

## Publication

### An event-related potential investigation of the acute effects of aerobic and coordinative exercise on inhibitory control in children with ADHD

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The current body of evidence suggests that an aerobic exercise session has a beneficial effect on inhibitory control, whereas the impact of coordinative exercise on this executive function has not yet been examined in children with ADHD. Therefore, the present study aims to investigate the acute effects of aerobic and coordinative exercise on behavioral performance and the allocation of attentional resources in an inhibitory control task. Using a cross-over design, children with ADHD-combined type and healthy comparisons completed a Flanker task before and after 20min moderately-intense cycling exercise, coordinative exercise and an inactive control condition. During the task, stimulus-locked event-related potentials were recorded with electroencephalography. Both groups showed an increase of P300 amplitude and decrease of reaction time after exercise compared to the control condition. Investigating the effect of exercise modality, aerobic exercise led to greater increases of P300 amplitude and reductions in reaction time than coordinative exercise in children with ADHD. The findings suggest that a single exercise bout improves inhibitory control and the allocation of attentional resources. There were some indications that an aerobic exercise session seems to be more efficient than coordinative exercise in reducing the inhibitory control deficits that persist in children with ADHD.

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