**TREATING CHRONIC TINNITUS WITH TOMOGRAPHIC NEUROFEEDBACK**

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Due to recent neurophysiological studies, subjective tinnitus has been associated with a change of ratio between differential EEG frequency modulations. While usually the slow delta- and the faster gamma-oscillations appear to be abnormally increased, alpha waves tend to be significantly suppressed for tinnitus sufferers, presumably in auditory regions. Application of neurofeedback treatment aiming for reversing these pathological activity patterns has formerly been proven successful for tinnitus treatment. In this project, we aim at replicating these earlier findings on the one hand while also investigating a newer more elaborated tomographic neurofeedback approach using EEG source estimation on the other. In detail, tomographic neurofeedback aims at modulating brain activity focally in terms of an EEG analysis technique (sLORETA), which allows source localization of the oscillations-related specific areas of the brain, such as, in this study, the auditory cortices. In an extensive and well-controlled clinical study, 50 patients with chronic tinnitus took part in 15 weekly neurofeedback training sessions as well as substantial pre-, post-, and follow-up testing. First results indicate that tinnitus symptoms measured by standard tinnitus questionnaires prior and after the training period improved significantly over the course of the training and participants succeeded in altering their brain activity accordingly. What is more, these changes remain constant when measured 3 and 6 months after the completion of training. Neurofeedback can thus be considered a highly promising form of therapy in the treatment of chronic tinnitus.