

Clinical Trial Protocol

Iranian Registry of Clinical Trials

20 Sep 2026

Investigating the effectiveness of Transcranial direct current stimulation (tDCS) on the working memory and narrative discourse of healthy elderly

Protocol summary

Study aim

Determining the effectiveness of Transcranial Direct Current Stimulation on Working memory and narrative discourse of healthy elderly .

Design

A clinical trial with a control group and an intervention group and a single-blind randomized trial is conducted on 36 people.

Settings and conduct

This study is conducted in Hamedan Ba'ath Hospital in a one-sided blind way on 36 healthy elderly people randomly with a control group.

Participants/Inclusion and exclusion criteria

Elderly people (60-85 years old) and Persian language should prevail. Based on the Edinburgh test, it should be dominant in right-handed people. The presence of a history of low vision and hearing loss is checked based on observation and interview with the patient's companions. If the visual and hearing impairment is to the extent that it cannot be compensated by auxiliary devices (glasses and hearing aids), the person will not be included in the study. The person's cognitive status and intelligence based on the MMSE test should be normal. (Score 24 and above.) Based on the examination of the medical record, they do not have a history of neurological and psychiatric diseases and speech and language. No dependence on alcohol and drugs. Not using drugs that affect the nervous system (such as antidepressants and sleeping pills) Absence of any type of obstacle for the operation of the tDCS device, such as the presence of certain metals

Intervention groups

Intervention group: 18 healthy elderly people are subjected to brain stimulation for 20 minutes and in 5 days with a transcranial brain stimulation device and at the same time they perform the N-back test with a computer. The intensity of the stimulation with the device is 2 milliamperes.

Main outcome variables

Working memory and narrative discourse

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20230919059470N1**

Registration date: **2023-10-07, 1402/07/15**

Registration timing: **registered_while_recruiting**

Last update: **2023-10-07, 1402/07/15**

Update count: **0**

Registration date

2023-10-07, 1402/07/15

Registrant information

Name

Ali Moshtagh

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 13 4263 1318

Email address

ali.moshtagh.96@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2023-10-02, 1402/07/10

Expected recruitment end date

2023-12-31, 1402/10/10

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty	After having the necessary conditions and willingness to participate in the study, each person will receive an envelope and the researcher will act based on the content inside the envelope.
Scientific title	Blinding (investigator's opinion)
Investigating the effectiveness of Transcranial direct current stimulation (tDCS) on the working memory and narrative discourse of healthy elderly	Single blinded
Public title	Blinding description
Investigating the effectiveness of Transcranial direct current stimulation (tDCS) on the working memory and narrative discourse of healthy elderly	The subjects of the study group are treated in the intervention process in each session by placing the anode electrode on the F3 area of the brain and with an intensity of 2 milliamperes. The cathode electrode is placed in the right upper orbital region of the person. In the control group, the electrodes are placed in the desired areas, but after 1 minute and after reaching the intensity of 1 milliamperes, the device is automatically cut off, but the person is not aware and the sham stimulation conditions continue. It should be noted that none of the participants will be informed about the type of real and sham stimulation session.
Purpose	Placebo
Supportive	Used
Inclusion/Exclusion criteria	Assignment
Inclusion criteria:	Parallel
Elderly people (60-85 years old) and Persian language should prevail. Based on the Edinburgh test, it should be dominant in right-handed people. Do not have irreparable visual or auditory sensory defects, that is, at a comfortable listening level (20 to 45 dB with hearing aids) and the vision can understand the message. The presence of a history of low vision and hearing loss is checked based on observation and interview with the patient's companions. If the visual and hearing impairment is to the extent that it cannot be compensated by auxiliary devices (glasses and hearing aids), the person will not be included in the study. The person's cognitive status and intelligence based on the MMSE test should be normal. (Score 24 and above.) Based on the examination of the medical record, they do not have a history of neurological and psychiatric diseases and speech and language. No dependence on alcohol and drugs. Not using drugs that affect the nervous system (such as antidepressants and sleeping pills) Absence of any type of obstacle for the operation of the tDCS device, such as the presence of certain metals	Other design features
Exclusion criteria:	Secondary Ids
	empty
Age	Ethics committees
From 60 years old to 85 years old	1
Gender	Ethics committee
Both	Name of ethics committee
Phase	Ethics Committee of Hamadan University of Medical Sciences
N/A	Street address
Groups that have been masked	5th floor, Central Headquarters of University of Medical Sciences, Shahid Fahmideh Blvd., Hamadan, Hamadan
• Participant	City
	Hamadan
Sample size	Province
Target sample size: 36	Hamadan
Randomization (investigator's opinion)	Postal code
Randomized	۶۵۱۷۸۳۸۷۳۶
Randomization description	Approval date
Each person will be placed in two test (A) or control (B) groups using the random block method. The division of people into the test group or the control group will be done using blocks of 4 and the random replacement method, as follows (where A represents the test person and B represents the control person) and the allocation sequence will be determined. ABBABABABAABABABBAABBBAAABBAABABABAB The type of intervention based on the predetermined sequence is written inside the envelopes in the opaque package and the envelopes will be numbered in order.	2023-08-15, 1402/05/24
	Ethics committee reference number
	IR.UMSHA.REC.1402.395
	Health conditions studied
	1
	Description of health condition studied
	working memory and narrative discourse of healthy elderly
	ICD-10 code
	ICD-10 code description

Primary outcomes

1

Description

Working memory

Timepoint

at the beginning of the study (before the start of the intervention) and after the end of the study (after the last day of the intervention) and 1 month after the end of the intervention

Method of measurement

N-back test

2

Description

narrative discourse

Timepoint

at the beginning of the study (before the start of the intervention) and after the end of the study (after the last day of the intervention) and 1 month after the end of the intervention

Method of measurement

Persian narrative discourse evaluation test

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: 18 healthy elderly people are subjected to brain stimulation for 20 minutes and in 5 days with a transcranial brain stimulation device and at the same time they perform the N-back test with a computer. The intensity of the stimulation with the device is 2 milliamperes.

Category

Rehabilitation

2

Description

Control group: 18 healthy elderly people are subjected to brain stimulation for 20 minutes and in 5 days with a transcranial brain stimulation device and at the same time they perform the N-back test with a computer. When the intensity of 1 milliamperes is reached, the device is cut off.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Besat hospital

Full name of responsible person

Iraj sedighi

Street address

Shahid Beheshti Blvd, Hamadan

City

Hamadan

Province

Hamadan

Postal code

۶۵۱۷۸۳۸۷۳۶

Phone

+98 81 3264 0020

Email

Besat@umsha.ac.ir

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Hamedan University of Medical Sciences

Full name of responsible person

Reza shokoohi

Street address

5th floor, Central Headquarters of University of Medical Sciences, Shahid Fahmideh Blvd., Hamadan, Hamadan

City

Hamadan

Province

Hamadan

Postal code

۶۵۱۷۸۳۸۷۳۶

Phone

+98 81 3131 4058

Email

shokoohi@yahoo.com

Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?

Yes

Title of funding source

Hamedan University of Medical Sciences

Proportion provided by this source

100

Public or private sector

Public

Domestic or foreign origin

Domestic

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

Academic

Person responsible for general inquiries

Contact

Name of organization / entity

Hamedan University of Medical Sciences

Full name of responsible person

Bahare rezai

Position

Assistant professor

Latest degree

Ph.D.

Other areas of specialty/work

Speech therapy

Street address

Faculty of Rehabilitation Sciences, Hamadan
University of Medical Sciences, Shahid Fahideh St.,
Hamadan

City

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Province

Hamadan

Postal code

۶۵۱۷۸۳۸۶۸۷

Phone

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Person responsible for scientific inquiries

Contact

Name of organization / entity

Hamedan University of Medical Sciences

Full name of responsible person

Ali Moshtagh

Position

Student

Latest degree

Bachelor

Other areas of specialty/work

Speech therapy

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Province

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Person responsible for updating data

Contact

Name of organization / entity

Hamedan University of Medical Sciences

Full name of responsible person

Ali Moshtagh

Position

Student of Master science

Latest degree

Bachelor

Other areas of specialty/work

Speech therapy

Street address

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City

Roudsar

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Phone

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Fax

Email

Ali.moshtagh.96@gmail.com

Sharing plan

Deidentified Individual Participant Data Set (IPD)

Undecided - It is not yet known if there will be a plan to make this available

Study Protocol

Undecided - It is not yet known if there will be a plan to make this available

Statistical Analysis Plan

Undecided - It is not yet known if there will be a plan to make this available

Informed Consent Form

Undecided - It is not yet known if there will be a plan to make this available

Clinical Study Report

Undecided - It is not yet known if there will be a plan to make this available

Analytic Code

Undecided - It is not yet known if there will be a plan to make this available

Data Dictionary

Undecided - It is not yet known if there will be a plan to make this available