

Unmet Needs in Children with ADHD - Can Transcranial Direct Current Stimulation (tDCS) Fill the Gap?

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The prevalence of Attention Deficit Hyperactivity Disorder (ADHD) among children is estimated worldwide at 5%. Currently main treatment options involve medication and therapy. Due to long term medication management issues and significant side effects of ADHD medication, including decreased appetite, sleeping problems and nausea, there is a need of developing alternative treatments. Transcranial direct current stimulation (tDCS) might fill this gap.

The potential efficacy of tDCS has been backed up by several studies conducted in adult populations with ADHD and other neuropsychiatric disorders. Because of its relatively easy application, lack of severe side effects and relatively low-cost, tDCS is perceived as a promising alternative to medication. Further research, however, is needed in order to establish it as an appropriate treatment. In particular, limited evidence regarding the use of tDCS in children, lack of clear translational guidelines and general challenges in conducting research with vulnerable populations pose a number of practical and several important ethical challenges to the successful translation into the clinic. Guidance on how to conduct ethical trials for pediatric tDCS for ADHD is therefore urgently required.

A literature review of available research on tDCS in pediatric populations helped us identify different areas where the ethical issues are most relevant: safety, risk and benefit assessment, information and consent (including communicating the unknown), labeling problems, and non-medical use, DYI applications of tDCS and the issue of neuroenhancement. Based on an analysis of these ethical issues, we propose a list of recommendations that can support clinicians and researchers in conducting ethically sound research on tDCS with pediatric population.