



# Efficacy of Tinnitus Retraining Therapy (TRT) in Adults with Bothersome Tinnitus

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## Background

Tinnitus is the perception of sound in the absence of an external stimulus. Hearing ringing, roaring, or rushing in the ears or head is a common phenomenon in adults, affecting about 25% of the global population. For most people, tinnitus can be easily ignored. However, 1-7% of adults in the United States are living with bothersome, and potentially debilitating tinnitus that causes a disruption of daily life impacting their mood, sleep, and mental health (Bauer et al, 2017). There are many different types of treatment options for people with tinnitus. Some treatment options include the use of sound maskers, Cognitive Behavioral Therapy (CBT), Acceptance and Commitment Therapy (ACT), Progressive Tinnitus Management (PTM), and Tinnitus Retraining Therapy (TRT).

Using a systematic review, we are interested in analyzing the efficacy of TRT. TRT focuses on both conscious and subconscious connections to attempt to reduce the perception of tinnitus. The treatment consists of intensive counseling and the addition of sound therapy. The aim of this systematic review is to assess patient's perceived benefits from TRT.

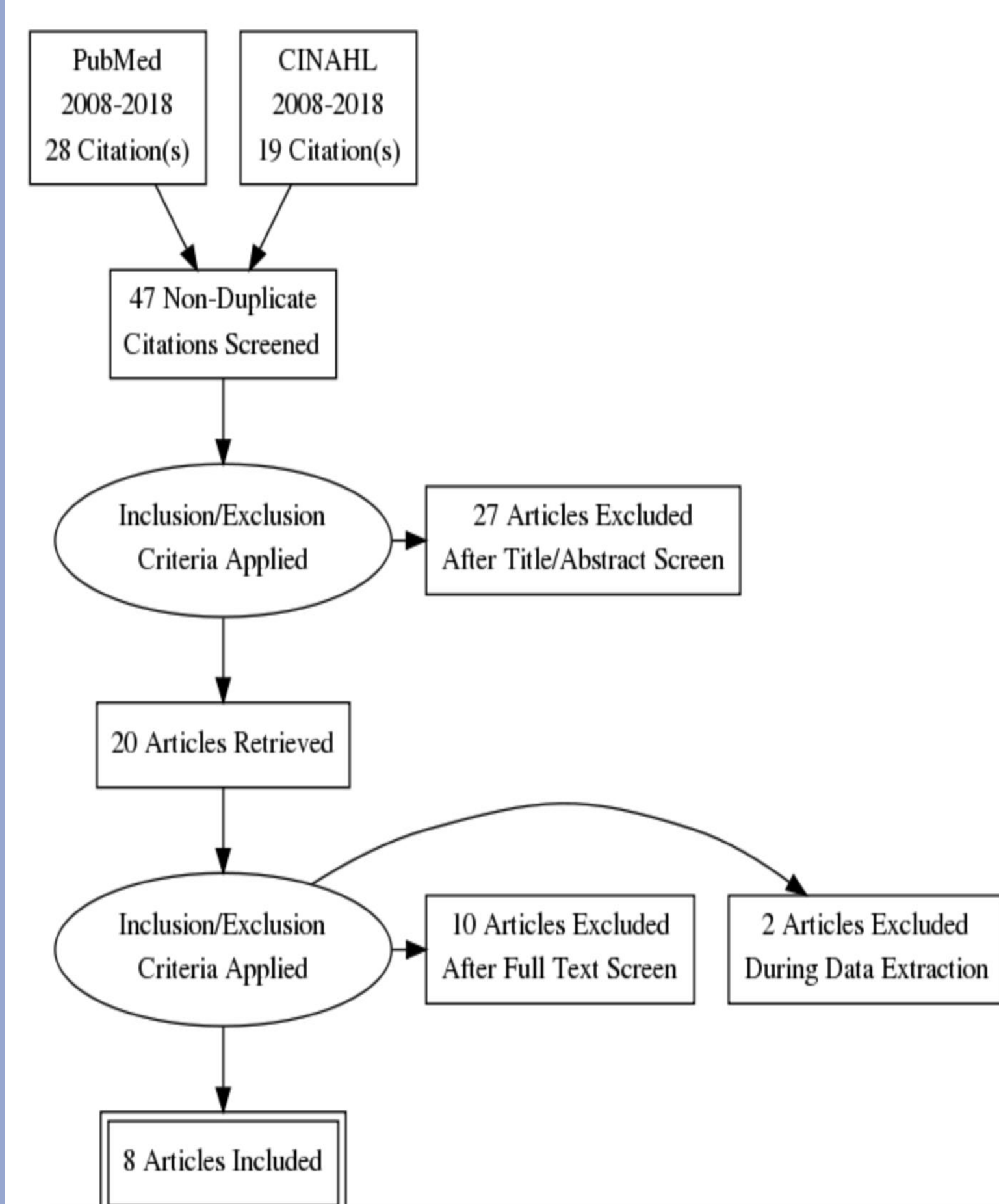
## Research Question

For adults with bothersome tinnitus, how does Tinnitus Retraining Therapy (TRT) affect perception of tinnitus relief?

## Methods

A systematic review was performed to assess the efficacy of Tinnitus Retraining Therapy for adults with bothersome tinnitus. A literature search was conducted using Pubmed and CINAHL databases. Relevant inclusion criteria included English only journals, studies focusing on the adult population, and TRT. Exclusion criteria included pediatric studies, studies using experimental tinnitus treatments, and non-peer reviewed articles. Throughout the article selection, inclusion/exclusion, quality appraisal, and data extraction process, all articles were reviewed with 90% reliability or greater.

## Prisma Chart



## Results

Authors	Quality Rating	Study Design	Sample Size	Instruments used	Length of Study	Basic Conclusions
Westin et al	Good Quality	Randomized Control Trial	64 divided into 3 groups: ACT (21), TRT (20), and waitlist (22)	THI, Insomnia Severity Index (ISI) Quality of Life Inventory (QOLI), Hospital Anxiety and Depression Scale (HADS), Tinnitus Acceptance Questionnaire (TAQ)	18 months	ACT and TRT both improved tinnitus perception, with ACT having a greater positive impact on patient's tinnitus perception.
Bauer et al	Good Quality	Randomized Control Trial	38 divided into 2 groups: TRT (19) and standard care (19)	Beck Depression Inventory (BDI), Multiple Activity Scale for Hyperacusis (MASH), THI, Tinnitus Functional Index (TFI)	18 months	Adults with moderate to severe tinnitus and hearing loss benefitted from both TRT and Standard of Care Treatment (SC), but long term benefit was greater after 18 months for TRT than SC.
Henry et al	Good Quality	Randomized Control trial	269 divided into 3 groups: educational counseling (94), traditional support (84), no-treatment (91)	TSI (tinnitus Severity Index), THI, Tinnitus Handicap Questionnaire	12 months	TRT-based educational counseling provided significantly more benefit to tinnitus relief than either traditional support or no treatment.
Herraiz et al	Good Quality	Controlled Clinical Trial	158 divided into 3 groups: TRT (116), waitlist (21), and partially treated (21)	THI, VAS	12 months	TRT improved tinnitus in 82% of the subjects and significantly reduced THI and VAS scores after 1 year of use.
Kim et al	Good Quality	Controlled Clinical Trial	38 divided into 3 groups: nTRT (8), mTRT (12), bTRT (18)	Korean THI, VAS, Numerical description of tinnitus annoyance	At least 9 weeks	Broadband sound used in sound therapy provides better relief from bothersome tinnitus than narrowband sound or mixed sound.
Koizumi et al	Good Quality	Cohort-Pro prospective Study	53 divided into groups based on factors examined	THI, index reflecting difficulties on daily life, pure tone audiometry/recruitment, tinnitus pitch	6 months	The therapeutic effect of TRT was greatest for patients with perceived tinnitus loudness over 10 dB SL and a THI score greater than 50 points.
Forti et al	Good Quality	Longitudinal Study	45 people all underwent TRT	THI	36 months	TRT significantly improved self-perceived disability caused by chronic tinnitus for 18 months after the end of therapy.
Korres et al	Mid Quality	Controlled Clinical Trial	63 divided into 2 groups: TRT and vasoactive agents	THI, VAS	12 months	TRT significantly reduced the level of annoyance caused by tinnitus and improves the ability of patients to participate in activities of daily living

## Discussion

The current research suggests that TRT is a viable treatment option for adults with bothersome tinnitus. The combination of counseling and sound therapy is able to reduce tinnitus disturbance of the patient, reduce their perceived handicap from tinnitus, and improve the patient's ability to work, sleep, and relax. Patients who underwent TRT saw improvement in their perception of tinnitus as measured by the Tinnitus Handicap Index (THI) and the Visual Analog Scale (VAS). TRT also has been shown to have long-term benefits after treatment has ended. More research should be conducted to explore other aspect of TRT, including stimuli used for sound therapy and length of treatment.

One strength of this systematic review was that there was high reliability at each step between the two reviewers. In addition, most of the articles chosen for data extraction used similar measures to assess tinnitus perception before and after intervention, which made it easy to compare articles. One limitation of this systematic review was that we only included two search databases in the initial search. Most of the studies also reported only on statistical significance, and not clinical significance. Further steps could be taken to complete an in depth analysis of the data gathered in these studies.

## Key References

References available upon request.

## Disclosures/Acknowledgements

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