Neurofeedback of slow cortical potentials as a treatment for adults with Attention Deficit-/Hyperactivity Disorder

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Objective
Attention Deficit-/Hyperactivity Disorder (ADHD) has been treated successfully in children with neurofeedback (NF). In this study, for the first time NF is investigated in adults with ADHD. To answer the question of specificity the relationship between treatment outcome and self-regulation ability is assessed.

Methods
Twenty-four participants underwent 30 sessions of slow cortical potential NF. Measurements of ADHD and comorbid symptoms, as well as neurophysiological data (Reaction time (RT) and RT variability (RTV) and contingent negative variation (CNV)) were performed before and after treatment, and again six months after sessions were completed. Participants were categorized into self-regulation learners and non-learners.

Results
Significant improvements on all symptom scales were observed with medium to large effect sizes after treatment and six months post treatment. RT and RTV decreased significantly and there was a trend for an increased CNV. Half of the participants successfully learned to regulate their brain activity. In the long-term, symptoms in the group of learners improved more than in non-learners with large effect sizes.

Conclusion
NF is effective in treating adult ADHD long-term. The impact of self-regulation ability and possible unspecific effects still require further investigation.

Significance
This study is the first to investigate the effects of NF in adults with ADHD, relating clinical outcome to self-regulation performance.