Differential Effects of tDCS on Visuospatial Working Memory Performance under Fatigue



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BACKGROUND: Transcranial direct current stimulation (tDCS) of the left dorsolateral prefrontal cortex is known to promote WM, however, its efficacy against fatigue-related performance declines remains uncertain.



METHODS

- 1. Sixty minute visuospatial WM task
- 2. Thirty two participants, within subjects
- 3. Treatment: Control, sham, or anodal tDCS
- 4. Stim: 1mA, 10 minutes, 20th minute
- 5. Stratification: HI or LO acc. at baseline



- 1x1 tDCS

- Cathode over the r-SO
- Anode over the I-dIPFC
- Sponge electrode (5x7 cm)

RESULTS

- HI and LO WM individuals are differentially influenced by anodal tDCS, with the latter making steeper accuracy gains.
- tDCS benefits do not alter the subjective perceptions of fatigue in either group.

The benefits of non-invasive brain stimulation during a fatiguing working memory exercise are regulated by baseline ability.



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Two-back WM task

Accuracy by condition

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