Background
This project aims to understand the inconsistent findings often reported in non-invasive brain stimulation literature by focusing on the importance of methodological differences and participant expectations.

Methodological differences:
Transcranial direct current stimulation (tDCS) has frequently been used in research to enhance inhibitory control, however research findings are often inconsistent. It has been proposed that these inconsistencies could be attributed to methodological differences in stimulation parameters (e.g. Beaumont et al., 2022; Schroeder et al., 2020).

Objective 1: manipulation of stimulation parameters
Stimulators:
- HDCstim direct current
- NeuroConn DC-Stimulator
- Nurostynt tES

Conduction type:
- Paste
- Saline

Stimulation:
- Target electrode: rIFG
- Reference electrode: supraorbital
- Current intensity: 1.5mA

Inhibitory control measure:
Participants will complete an anticipated response inhibition task (OSARI)

Objective 2: manipulation of participant expectations
Active feedback:
“You were randomly assigned to the group that will receive real stimulation. Research has shown that tDCS can improve performance on the task that you’ll be completing.”

Sham feedback:
“You were randomly assigned to the group that will receive fake stimulation. Research has shown that tDCS can improve performance on the task that you’ll be completing but you will be receiving fake stimulation.”

No feedback

Methodology
Fig 1. Stimulation parameters used across 45 single-session studies using tDCS to improve inhibitory control (based on data from Schroeder et al., 2020)

Participant expectations:
Research has also indicated that participant expectations may influence tDCS intervention outcomes. Simply telling participants that they are receiving active or sham stimulation (e.g. Ray et al., 2019) or priming participants with statements about what the stimulation will do (e.g. Rabipour et al., 2018) can influence outcomes regardless of the tDCS condition administered.