Clinical Trial Protocol
Iranian Registry of Clinical Trials

08 Nov 2026

Comparative Investigation of Effects of Neurofeedback and Transcranial Direct Current Stimulation on Attention Using Quantitative Analysis of EEG of Healthy Subjects

Protocol summary

Summary

(1) Objectives: Comparative investigation of Effects of Neurofeedback and transcranial direct current stimulation on Attention using Quantitative Analysis of EEG of Healthy Subjects (2) Design: randomized clinical single blinded trial, phase II clinical trail (4) Participants including major eligibility criteria. Main inclusion criteria: male; no history of seizures; right-handedness. Main Exclusion criteria: existence of active epilepsy spots in the EEG pretest to prevent possible seizures; bio-electrical devices implanted in the body such as pacemakers. (5) Intervention: Neurofeedback group: that benefit of a single session on reduction of beta/theta ratio neurofeedback up to 20 minutes. TDCS group: a single session of stimulation with anodal tDCS, with a current of 1mA for 20 minutes on FP1 and FP2 while the reference electrode is placed on the neck. Sample size: 32 healthy university students (6) Main outcome measures (variables): in this study, theta/beta and theta/alpha frequency bands ratios and attentional task scores, pre and post intervention, are used to assess the effect size of each intervention on individual attention. Before and immediately after interventions, the attention task run and the EEG is recorded. Data analysis and the results of psychological tests is blinding so that the analyzer will be unaware to the data of two groups. Inclusion criteria: Healthy university student; 18-30 years old; right handed; with no medical disease such as Diabetes, Hypertension, Kidney or Liver disease; and with no Neurological diseases, like MS, and Depression, Psychotic disorders. Exclusion criteria: The existence of active epilepsy spots in the EEG pretest to prevent possible seizures; bio-electrical devices implanted in the body such as pacemakers.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2016022224635N2**
Registration date: **2016-04-27, 1395/02/08**
Registration timing: **retrospective**

Last update:
Update count: **0**

Registration date

2016-04-27, 1395/02/08

Registrant information

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Name of organization / entity

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Recruitment status

Recruitment complete

Funding source

Vice Chancellor for Research, Ahvaz Jundishapur University of Medical Sciences (Grant No.:u-94173

Expected recruitment start date

2016-02-20, 1394/12/01

Expected recruitment end date

2016-04-18, 1395/01/30

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date
empty

Scientific title
Comparative Investigation of Effects of Neurofeedback and Transcranial Direct Current Stimulation on Attention Using Quantitative Analysis of EEG of Healthy Subjects

Public title
Comparison of Neurofeedback and Transcranial Direct Current Stimulation Effect

Purpose
Treatment

Inclusion/Exclusion criteria
Inclusion criteria: Healthy university student; 18-30 years old; right handed; with no medical disease such as Diabetes, Hypertension, Kidney or Liver disease; and with no Neurological diseases, like MS, and Depression, Psychotic disorders. Exclusion criteria: The existence of active epilepsy spots in the EEG pretest to prevent possible seizures; bio-electrical devices implanted in the body such as pacemakers.

Age
From **18 years** old to **30 years** old

Gender
Male

Phase
2

Groups that have been masked
No information

Sample size
Target sample size: **32**

Randomization (investigator's opinion)
Randomized

Randomization description

Blinding (investigator's opinion)
Single blinded

Blinding description

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Ahvaz Jundishapur University of Medical Sciences, Research Ethics Committee

Street address
Ahvaz Jundishapur University of Medical Sciences, Golestan Blv, Ahvaz, Iran

City
Ahvaz

Postal code
6135715794

Approval date
2016-01-23, 1394/11/03

Ethics committee reference number
IR.AJUMS.REC.1394.610

Health conditions studied

1

Description of health condition studied
Healthy people

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description
Brain electrical activity

Timepoint
Pre and post intervention

Method of measurement
EEG

2

Description
Attention

Timepoint
pre and post treatment

Method of measurement
Attention network test

Secondary outcomes

1

Description
Side effects of intervention

Timepoint
Pre and post intervention

Method of measurement
Side effect's questionnaire

Intervention groups

1

Description
Neurofeedback: Training of theta(4-7 Hz)/beta1(14-18 Hz) ratio reduction in EEG; using one channel recording in Cz of 10-20 standard system and transmission of the signals to an animation control software as a feedback; 20 minutes; one session

Category
Treatment - Other

2

Description
Transcranial Direct Current Stimulation(tDCS): A single session of stimulation with anodal tDCS, with a current of 1mA for 20 minutes on FP1 and FP2 of 10-20 standard system of EEG recording; while the reference electrode is placed on the neck.
Category
Treatment - Other

Recruitment centers

1

Recruitment center
Name of recruitment center
Ahvaz Jundishapur University of Medical Sciences
Full name of responsible person
YadollahPour Ali
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Ahvaz

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
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Grant name
Grant code / Reference number
u-94173
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Vice Chancellor for Research, Ahvaz Jundishapur University of Medical Sciences
Proportion provided by this source
100
Public or private sector
empty
Domestic or foreign origin
empty
Category of foreign source of funding
empty
Country of origin
Type of organization providing the funding
empty

Person responsible for general inquiries

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Sharing plan

Deidentified Individual Participant Data Set (IPD)
empty
Study Protocol
empty
Statistical Analysis Plan
empty
Informed Consent Form
empty
Clinical Study Report
empty
Analytic Code
empty
Data Dictionary
empty