

Transcranial Direct Current Stimulation (tDCS) for Anorexia Nervosa

(project no. 85-17)

Authors

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Aim

The aim of this study is to determine the efficacy of stimulating the brain with tDCS to reduce anorexia nervosa (AN) symptomatology.

Background

In our previous research, we uncovered very distinctive eye movement abnormalities in AN called square wave jerks (SWJs; small, 'twitching' eye movements). These eye movements are indicative of altered functioning of a midbrain region, called the superior colliculus (SC). The SC plays a key role in the eye movement system, receiving inputs from different brain regions, including the inferior parietal lobule (IPL), via the substantia nigra (SN; also in the midbrain) to initiate and inhibit eye movements. Findings from our pilot research have also indicated reduced 'functional connectivity' (i.e. communication) between these midbrain regions and the left IPL in AN. This is an important finding as these brain regions are not only involved in eye movement production, but also in multi-sensory integration and body image, key deficits, and arguably the driving-force behind AN behaviour.

Method

High-definition tDCS (or sham) will be administered to the left IPL in 20 individuals with AN, in a randomised controlled pilot and feasibility investigation. It is expected that stimulating the left IPL will project to the SN and SC, and will: 1- increase the functional connectivity between these regions as determined by resting state functional magnetic resonance imaging (fMRI); 2- result in a reduction of SWJs; and 3- result in reduced AN symptomatology. Participants will be tested pre-tDCS, post-tDCS (following 10 daily sessions of tDCS), and at 4- and 12-week follow-up.

Execution

May 2018 - October 2019

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