

Clinical Trial Protocol

Iranian Registry of Clinical Trials

09 Jun 2026

The effect of repetitive transcranial magnetic stimulation on cognitive improvement in healthy adult regarding to task difficulty

Protocol summary

Summary

Cognitive performance plays a critical role in everyday life of which working memory(WM) is defined as an essential part. Moreover, a number of psychiatric disorders are associated with WM impairment so that deficit in WM and response inhibition are the main elements in many developmental pathology. This study is a randomized sham-controlled trial in order to investigate the effect of repetitive transcranial magnetic stimulation(rTMS) on WM. Inclusion criteria consist of being right handed, not having psychiatric history and aged between 20 to 50 years. 20 subjects are chosen by convenience sampling and allocate to two groups equally. Then 10 Hz active and sham rTMS apply to experimental and control group, sequently, for 10 minutes, 1 section. "Reaction time" and "correct responses" as outcome variables, are recorded while completing a WM task, n-back, before and after stimulation. The data will be analyzed in order to compare the outcome between two groups. In addition, the mediative effect of task difficulty on stimulation efficacy will be evaluated.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2017041733488N1**

Registration date: **2017-08-07, 1396/05/16**

Registration timing: **prospective**

Last update:

Update count: **0**

Registration date

2017-08-07, 1396/05/16

Registrant information

Name

Fahime Sadat Hosseini Baharanchi

Name of organization / entity

University of Tehran

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

University of Tehran

Expected recruitment start date

2017-08-08, 1396/05/17

Expected recruitment end date

2017-08-22, 1396/05/31

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The effect of repetitive transcranial magnetic stimulation on cognitive improvement in healthy adult regarding to task difficulty

Public title

The effect of repetitive transcranial magnetic stimulation on cognitive improvement

Purpose

Treatment

Inclusion/Exclusion criteria

inclusion criteria: age 20 to 50;right handed;not getting rTMS treatment before;not having psychiatric history;having the ability to understand and attend the experiment. exclusion criteria: losing the ability to understand and attend to the experiment.

Age

From **20 years** old to **50 years** old

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **20**

Randomization (investigator's opinion)

Randomized

Randomization description

Blinding (investigator's opinion)

Double blinded

Blinding description

Placebo

Used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

ethics committee of University of Tehran

Street address

university of Tehran research department, university of Tehran, 16th Azar St., Tehran, Iran.

City

Tehran

Postal code

1417614411

Approval date

2017-06-24, 1396/04/03

Ethics committee reference number

ir.ut.rec.1395010

Health conditions studied

1

Description of health condition studied

healthy adult

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

reaction time

Timepoint

pre intervention - post intervention

Method of measurement

the distance between stimulus presentation and clicking by subject

2

Description

correct response

Timepoint

pre intervention - post intervention

Method of measurement

the number of correct clicking by subject

Secondary outcomes

empty

Intervention groups

1

Description

Active group - receiving rTMS - on left dorsolateral prefrontal cortex - intensity of 10 Hz - for 12 min - 1 section

Category

Treatment - Other

2

Description

Sham group - receiving sham rTMS - on left dorsolateral prefrontal cortex with deviated coil- intensity of 10 Hz - for 12 min - 1 section

Category

Treatment - Other

Recruitment centers

1

Recruitment center

Name of recruitment center

Clinic of Atie Derakhshan Zehn

Full name of responsible person

Street address

Clinic of Atie Derakhshan Zehn, No.23, Valinejad St., Vanak Square, Tehran, Iran.

City

Tehran

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

University of Tehran

Full name of responsible person

Dr. Hadi Bahrami Ehsan

Street address

Faculty of Psychology and Educational Sciences,
Kardan St., Jalal Ale-Ahmad St., Shahid Chamran
highway , Tehran, Iran.

City

Tehran

Grant name**Grant code / Reference number****Is the source of funding the same sponsor
organization/entity?**

Yes

Title of funding source

University of Tehran

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**Contact****Name of organization / entity**

University of Tehran

Full name of responsible person

Fahime Sadat Hosseini Baharanchi

Position

Student

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Fax**Email****Web page address****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