercise or caffeine), it is important that the root cause of the problem be determined and a proper treatment plan be put in place with your Audiologist.

In this report, 'What You Should Know About Tinnitus' I include a comprehensive review of the current scientific literature, along with helpful lifestyle tips, to reducing your tinnitus.

I believe you will find the information in this report helpful when wanting to learn more about your tinnitus and when it comes to choosing the right treatment plan for you. Feel free to call one of my office to schedule your appointment.

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Sincerely,

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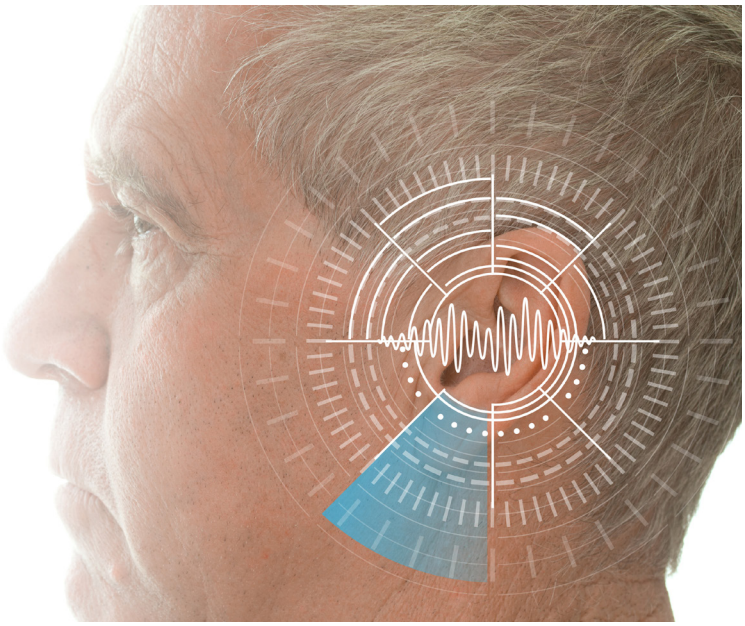
The Impact of Tinnitus

Tinnitus can be described as the experience of hearing a phantom sound in your ears or in your head. It is currently estimated that nearly 11.5 million Canadian adults live with tinnitus. Surveys indicate that about 54% of those with tinnitus find that it has a significant impact on their daily life.

The experience of tinnitus is unique to each individual. I have seen patients who describe their tinnitus as sounding like anything from hissing or buzzing to screeching or pounding. I have actually seen a few patients who said their tinnitus sounded like music. Some people only notice their tinnitus in a quiet room and find that it is not much of a bother to them. Others experience the sound all day long. – and it can interfere with daily life.

The three main ways that tinnitus can impact your quality of life are through its effect on 1) your concentration, 2) your hearing, 3) your sleep and 4) your emotions. The sound of tinnitus can get so distracting that concentrating on anything can become nearly impossible. In some cases, the sound of tinnitus can interfere with your ability to hear things you would like to hear – like conversation. For many people, their tinnitus is most noticeable and most bothersome when there is no other noise around to "drown it out". This usually describes the environment in which they try to sleep. It is not uncommon for tinnitus to disrupt sleep. Of course, lack of sleep or poor-quality sleep itself can lead to a myriad of health and mental acuity problems. Lastly, tinnitus can affect your emotions. Any combination of the previously mentioned effects of tinnitus can certainly lead to frustration, anxiety, and depression. It is important to note that negative emotions themselves - like anxiety and frustration - can lead to a more bothersome and persistent experience of tinnitus.



At our office we use a well-researched and standardized questionnaire to assess each of these four areas of potential impact of tinnitus before and after treatment.

Causes

The most common cause of tinnitus is damage to the sensory organ of hearing, the cochlea (i.e., the inner ear). This results in a breakdown in the neural connections from the ear to the brain. A smaller percentage of tinnitus cases are the result of other medical conditions that include: hypertension (high blood pressure), acoustic neuroma (tumor on the hearing nerve), thyroid disease, vascular disorder, temporomandibular joint (TMJ) disorder, ear infection, impacted cerumen (ear wax), nutritional deficiency, aneurysm, multiple sclerosis and other disorders. In some patients, prescription and over-the-counter drugs can result in damage to the auditory system and cause or exacerbate tinnitus. Ironically, several hundred drugs listed in the Physician's Desk Reference ("PDR") cite tinnitus as a side effect. In some, but very few, of these cases, the tinnitus may reduce or disappear when the prescribed medication is discontinued.

I hope this explanation makes it clear that 'What is causing my tinnitus?' is not a simple question to answer as it can be the result of any number of conditions, or by something as simple as 'too much wax in your ears'. This may also help you understand the seriousness of experiencing tinnitus and the why your Audiologist must carefully evaluate and counsel you if you have tinnitus.

> … the most common cause of tinnitus is damage within the inner ear.

As I mentioned earlier, the most common cause of tinnitus is damage within the inner ear. The result is reduced auditory stimulation to the brain. This causes a situation that is analogous to Phantom Limb syndrome. Phantom Limb syndrome can occur when a person has an arm or a leg amputated but still feels "pain" in that missing limb as if it were still there. In this case the brain is not getting the neurological stimulation it is expecting from the missing limb and re-creates it. The analogy to tinnitus is that when there is damage to the inner ear, the brain is missing some of the sound stimulation it would normally get from the inner ear and re-creates it.

The most common cause of damage in the inner ear is aging. As we get older, we tend not to see as sharply as we used to, especially in low-light environments. Unfortunately, the same process happens in our ears as we age; we tend not to hear as clearly, especially in noisy situations.

Other causes of tinnitus that result in inner ear damage include excessive noise exposure – either a single intense noise (like a shotgun blast) or long-term exposure either from work or play (e.g. musicians, concert attendees, carpenters, machinist, landscapers, teachers, etc.). Tinnitus can also result from physical trauma to the head or neck. Tinnitus is commonly found in individuals that have been in a car accident or for those who have had a serious fall.

Triggers – what can make it worse?

For some people, tinnitus can be virtually undetectable until a certain 'trigger' makes it more noticeable. Below is a list of the most common triggers patients report as influencing their tinnitus:

Loud noise. Avoid loud sounds at all costs! The use of power tools, guns, motorcycles, noisy vacuum cleaners, etc., must require the use of hearing protection. While the ringing that occurs after exposure to loud sounds and concerts may seem temporary (often referred to as the 'hearing hangover'), the damage to the inner ear is PERMANENT. Hearing protection comes in many forms - each with its own advantages and disadvantages. Ask your Audiologist which is best for you and your hearing needs.

Excessive use of alcohol can exacerbate tinnitus for some people. Toxins introduced to the body can have a range of effects on our nervous system. Alcohol and drugs exert their effects on people by influencing neural activity; thus, tinnitus is a potential side-effect of these toxins.

Caffeine, found in coffee, tea, chocolate, and some cola drinks, can also increase tinnitus. Caffeine, a nervous system stimulant, can ramp increase

neural activity resulting in increased perception of tinnitus. Fortunately, when tinnitus results from the ingestion of caffeine, the simple fix is to reduce your intake.

Nicotine has a direct effect on our vascular system. Changes to our vascular system, which are often permanent from nicotine and smoking, can influence blood flow to the ears – which will have a direct effect on the health of the cochlea and hair cells. This impact can lead to a 'suffocation' of required oxygen to the ear, and thereby compromise neural connections to the brain; thus, resulting in tinnitus.

Aspirin, quinine, some antibiotics, and hundreds of other drugs are causative tinnitus agents and can make existing tinnitus worse. If you are prescribed medication, always inform your physician and pharmacist of your tinnitus and discuss the drug and dosage options.

Stress can make tinnitus worse and make it harder to ignore. Most of us can benefit from stress management methods like meditation, exercise, or progressive muscle relaxation whether we have tinnitus or not. We do know that excessive stress can cause or exacerbate many medical conditions, including tinnitus.

Evaluation

Effective treatment of tinnitus depends on proper evaluation. The most common "complete audiological evaluation" protocol does not include more advanced testing needed to document the cause of tinnitus in many cases.

Effective treatment of tinnitus starts with a thorough evaluation. At our office, evaluation for patients with tinnitus includes:

- A standardized tinnitus assessment questionnaire - to evaluate the impact of your tinnitus on your ability to concentrate, your hearing, your sleep, and your emotions. This questionnaire is completed again after treatment has begun to monitor effectiveness of the treatment.
- Thorough case history - including information such as the characteristics of your tinnitus, balance issues, noise exposure, and any head trauma, noise exposure or infection in the past as well as a very basic review of your medications.
- Otoscopy – visual inspection of your ear canals and ear drums. In our office we use video otoscopy that allow you, the patient, to see inside your own ears.
- Otoacoustic Emissions Testing - this crucial test identifies breakdowns in the ear-to-brain connections that can trigger tinnitus and which often begin long before measurable hearing loss show up on standard tests.
- Cognitive function screening – to identify possible cognitive impairment that could be the result of auditory damage. We use the only Canada & FDA cleared technology for this purpose.
- Pure tone audiometry – to assess any loss of loudness perception and whether that loss may be due to damage to the cochlea (inner ear) or not.

- High frequency testing audiometry – evaluates hearing thresholds for sounds above the frequency range of testing for the standard "complete audiological evaluation" protocol. This is important because the damage to the inner ear that can result in tinnitus often starts with the part of the inner ear responsible for hearing sounds above the frequency range of testing for the standard protocol.
- Tinnitus matching to determine the pitch and intensity of the Tinnitus.
- Word recognition testing in quiet and in noise - this provides insight into how any damage to the auditory system is affecting you the brain's ability to focus and decipher words.

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Treatment Options

Unfortunately, too many patients have said to me 'I have tinnitus, and I've been told there is nothing that I can do about it'. I emphatically say to each of these patients, and to you – that is not true. Is there a cure for Tinnitus? No. But there are valid treatment options available to reduce, and in some cases, eliminate, your perception of tinnitus.

Below are some of the most often asked about treatment options available for managing tinnitus.

Treatments With Limited or No Effectiveness

Surgery

Many patients that are desperate to reduce their tinnitus will ask if cutting or severing the hearing nerve will eliminate their tinnitus. This permanent, deafness-producing procedure is not a dependable means of reducing tinnitus. In fact, the surgical destruction of a person's hearing nerve can often leave the tinnitus as the only sound heard (see my description above of the analogy to 'Phantom Limb').

Medication

Put bluntly - there are currently NO FDA-approved or Health Canada approved drugs specifically for treating tinnitus. However, there are pharmacological options to address the stress, anxiety, and depression that are caused by (and can sometimes exacerbate) tinnitus. For some people, treatment with low doses of anti-anxiety drugs or antidepressants – can help reduce the impact of tinnitus on daily life.

It should be noted that there are no herbal remedies, vitamins, or supplements that have any significant scientific evidence to substantiate claims of effectiveness in treating tinnitus – in spite of any advertising hype you might see.

Acupuncture

Acupuncture has not been shown to have a significant effect on tinnitus. The British Tinnitus Association recently reviewed the research on acupuncture for tinnitus and concluded "there is no evidence that this treatment is effective".

Cognitive Behavior Therapy (CBT)

CBT is a type of psychotherapy, most often performed by a psychologist, that is designed to identify negative thoughts that lead to behaviors which are problematic, and to help the patient modify those thoughts and the behaviors that result. For example, a tinnitus sufferer may be thinking; "I can't go out to dinner because I won't be able to hear over my tinnitus." The result could be reduced quality of life because that person misses the experience of going out to dinner and the pleasure and socialization that goes with it. With CBT this person might change that thought to "I might not be able to hear over my tinnitus, but I might still enjoy the food and the atmosphere."

A CBT program usually consists of 8 to 24 weeks of 60 to120 minute sessions. Research indicates that CBT can have a significant effect on improving the quality of life for people suffering with tinnitus, but not on the loudness perception of the tinnitus itself.

Advanced Hearing Technology

Our approach uses advanced hearing aid technology with features specifically designed to treat tinnitus and customized for the individual. Depending on individual needs we also include elements of Cognitive Behavior Therapy and other counseling techniques. When used properly by experts, this the single most effective treatment option available for the largest percentage of people suffering with tinnitus. In the United States the F.D.A. (Food and Drug Administration) has approved use of this technology for individuals with tinnitus. It is designed to provide the brain with restored stimulation. While most people with tinnitus also suffer with hearing loss that is detected on standard hearing tests, that is not always the case. The breakdown of neural connections from ear to brain resulting in tinnitus often starts before hearing loss can be measured on standard tests. Fortunately, this technology has been designed for people with audiometric 'normal hearing'.

Many studies show that patients who use this tinnitus support technology have a significant reduction in their daily tinnitus experience – with some even reporting that 'the ringing is gone all day.' We use this technology in our advanced treatment process to restore the neural activity to the auditory system. This customized, targeting stimulation helps to retrain the auditory system to properly identify sounds and suppress the mistaken increase in neural activity. This approach significantly reduces or eliminates the perception of tinnitus for about 80% of patients.

There are number of ways this technology can be used as part of an effective treatment program and there are some features available that are necessary for some tinnitus sufferers but of no use to others. The experience and expertise of your Audiologist in specifically treating tinnitus is crucial to your success.

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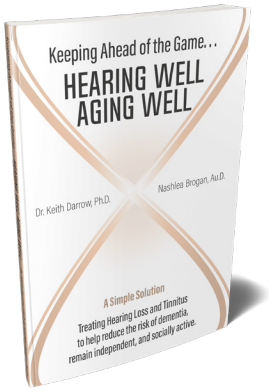

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