

# Effects of mindfulness and psychoeducation on working memory in adult ADHD: A randomised, controlled fMRI study.

Bachmann K, Lam AP, Sörös P, Kanat M, Hoxhaj E, Matthies S, Feige B, Müller H, Özyurt J, Thiel CM, Philipsen A.

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## Abstract

Adult attention-deficit/hyperactivity disorder (ADHD) is a serious mental disorder associated with impaired neurocognitive performance related to working memory function. Recent clinical trials have suggested that mindfulness is a promising intervention in adults with ADHD. We performed a randomised controlled clinical trial to investigate working memory (WM) with an n-back task in adults with ADHD during fMRI before and after an 8-week mindfulness intervention (MAP) compared with psychoeducation (PE). ADHD symptoms were assessed using the self- and observer-rated Conners Adult ADHD Rating Scales (CAARS). The complete pre-post data of 21 MAP and 19 PE participants were analysed. We found no group difference in ADHD symptoms or task performance at the pre-measurement, but there was a significant decrease in ADHD symptoms and significant improvement in task performance in both groups at the post-measurement. Furthermore, we found a significant increase in task-related activation in the right parietal lobe, with no difference between groups. Exploratory two-sample paired t-tests revealed significant increased brain activation after MAP in the bilateral inferior parietal lobule, right posterior insula and right precuneus. A decrease in self-rated 'Inattention/Memory Problems' after MAP compared to baseline was associated with stronger activation in parts of the left putamen, globus pallidus and thalamus.