

International Journal of Sport Studies for Health

Journal Homepage



The Effect of DLPFC Stimulation Compared to Mindfulness Exercises on Cognitive Performance in Children with Attention Deficit Hyperactivity Disorder

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1. Round 1

1.1 Reviewer 1

Reviewer:

In the introduction, you mention that ADHD affects approximately 3 to 7 percent of school-aged children (paragraph 2). It would be helpful to specify the source and the geographical context of this statistic. Additionally, consider updating this information with the most recent epidemiological data.

The description of the DLPFC stimulation device is comprehensive (paragraph 8). To improve reproducibility, include a diagram or image of the electrode placement and a more detailed protocol for the tDCS sessions.

The mindfulness training sessions are well-outlined (paragraph 8). It would be helpful to provide more context on how these sessions were designed, including references to existing validated mindfulness programs for children.

In the Data Analysis section, you mention using ANOVA for repeated measurements (paragraph 9). Please specify the assumptions checked for this analysis and any steps taken if these assumptions were violated.

The descriptive statistics in Table 1 are clear (paragraph 11). However, consider including a more detailed table or figure that shows individual changes in scores to provide a better sense of the variability and distribution of the data.

Author revised the manuscript and uploaded the updated document.

1.2 Reviewer 2

Reviewer:

The introduction provides a good overview of the deficits in executive functions (EF) associated with ADHD (paragraph 4). However, there is a need for a more detailed discussion of previous research that directly compares DLPFC stimulation and mindfulness interventions, highlighting gaps that this study aims to address.

In the Methods and Materials section, you state that 45 children were selected based on the medium critical effect size recommended for tDCS studies (paragraph 3). Please provide a more detailed explanation of how the effect size was determined and the justification for the sample size, referencing relevant studies.

The criteria for participant selection are well-defined (paragraph 4). However, it would be beneficial to explain why children who did not use Ritalin or whose parents opposed its use were included. What potential confounding factors were considered?

In the Results section, you state that DLPFC stimulation significantly improved perseverative errors and total errors compared to mindfulness and sham stimulation (paragraph 12). Provide more context on the clinical significance of these improvements, not just the statistical significance.

While the discussion touches on potential mechanisms (paragraph 21), provide a more detailed analysis of how DLPFC stimulation might physiologically alter cognitive functions in children with ADHD. Include relevant neuroimaging or neurophysiological studies.

Strengthen the discussion by comparing your findings with those of similar studies in the field (paragraph 23). Highlight any discrepancies and offer potential explanations for these differences.

Author revised the manuscript and uploaded the updated document.

2. Revised

Editor's decision after revisions: Accepted.

Editor in Chief's decision: Accepted.