

Study Title: High-Definition Transcranial Direct Current Stimulation (HD-tDCS) in logopenic variant Primary Progressive Aphasia (lvPPA): Effects on Language and Neural Mechanisms.

NCT: NCT03805659

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Statistical Analysis:

- The small sample size in this study precluded group-level statistical analysis.
- Instead focused on a within subject item-level analysis.
- Language performances in each trial period were assessed separately to help control for potential carryover effects and for effects of progressive neurodegeneration.
- The Cochran's Q test was used to determine if there were any differences on a dichotomous variable across the three-trial period timepoints.
- Because the same assessment list/version was used within a given stimulation condition per participant, we coded "right" and "wrong" answers to an individual assessment item as our dichotomous variable.
- If the preliminary Cochran's Q test demonstrated a significant difference ($p<0.05$) between participant responses in a language assessment between two timepoints, a follow-up non-parametric pairwise comparison between the baseline and timepoint list was tested using a McNemar test with a false discovery rate correction (Sheppard et al., 2021; Hung et al., 2017; Tsapkini et al., 2015).
- While the Cochran's Q and post-hoc McNemar test allowed us an objective comparison between timepoints within conditions for each individual participant, we utilized a Wilcoxon-signed rank test to assess participant performance changes between aHD-tDCS and sHD-tDCS (ex: aHD-tDCS T0-T1 percentage change from baseline vs. sHD-tDCS T0-T1 percentage change from baseline). This assessment would allow us a more quantitative direct comparison between treatment conditions on an individual participant (Sheppard et al., 2021). The statistical analyses described were performed using SPSS version 27.0 (IBM, Armonk NY). A p-value of <0.05 was used to describe statistical significance.