

Clinical Trial Protocol

Iranian Registry of Clinical Trials

13 Jul 2026

The effect of transcranial direct current stimulation over posterior parietal cortex and premotor cortex on upper limb joint position sense in healthy adults

Protocol summary

Study aim

The effect of transcranial direct current stimulation on joint position sense of upper limb joints which is an important part of proprioception by targeting right posterior parietal cortex or premotor cortex

Design

45 men and women regarding sexuality and homogeneity, randomly get into 2 intervention or control group. Also the priority of assessing joints on right and left is randomized. This study is double blinded with parallel groups which participants and analyzer of the results are blinded.

Settings and conduct

At the first session of intervention, active joint position sense of shoulder, elbow and wrist on both sides in midrange by goniometer and photography technique will be assessed and tDCS will be used for 5 days. At the last session of intervention, the active joint position sense will be reassessed. The study will be performed at University of social welfare and rehabilitation sciences.

Participants/Inclusion and exclusion criteria

Healthy adults 18-40 years with no history of convulsion, psychological and neurological diseases. Satisfaction of participants is needed with no irritation of skin during intervention

Intervention groups

Participants randomly will be allocated through one out of right posterior parietal cortex, right premotor cortex and sham. t-DCS will be used on the areas for 20 minutes, 1 mA and 5 consecutive days. The current on sham group will turn off after 30 seconds.

Main outcome variables

Active joint reposition sense of shoulder, elbow and wrist on both sides in midrange by photography technique

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20200124046237N1**

Registration date: **2020-02-01, 1398/11/12**

Registration timing: **prospective**

Last update: **2020-02-01, 1398/11/12**

Update count: **0**

Registration date

2020-02-01, 1398/11/12

Registrant information

Name

Elnaz Allahverdlo

Name of organization / entity

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2020-02-19, 1398/11/30

Expected recruitment end date

2020-05-19, 1399/02/30

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The effect of transcranial direct current stimulation over posterior parietal cortex and premotor cortex on upper limb joint position sense in healthy adults

Public title

The effect of t-DCS on proprioception

Purpose

Basic science

Inclusion/Exclusion criteria**Inclusion criteria:**

Age under 40 years Right handedness No history of neurological diseases No history of convulsion No history of psychological disorders No pace maker and implant No history of pain, discomfort and injury on upper limb during 6 months ago

Exclusion criteria:

No cooperation of participants Dispensing and not willing to follow study Sensitivity of the skin of the participants head

Age

From **18 years** old to **40 years** old

Gender

Both

Phase

N/A

Groups that have been masked

- Participant
- Data analyser

Sample size

Target sample size: **45**

Randomization (investigator's opinion)

Randomized

Randomization description

Regarding participants sexuality, they will choose one paper among two sealed pockets to get into study groups. Also in order to randomize the priority of assessing joints and ipsilateral or contralateral limb, participants will choose 2 paper out of isolated sealed pockets.

Blinding (investigator's opinion)

Double blinded

Blinding description

All the participants will be blind about the study groups. Analyzer of the results will be blind to participants and study groups.

Placebo

Used

Assignment

Parallel

Other design features**Secondary Ids**

empty

Ethics committees**1****Ethics committee****Name of ethics committee**

Ethics committee of University of Social welfare and Rehabilitation Sciences

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Kodak yar Dead end , Daneshjoo Blvd , Velenjak

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1985713834

Approval date

2019-07-07, 1398/04/16

Ethics committee reference number

IR.USWR.REC.1398.041

Health conditions studied**1****Description of health condition studied**

Healthy people

ICD-10 code**ICD-10 code description****Primary outcomes****1****Description**

Active left shoulder joint reposition sense

Timepoint

Before and immediately after intervention

Method of measurement

Photography technique

2**Description**

Active left elbow joint reposition sense

Timepoint

Before and immediately after intervention

Method of measurement

Photography technique

3**Description**

Active left wrist reposition sense

Timepoint

Before and immediately after intervention

Method of measurement

Photography technique

Secondary outcomes**1****Description**

Active right shoulder reposition sense

Timepoint

Before and immediately after intervention

Method of measurement

Photography technique

2

Description

Active right elbow joint reposition sense

Timepoint

Before and immediately after intervention

Method of measurement

Photography technique

3

Description

Active right wrist reposition sense

Timepoint

Before and immediately after intervention

Method of measurement

Photography technique

Intervention groups

1

Description

Intervention group: After assessing the active joint position sense of shoulder, elbow and wrist from both sides, t-DCS will be used on right posterior parietal cortex with 1mA, 20 minutes for 5 consecutive days and at the end of the 5 session, the active joint position sense for both upper limbs will be reassessed.

Category

Rehabilitation

2

Description

Intervention group: After assessing the active joint position sense of shoulder, elbow and wrist from both sides, t-DCS will be used on right premotor cortex with 1mA, 20 minutes for 5 consecutive days and at the end of the 5 session, the active joint position sense for both upper limbs will be reassessed.

Category

Rehabilitation

3

Description

Control group: After assessing the active joint position sense of shoulder, elbow and wrist from both sides, sham t-DCS will be used on right posterior parietal cortex or premotor cortex with 20 minutes for 5 consecutive days and at the end of the 5 session, the active joint position sense for both upper limbs will be reassessed.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

University of Social welfare and Rehabilitation Sciences

Full name of responsible person

Elnaz Allahverdlo

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

University of social welfare and rehabilitation sciences

Full name of responsible person

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Grant name

Grant code / Reference number

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

Yes

Title of funding source

University of social welfare and rehabilitation 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

University of social welfare and rehabilitation sciences

Full name of responsible person

Elnaz Allahverdlo

Position

Msc student

Latest degree

Bachelor

Other areas of specialty/work

Physiotherapy

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Person responsible for scientific inquiries

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Associate Professor

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

Yes - There is 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

Yes - There is 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

Yes - There is a plan to make this available

Analytic Code

Not applicable

Data Dictionary

Not applicable

Title and more details about the data/document

The statistical analyses of the data is published upon the request of the publishing journal.

When the data will become available and for how long

Once the resultant paper was published, We will share the statistical analyses upon the journal request.

To whom data/document is available

According the journal policy

Under which criteria data/document could be used

We will not publish participants identification codes, but we publish the statistical analyses to let the reader and researcher make sure about the validity of the results.

From where data/document is obtainable

The journal in which the resultant paper will be published.

What processes are involved for a request to access data/document

The request sent by the journal editor reviewers

Comments