Using Non-Invasive Brain Stimulation to Modulate Thought Suppression

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The aim of this study is to investigate if non-invasive HD-tDCS brain stimulation can be used to stimulate thought suppression in healthy individuals (experiment 1) and in individuals with heightened levels of anxiety (experiment 2).

Ethical review	Approved WMO
Status	Pending
Health condition type	Other condition
Study type	Interventional

Summary

ID

NL-OMON56634

Source
ToetsingOnline

Brief title
Modulating Thought Suppression

Condition

- Other condition

Synonym
n.v.t.

Health condition

het betreft fundamenteel geheugenonderzoek dat niet gericht is op een aandoening maar op algemeen functioneren van het geheugen.

Research involving
Human

Sponsors and support

Primary sponsor: Universiteit van Tilburg
Source(s) of monetary or material Support: NWO

Intervention

Keyword: High-Definition Transcranial Direct Current Stimulation, memory, non-invasive brain stimulation, thought suppression

Outcome measures

Primary outcome

Thought suppression is defined by means of three endpoints: more forgetting;

fewer intrusions; and reduced negative affect in the experimental group

(compared to the control group).

Secondary outcome

n/a

Study description

Background summary

The act of suppressing unwanted emotional memories is important for our mental health. Because memories can trigger strong emotions, the ability to control whether and when such memory recall occurs can help us in regulating these emotions. However, not all individuals are able to apply such thought suppression when needed. In healthy populations, there are large individual differences in the extent to which people can suppress their memories. In individuals diagnosed with psychopathology or with presence of subclinical traits (e.g., anxiety) thought suppression deficits are more pronounced. A promising way to level the playing field for individuals that experience difficulty with suppressing unwanted thoughts is by applying non-invasive High-Definition Transcranial Direct Current Stimulation (HD-tDCS) to relevant brain areas to boost thought suppression. Specifically targeting the right dorsolateral prefrontal cortex should subsequently reduce brain activity in areas involved in memory retrieval (i.e., hippocampus) and emotional arousal (i.e., amygdala) thereby boosting thought suppression and emotion regulation.

Study objective

The aim of this study is to investigate if non-invasive HD-tDCS brain stimulation can be used to stimulate thought suppression in healthy individuals (experiment 1) and in individuals with heightened levels of anxiety (experiment 2).

Study design

double-blind placebo controlled intervention study

Intervention

Participants in the experimental group will receive 3mA HD-tDCS stimulation for 30 minutes in the phase in which they are suppressing unwanted memories. The control group will receive sham stimulation during this time.

Study burden and risks

There are no direct benefits for the participants. There are no risks involved with participation (in either Experiment 1 or Experiment 2). Participants will invest 2 hours of their time in participation, 30 minutes of which will involve HD-tDCS (or sham) stimulation.

Contacts

Public
Universiteit van Tilburg

Warandelaan 2
Tilburg 5037 AB
NL
Scientific
Universiteit van Tilburg

Warandelaan 2
Tilburg 5037 AB
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)

Inclusion criteria

• 18 to 35 years of age
• able to speak Dutch fluently
• STAI-T Total score of 40 or higher (only for experiment 2)

Exclusion criteria

a) Red-green color blindness
b) (Suspected) current pregnancy
c) Frequent or severe headaches (migraines)
d) Scalp or skin condition (e.g. psoriasis or eczema)
e) Metal implants such as intracranial electrodes, surgical clips or shrapnel (metal in the mouth such as a splint or brace is permitted)
f) Presence of implanted medical devices
g) Head injury resulting in loss of consciousness
h) Head wound that has not yet fully healed
i) Ever had a stroke or epileptic seizure
j) Unexplained episodes of loss of consciousness
k) Use of medication (excluding contraceptive pills)
l) Current self-reported diagnosis of a neurological or psychological disorder
m) Any serious life-threatening disease
n) Participated in previous research that used brain stimulation techniques (such as TMS/tDCS) and experience serious side effects
o) Head covering or hairstyle (headscarf, dreadlocks) that does not allow contact with the scalp
p) Previously participated in similar memory research

Study design

Design

Study type:	Interventional
Intervention model:	Parallel
Allocation:	Randomized controlled trial
Masking:	Double blinded (masking used)

Primary purpose: Other

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	01-01-2024
Enrollment:	192
Type:	Anticipated

Medical products/devices used

Generic name:	StarStim
Registration:	No

Ethics review

Approved WMO

Date:	08-03-2024
Application type:	First submission
Review commission:	METC Brabant (Tilburg)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL85602.028.23