



Therapeutic Brief

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Tinnitus: help is available

Tinnitus is among the top three most accepted conditions for Australian veterans.¹ Not all veterans with tinnitus are bothered by it, but for about one in five, it substantially affects their physical and mental wellbeing.²⁻⁴

Tinnitus is often associated with hearing loss, anxiety and depression,⁵ insomnia, poor concentration, hyperacusis (increased sensitivity to everyday sounds), and reduced social enjoyment, all of which impair daily functioning and quality of life.⁶⁻⁸ Some people report feeling overwhelmed, exhausted, hopeless and suicidal.⁹

Analysis of the Australian Government Department of Veterans' Affairs (DVA) health claims database found almost 40,000 veterans had tinnitus.¹⁰



24% of veterans with tinnitus experienced depression¹⁰



13% of veterans with tinnitus had a claim for a hearing device¹⁰



8% of veterans with tinnitus had a claim for a psychologist visit¹⁰

A range of management options, (for example cognitive behavioural therapy (CBT), hearing services referral, talking and sound therapies, relaxation and mindfulness-based therapies, education and group support) may be needed to help patients with tinnitus that is troublesome and distressing.^{4, 6, 11}

Tinnitus is complex, multifactorial and not fully understood.^{2, 12} Research suggests that tinnitus most often develops because of maladaptive neural changes in auditory pathways and attentional, memory, cognitive and emotional areas of the brain. This usually happens after an actual or potential physical or psychological injury occurs; much the same way that cognitive-affective processes play a key role in the experience and maintenance of chronic pain.^{9, 12-15}

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Key points

- Identify patients with troublesome tinnitus to determine effects on their physical and mental wellbeing
- Consider referral to an audiologist for an assessment or review, or to discuss devices to help with tinnitus
- Offer referral to a psychologist for patients with troublesome tinnitus
- Offer a range of treatments to help reduce perceived severity of tinnitus

Military personnel are often exposed to hazardous occupational noise, including gunfire and other acoustic traumas, somatosensory system disturbances and emotional stress during service, putting them at high risk of developing

tinnitus.¹² Traumatic brain injury (TBI), especially blast-induced TBI, concussion, hearing loss and PTSD can lead to or exacerbate tinnitus.^{3, 16} This is reflected in the large number of veteran disability claims for tinnitus.

Although there is no medical or pharmacological cure for tinnitus, an approach that addresses cognitive, behavioural, attentional and social factors can help to reduce the perceived severity of tinnitus, and improve quality of life.^{9, 14}

✓ Refer patients with tinnitus to an audiologist

Most people with tinnitus, particularly those with troublesome tinnitus and no visible ear pathology on examination, have a degree of hearing loss.⁴ Some people with tinnitus may not be aware they have hearing loss. Trouble communicating and the resultant frustration and distress might be more to do with undiagnosed hearing loss.¹⁷

Untreated hearing loss is also associated with an increased risk of cognitive decline and dementia, social isolation,¹⁸⁻²⁰ depression and irritability.^{21, 22} Treating hearing loss can lessen the intrusiveness of tinnitus. The additional benefits of treating hearing loss include improving quality of life and cognition.^{4, 22, 23}

Offer to refer patients who report tinnitus that is troublesome or hearing difficulties and have not seen an audiologist recently,

for an assessment or review, or to discuss devices to help with tinnitus.^{4, 6, 11}

An audiologist can conduct impedance audiometry and tympanometry to assess hearing deficits and middle ear and eardrum function, provide tinnitus rehabilitation and counselling, and fit hearing aids and assistive listening devices as needed.¹¹

Audiology Australia can help you find an audiologist, keeping in mind some audiologists specialise in tinnitus, at: <https://audiology.asn.au/Home>

Under the Repatriation Transport Scheme, DVA funds transport assistance for eligible Veteran Card holders to approved treatment locations. For further information, go to: www.dva.gov.au/about-us/overview/overview-dva-benefits-and-services

Consider referral to an ear, nose and throat (ENT) specialist for further investigations and treatment if the tinnitus is:

- pulsatile or unilateral¹¹
- rapidly progressive
- associated with sudden, asymmetric or fluctuating hearing loss
- associated with a feeling of fullness or pressure in one or both ears
- associated with vertigo or balance problems.^{2, 8}

To find an ENT specialist, go to healthdirect, at:

www.healthdirect.gov.au/australian-health-services

DVA funds a range of hearing services and tinnitus treatments for eligible Veteran Card holders

- Audiology consultations and investigations to assess hearing and tinnitus that can help to determine whether tinnitus and hearing loss are service related.
- **Hearing devices and support through the Australian Department of Health Hearing Services Program on 1800 500 726 or at: www.hearingservices.gov.au**
- Assistive listening devices through the Rehabilitation Appliances Program (RAP), including:
 - induction loops (a cable that picks up and transmits sound to a hearing aid allowing better hearing in a designated induction loop area)

- headsets for watching television
- microphones and FM listening systems (a hand-held microphone that transmits sound directly to the hearing aid)
- doorbells and smoke alarms with lights
- streamers that transmit sound from a mobile phone, tablet or television to a hearing aid.
- Cochlear implants and treatment through the Hearing Services Program. Phone 1800 500 726
- Tinnitus treatment for eligible veterans with severe tinnitus that cannot be managed through the Hearing Services and RAP programs.

Only an audiologist or ENT specialist can refer a patient for the DVA funded tinnitus treatment. Treatment may include:

- a clinical assessment and treatment by a specialist audiologist
- specialised counselling by a specialist audiologist, for example tinnitus retraining therapy and use of sound enrichment devices
- hearing aids with tinnitus settings and devices to assist with sleeping.

For further information about eligibility, programs, services or hearing devices, contact DVA on 1800 550 457 or go to:

www.dva.gov.au/providers/health-programs-and-services-our-clients/hearing-service-information-providers

✔ Offer to refer distressed patients to a psychologist early

CBT is strongly recommended if tinnitus is troublesome and distressing.^{2, 4, 24, 25}

The aim of CBT is to reduce tinnitus-related distress and improve quality of life. It may not reduce the loudness of tinnitus or eliminate the noise. CBT works by the psychologist identifying negative or irrational thinking that results in distress, (see Figure 1) and challenging, modifying and replacing those thoughts with more helpful and realistic beliefs.^{4, 24} Treatment also includes learning relaxation techniques and healthy sleep hygiene.⁴ Internet or smartphone-based tinnitus treatments that include CBT have also been shown to be effective.²⁶⁻²⁸

Depression can affect the severity or tolerance of tinnitus, tinnitus can trigger depression, and tinnitus can also be an independent comorbidity in depressed people.^{25, 29} Depression often overlaps with anxiety disorders, substance misuse, in particular alcohol misuse, and sleep disturbances.³⁰ Some patients with troublesome tinnitus may also experience social phobias and adjustment disorders.^{25, 31}

Psychological interventions, including CBT and interpersonal therapy, delivered by a psychologist trained in the relevant approach, are strongly recommended as first-line therapies for treating depression, with pharmacological support only if necessary.³⁰

Some veterans with tinnitus may have multiple comorbid mental health issues and complex needs that require careful treatment planning.^{32, 33}

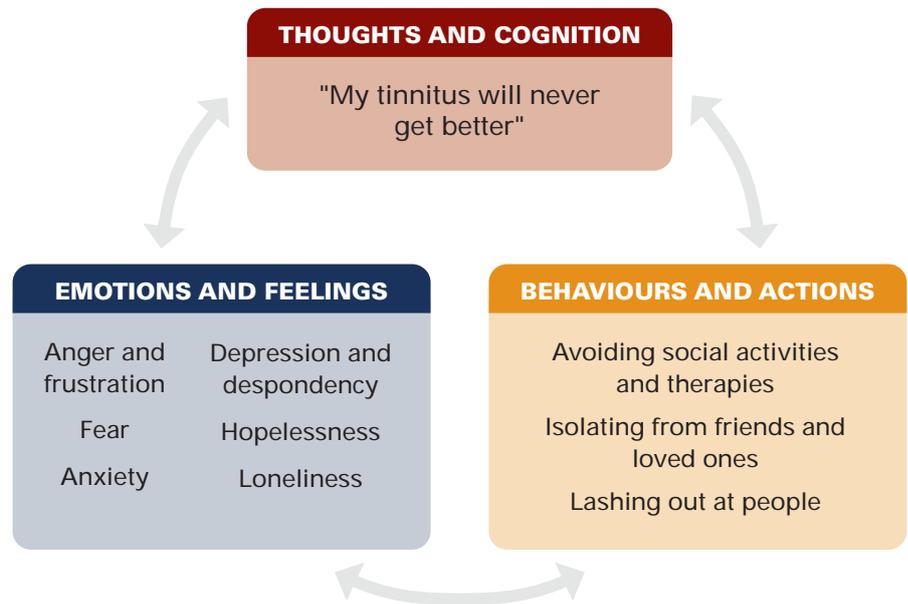


Figure 1. The negative and irrational thoughts, emotions and behaviours about tinnitus that are challenged and restructured by the psychologist during CBT⁴

There are no proven medicine treatments for tinnitus²⁵

Although numerous medicines, herbal extracts, dietary supplements and vitamins have been tried in the treatment of tinnitus, (for example antidepressants, anxiolytics, antiepileptics, betahistine, ginkgo biloba, melatonin and zinc) there is little to no evidence of benefit. These medicines and supplements could have adverse effects.^{2, 6, 25, 34-37}

Some veterans may be convinced that medicines, such as anxiolytics or antidepressants are helping their tinnitus. While some medicines may not be changed or stopped, it may be possible to taper or cease others. For information on how to taper or cease antidepressants, go to: www.veteransmates.net.au/topic-49-therapeutic-brief or to manage benzodiazepine dependence, go to: www.nps.org.au/news/managing-benzodiazepine-dependence-in-primary-care

Resources to tap into

- A psychologist (Australian Psychological Society) at: www.psychology.org.au/Find-a-Psychologist
- A psychiatrist (Royal Australian and New Zealand College of Psychiatrists) at: www.yourhealthinmind.org/find-a-psychiatrist
- The 2020 Royal Australian and New Zealand College of Psychiatrists clinical practice guidelines for mood disorders at: www.ranzcp.org/practice-education/guidelines-and-resources-for-practice/mood-disorders-cpg-and-associated-resources

Open Arms - Veterans & Families Counselling

- For mental health and wellbeing support for DVA patients, available 24/7 on 1800 011 046
- For assessing and treating veterans with anxiety, PTSD, depression, insomnia, alcohol and substance misuse, problematic anger or complicated grief, go to: www.openarms.gov.au/health-professionals/assessment-and-treatment
- To access a suite of self-help SMART (Self-Management And

- Resilience Training model) tools, designed specifically for veterans to enhance their stress management skills and build resilience by addressing physical responses, thoughts, emotions and behaviours, go to: www.openarms.gov.au/get-support/self-help-tools#!/home
- To access a suite of short videos (from 1 to 20 minutes) for veterans to learn to relax and gain control using controlled breathing, muscle relaxation and meditative strategies, go to: www.openarms.gov.au/get-support/self-help-tools/show-all-tools

✓ Medicines are a rare cause of tinnitus

Although there are many medicines reported as causing tinnitus, there is acceptable evidence for only a small number (and then in those medicines, tinnitus occurs only rarely) (see Table 1).³⁸ Risk of ototoxic effects from medicine use is higher with older age, long-term use, renal or liver impairment, and when ototoxic medicines are used in combination with each other. Most ototoxic effects are temporary and dose-dependent.^{34, 39}

Table 1. Medicines associated with ototoxic effects

Class of medicine	Medicine	Ototoxic effects
Antimalarial drugs^{8, 34}	e.g. quinine-based agents ^{34, 40, 41}	Reversible hearing loss, tinnitus and vertigo ^{34, 41}
Nonsteroidal anti-inflammatory drugs	e.g. ibuprofen, indomethacin ³⁴	Tinnitus occurs only rarely (less than 0.1%) ³⁴
	aspirin ^{34, 42}	Tinnitus, hearing impairment and vertigo with high doses ³⁴ Reversible with short-term use ⁴²
Loop diuretics⁸	e.g. furosemide, bumetanide	Tinnitus, vertigo and hearing loss with high doses (especially with rapid intravenous administration) ³⁴
Antibiotics	Aminoglycosides ³⁴ e.g. amikacin, gentamicin, tobramycin, streptomycin ³⁴	Vestibular (nausea, vomiting, vertigo, nystagmus and gait disturbances) and cochlear (hearing loss, tinnitus and a feeling of fullness in the ear) ototoxicity is dose-related ³⁴
	Glycopeptides ³⁴ e.g. vancomycin, teicoplanin ³⁴	Rarely causes dizziness, vertigo or tinnitus. Risk is higher with prolonged use, in renal impairment, and when given with other ototoxic medicines, such as aminoglycosides or loop diuretics. ^{34, 43} Deafness can be permanent ³⁴
	Macrolides ⁸ e.g. erythromycin, azithromycin ³⁴	Tinnitus, dizziness or hearing loss is dose-related ³⁴
Chemotherapies⁸	methotrexate ³⁴	Vertigo and tinnitus ³⁴
	cisplatin, carboplatin ³⁴	Hearing loss is dose-related, generally irreversible and more common in elderly patients. Tinnitus is usually reversible ³⁴
	vincristine ³⁴	Permanent or temporary vertigo and deafness ³⁴

✓ Talk with patients about how a multidisciplinary approach can help

Explain to patients:

- Tinnitus is a symptom, not a disease. Management strategies can help reduce the perceived severity and improve quality of life.⁴
- Medical investigation may be needed initially, but tinnitus is rarely an indication of a serious illness.²
- Tinnitus can be temporary, but often it is not.²
- The importance of stopping medicines that are ineffective in treating tinnitus and emphasise the benefits of seeing a psychologist.^{2, 24}
- The severity of tinnitus may change in response to many factors, including emotional stress, anxiety, general health, pain, lack of sleep or exposure to loud noises or quiet places.^{2, 15, 25, 44}
- Treatments focus on adapting to tinnitus and managing the emotional reaction to tinnitus.⁹
- No single treatment works for everyone. A multidisciplinary approach that involves a range of strategies, including CBT and counselling, self-care, education, mindfulness and relaxation, communication and auditory therapies, and devices such as hearing aids, assistive listening devices and sound therapy can be helpful.^{4, 6, 45}
- To keep doing the things they enjoy; living life to accommodate tinnitus only amplifies the noise.²
- Making the environment more 'tinnitus friendly' by using hearing aids and sound therapy can be helpful.^{2, 11}
 - Hearing aids amplify peripheral and objective sounds and make the tinnitus sounds less noticeable.¹¹
 - Sound therapy reduces the starkness of tinnitus and distracts attention away from it. It can be used in combination with a hearing aid with an inbuilt sound generator.^{4, 11}
- Information can be empowering and help them to feel better about tinnitus. Access Tinnitus Australia at: www.tinnitusaustralia.org.au
- *The Veterans' guide to better hearing* may help them gain a better understanding of tinnitus and hearing loss, and treatment options available to them, at: www.dva.gov.au/sites/default/files/files/p04129-guide-to-better-hearing.pdf

Full reference list available at: www.veteransmates.net.au

