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CLINICAL STUDIES

Sound Therapy

Neuro-Music Therapy for Recent-Onset Tinnitus

Miriam Grapp, Elisabeth Hutter, Heike Argstatter, Peter K. Plinkert, University of Heidelberg

The aim of this pilot study was the evaluation of the neuro-music therapy approach as a new treatment option for patients with recent-onset tinnitus whose tinnitus symptoms were enduring after initial pharmacological treatment. In all, 15 patients with recent-onset tinnitus took part in our manualized short-term music-therapeutic treatment. Tinnitus severity and individual tinnitus distress were assessed by the German version of the tinnitus questionnaire (TQ) and the Attention and Performance Self-Assessment Scale (APSA) at three different measurement times. Score changes in TQ and APSA from start to end of treatment indicated significant improvements in tinnitus-related distress. According to the Jacobson and Truax reliable change index, 73.3% of the patients showed a reliable reduction in individual TQ-score. The neuro-music therapy for recent-onset tinnitus introduced in this pilot study seems to provide an effective treatment option for patients with recent-onset tinnitus.

[View the original study](#)

Long-term effects of the Music Therapy in patients with chronic tinnitus

Heike Argstatter, Miriam Grapp, Elisabeth Hutter, Peter Plinkert, University of Heidelberg

The Model of Music Therapy for Chronic Tinnitus is a manualized short term treatment (nine 50-minutes sessions of individualized therapy on five consecutive days). It has proven to be efficient in reducing tinnitus symptoms in the short run. Now the long-term impact of the treatment after up to 5.4 years should be explored. 206 patients who had attended the neuro-music therapy were addressed in a structured follow-up questionnaire survey. 107 complete questionnaires entered analysis. Follow-up time was 2.65 years. 76% of the patients achieved a reliable reduction in their tinnitus scores, the overall tinnitus distress. 87% of the patients were satisfied by the way

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they were treated during therapy, and 71% of the patients did not undergo any further treatment after. Evaluation of therapeutic elements displays, that only music therapy specific interventions were rated helpful by the patients. The Model of Music Therapy for Chronic Tinnitus seems to be effective in the long run. The outcome effect size of $d' = 0.89$, can be accounted for as “large” effect and falls into the upper range value compared to established treatments.

 [View the original study](#)

Listening to tailor-made notched music reduces Tinnitus loudness and tinnitus-related auditory cortex activity

Hidehiko Okamoto, Henning Stracke, Wolfgang Stoll, Christo Pantev, Wilhelms-University Münster

Maladaptive auditory cortex reorganization may contribute to the generation and maintenance of tinnitus. Because cortical organization can be modified by behavioral training, we attempted to reduce tinnitus loudness by exposing chronic tinnitus patients to self-chosen, enjoyable music, which was modified to contain no energy in the frequency range surrounding the individual tinnitus frequency. After 12 months of regular listening, the target patient group showed significantly reduced subjective tinnitus loudness and concomitantly exhibited reduced evoked activity in auditory cortex areas corresponding to the tinnitus frequency compared to patients who had received an analogous placebo notched music treatment. These findings indicate that tinnitus loudness can be significantly diminished by an enjoyable, low-cost, customtailored notched music treatment, potentially via reversing maladaptive auditory cortex reorganization.

 [View the original study](#)

Sound Therapy against Tinnitus

H. Argstatter, A. Nickel, A. Rupp, S. Hoth, H. Bolay, Centre for Music Therapy Research, University of Heidelberg

The German Centre for Music Therapy Research (DZM) in collaboration with the University of Heidelberg tested an innovative music therapy treatment for chronic tinnitus. The treatment concept includes the incorporation of the tinnitus into a musically controllable hearing process. Furthermore, the musical hearing exercises should positively influence the altered brain areas and lead to “normalisation”. The results demonstrate encouraging successes.

 [View the original study](#)

A German neuroscientific study attested positive results with the implementation of sound therapy against Tinnitus

This study has allocated to the Sigrid and Victor Dulger Award

The two years during study was supported by the Klaus Tschira Foundation and substantiated the neuroscience cause-and effect chain

between chronically Tinnitus and the sound therapy treatment. A group of scientist out of different German university clinics and the German centre for music therapy could for the first time show and verify the neuroscientific effect of the sound therapy treatment in case of chronically Tinnitus using medical imaging methods. Dr. rer. med. Christoph Krick and Prof Dr. Hans Volker Bolay proved the case that the micro anatomic changes in brain are definitely related with the abatement of clinical symptoms. The MRI taken pictures advice that the sound therapy activates those brain areas which are under suspicions amplify to the relevant clinical symptoms. The Sigrid and Viktor Dulger Award will be done every two years for outstanding and innovative Healthcare research whereas they give a great attention to the hands on practice.

 [View the original study](#)

Tinnitus Treatment with Customized Sounds

Jaime Pineda, Richard Moore, Erik Viirre, Departments of Cognitive Science, University of California, and School of Medicine, La Jolla, USA

Recent studies have indicated that the pathophysiological basis for tinnitus may be abnormal activity in the auditory areas of the brain rather than aberrant activity in the periphery. Tinnitus-related activity leads to changes in tonotopic representation in auditory cortex. However, such reorganization can be reversed through training-induced changes in the response pattern of cortical neurons. We address this problem by using customized sounds that reproduce the subjective experience to reduce overactive auditory circuits. The results of two preliminary studies indicate that customized sound therapy (CST) aimed at this central dysfunction reduces tinnitus quickly and safely. Participants described immediate relief, showed changes on the Tinnitus Handicap Questionnaire, and reported changes in hearing threshold within 3 weeks. We also saw changes in the intensity dependence of the auditory N100 in tinnitus patients, supporting the idea that tinnitus reflects a reorganization of tonotopic maps in the auditory cortex. The main correlate of this reorganization was the enhanced contrast between responses to the perceived tinnitus pitch and tones approximately one octave lower. After 3 weeks of CST, the intensity dependence to the tinnitus pitch decreased, making these responses more similar to those from normal subjects responding to tones in the same frequency.