Blinding is compromised for transcranial direct current stimulation at 1 mA for 20 minutes in young healthy adults - DTU Orbit (09/10/2019)

Blinding is compromised for transcranial direct current stimulation at 1 mA for 20 minutes in young healthy adults

Transcranial direct current stimulation (tDCS) is a non-invasive brain stimulation method that is frequently used to study cortical excitability changes and their impact on cognitive functions in humans. While most stimulators are capable of operating in double-blind mode, the amount of discomfort experienced during tDCS may break blinding. Therefore, specifically designed sham stimulation protocols are being used. The "fade-in, short-stimulation, fade-out" (FSF) protocol has been used in hundreds of studies and is commonly believed to be indistinguishable from real stimulation applied at 1 mA for 20 minutes. We analyzed subjective reports of 192 volunteers, who either received real tDCS (n=96) or FSF tDCS (n=96). Participants reported more discomfort for real tDCS and correctly guessed the condition above chance-level. These findings indicate that FSF does not ensure complete blinding and that better active sham protocols are needed.

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General information
Publication status: Accepted/In press
Organisations: Magnetic Resonance, Department of Health Technology, University of Tromsø, University Medical Center Goettingen, University of Newcastle, University of Amsterdam, University of Minnesota
Corresponding author: Mittner, M.
Number of pages: 17
Publication date: 2019
Peer-reviewed: Yes

Publication information
Journal: European Journal of Neuroscience
ISSN (Print): 0953-816X
Ratings:
BFI (2019): BFI-level 1
Web of Science (2019): Indexed yes
Original language: English
Keywords: tDCS, Active sham, Blinding, Double-blind, Placebo
DOIs:
10.1111/ejn.14403
Source: FindIt
Source ID: 2444798039
Research output: Contribution to journal › Journal article – Annual report year: 2019 › Research › peer-review