

CADTH Reference List

Sound Masking Devices for Tinnitus in People Without Hearing Loss

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Key Messages

- One non-randomized study was identified regarding the clinical effectiveness of sound masking devices for the management of tinnitus in people with normal hearing ability.
- No evidence-based guidelines were found regarding the use of sound masking devices for the management of tinnitus in people with normal hearing ability.

Research Questions

1. What is the clinical effectiveness of sound masking devices for the management of tinnitus in people with normal hearing ability?
2. What are the evidence-based guidelines regarding the use of sound masking devices for the management of tinnitus in people with normal hearing ability?

Methods

Literature Search Methods

A limited literature search was conducted by an information specialist on key resources including MEDLINE, the Cochrane Database of Systematic Reviews, the international HTA database, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy comprised both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were tinnitus and sound maskers. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2016 and October 8, 2021. Internet links were provided, where available.

Selection Criteria and Summary Methods

One reviewer screened literature search results (titles and abstracts) and selected publications according to the inclusion criteria presented in Table 1. Full texts of study publications were not reviewed. The Overall Summary of Findings was based on information available in the abstracts of selected publications. Open access full-text versions of evidence-based guidelines were reviewed when abstracts were not available, and relevant recommendations were summarized.

Results

One non-randomized study¹ was identified regarding the clinical effectiveness of sound masking devices for the management of tinnitus in people with normal hearing ability. No evidence-based guidelines were found regarding the use of sound masking devices for the management of tinnitus in people with normal hearing ability.

Table 1: Selection Criteria

Criteria	Description
Population	People with tinnitus who have normal hearing ability (i.e., no hearing loss)
Intervention	Sound masking devices (i.e., tinnitus maskers, sound generators)
Comparator	Q1: Alternative treatments (e.g., hearing aids, tinnitus retraining therapy, pharmacological agents); no treatment; placebo Q2: Not applicable
Outcomes	Q1: Clinical effectiveness (e.g., tinnitus loudness, tinnitus annoyance, quality of life, disability, discomfort, safety [e.g., adverse events]) Q2: Recommendations regarding best practices (e.g., appropriate patient populations, recommended types of devices)
Study designs	Health technology assessments, randomized controlled trials, non-randomized studies, evidence-based guidelines

Additional references of potential interest that did not meet the inclusion criteria are provided in Appendix 1.

Overall Summary of Findings

One non-randomized study¹ was identified regarding the clinical effectiveness of sound masking devices for the management of tinnitus in people with normal hearing ability. The non-randomized study¹ concluded that masking is an effective treatment for tinnitus patients with no hearing loss. Four weeks of masking treatment significantly decreased participants' Tinnitus Handicap Inventory and visual analogue scale scores.¹

No evidence-based guidelines were found regarding the use of sound masking devices for the management of tinnitus in people with normal hearing ability; therefore, no summary can be provided.

References

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

No literature identified.

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies

1. Aytac I, Baysal E, Gulsen S, et al. Masking Treatment and its Effect on Tinnitus Parameters. *Int Tinnitus J.* 2017;21(2):83-89. [PubMed](#)

Guidelines and Recommendations

No literature identified.

Appendix 1: References of Potential Interest

Previous CADTH Reports

- Interventions That Produce Residual Inhibition for the Treatment of Tinnitus: Clinical Effectiveness and Guidelines. Ottawa (ON): CADTH; 2019. <https://www.cadth.ca/sites/default/files/pdf/htis/2019/RB1348%20Acoustic%20Stimulation%20Final.pdf> Accessed 13 Oct 2021.

Health Technology Assessments

Not Specific to Tinnitus Maskers

- Tinnitus: Non-invasive, Non-pharmacologic Treatments. Olympia (WA): Washington State Health Care Authority. 2020. <https://www.hca.wa.gov/assets/program/tinnitus-final-rpt-20200410.pdf> Accessed 13 Oct 2021.

Systematic Review and Meta-Analyses

Not Specific to Tinnitus Maskers

- Yu S, Yu H, Wang X, Du B. The efficacy of acoustic therapy versus oral medication for chronic tinnitus: A meta-analysis. *Am J Otolaryngol*. 2021;42(6):103116. [PubMed](#)
- Wang H, Tang D, Wu Y, Zhou L, Sun S. The state of the art of sound therapy for subjective tinnitus in adults. *Ther Adv Chronic Dis*. 2020;11:2040622320956426. [PubMed](#)
- Sereda M, Xia J, El Refaie A, Hall DA, Hoare DJ. Sound therapy (using amplification devices and/or sound generators) for tinnitus. *Cochrane Database Syst Rev*. 2018;12(12):CD013094. [PubMed](#)

Randomized Controlled Trials

Not Specific to Individuals With Normal Hearing Ability

- Tyler RS, Perreau A, Powers T, et al. Tinnitus Sound Therapy Trial Shows Effectiveness for Those with Tinnitus. *J Am Acad Audiol*. 2020;31(1):6-16. [PubMed](#)
- Henry JA, Stewart BJ, Griest S, Kaelin C, Zaugg TL, Carlson K. Multisite Randomized Controlled Trial to Compare Two Methods of Tinnitus Intervention to Two Control Conditions. *Ear Hear*. 2016;37(6):e346-e359. [PubMed](#)

Not Specific to Tinnitus Maskers

- Simonetti P, Vasconcelos LG, Oiticica J. Effect of Fractal Tones on the Improvement of Tinnitus Handicap Inventory Functional Scores among Chronic Tinnitus Patients: An Open-label Pilot Study. *Int Arch Otorhinolaryngol*. 2018;22(4):387-394. [PubMed](#)

Review Articles

- Ibarra D, Távira-Sánchez F, Recuero-López M, Anthony BW. In-ear medical devices for acoustic therapies in tinnitus treatments, state of the art. *Auris Nasus Larynx*. 2018;45(1):6-12. [PubMed](#)
- Makar SK, Mukundan G, Gore G. Treatment of Tinnitus: A Scoping Review. *Int Tinnitus J*. 2017;21(2):144-156. [PubMed](#)
- Searchfield GD, Kobayashi K, Hodgson SA, Hodgson C, Tevoitdale H, Irving S. Spatial masking: Development and testing of a new tinnitus assistive technology. *Assist Technol*. 2016;28(2):115-25. [PubMed](#)