



## XI. INTERNATIONAL TINNITUS SEMINAR

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### **One decade of the "Heidelberg Model of Neuro-Music Therapy" in tinnitus**

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#### **OBJECTIVES:**

In 2004 the "Heidelberg Model of Neuro-Music Therapy", was first offered at the German Center for Music Therapy Research. Since 2008 patients can access this form of therapy on a regular basis. During the last decade, more than 1.500 patients underwent this therapy. The rationale of the therapy and the results from a number of clinical trials will be presented.

#### **METHODS:**

The "Heidelberg Model of Music Therapy" for tinnitus consists of complementary music and psychotherapeutic interventions that have been designed to intervene at different levels of the neural tinnitus network. These interventions were structured into modules leading to a standardized short term music therapy treatment comprising nine 50-minutes sessions of individualized therapy. Therapy lasts for five days from Monday until Friday.

Patients are eligible if they suffer from chronic or acute tinnitus which can be musically compiled (distinct frequency) and do not present profound hearing loss or severe forms of hyperacusis.

#### **RESULTS:**

A number of clinical trials could prove the neuro-music therapy as highly effective, efficient and long-term robust (see table 1). On a subjective level, up to 80% of all patients report a clinically significant decline in tinnitus distress (main outcome measurement: Tinnitus Questionnaire) immediately after the end of therapy. In a

follow-up survey up to five years later, results remained nearly stable. Neuro-imaging displayed a distinct reorganization of tinnitus-related networks in the brain.

Recently, the therapy was extended to patients suffering from recent onset tinnitus.

Preliminary results indicate that the music therapy might be an effective option in order to prevent tinnitus from becoming a chronic condition.

### **CONCLUSION:**

The music therapy targets the tinnitus sound itself, is short in duration, intrinsically motivating and easy to operate and thus presents a possible complement to the therapeutic spectrum tinnitus.

<b>Period</b>	<b>Content</b>
2004/2005	Development of the neuro-music therapy for chronic, tonal tinnitus (N = 20), (n = 10 music therapy vs. 10 counselling) → 80% of patients with reliable improvement of symptoms (responder)
2005/2006	Effectiveness (different treatment options) (N = 119) (n = 53 „weekly therapy“ vs. n = 66 „compact therapy“) → both treatment options are effective (85% responder), d' = 1.39)
2006/2007	Brain imaging (functional and structural MRI) in tonal tinnitus (N = 40) → reorganization“ of tinnitus related neuronal network
2008	Clinical trial in order to adapt the therapy on noisiform tinnitus (N = 34) including brain imaging procedures (MRI and fMRI) → Substantiation of results from „tonal“ tinnitus (90% responder and reorganization of brain network, d' = 1.23))
2008	Foundation of the outpatient tinnitus department at the German Center for Music Therapy Research
2009	Trial on working factors: which parts of the therapy are helpful? (N = 9) → no single module is especially helpful, only the combination leads to the overall effect (trial had to be terminated early due to the low success rate)
2006-2010	Controlled clinical trial (N = 290) (n = 146 music therapy, n = 144 psychoeducative counselling) → both interventions are helpful, but music therapy outperformed counselling (66% vs. 33% responder, d' = 1.39 )
2011	Follow-up survey on long-term outcome (N = 189) → about 75% of the patients report long term reliable reduction (d' = .89)
2012-2013	Expansion to recent onset tinnitus including brain imaging procedures (MRI and fMRI) (N = 41) (n = 21 treatment, n = 20 waiting list control) → effective treatment option in order to prevent tinnitus from becoming a chronic condition (55% responder; d' = 1.61)