

Clinical Trial Protocol

Iranian Registry of Clinical Trials

06 Aug 2026

Comparison the therapeutic effect of neurofeedback and sham neurofeedback in the treatment of mathematics disorder in third-grade elementary school children

Protocol summary

Summary

Objectives: Treatment of learning disorders has particular importance and Neurofeedback is rather new treatment. The aim of present study is to evaluate the efficiency of neurofeedback therapy in the treatment of mathematical disorder as a special learning disorder which described as the significant unreasonable delay in the ability of the calculating. Methods: In this study 28 children in the third grade of elementary school with mathematical disorder discovered by the psychiatric interview and Diagnostic and Statistical Manual of Mental Disorders guideline (DSM IV), along with educational records, have been evaluated. Participants including major eligibility criteria: None of the individuals have any Neurological and psychiatric disorders other than learning disorder. IQ scores are at least 70. Intervention: All children will be tested by mathematical disorder diagnosing and Wechsler Intelligence Scale. Then they are randomly divided into two equal groups in terms of age, gender, IQ score, mathematical disorder points and annual income. One group is received neurofeedback therapy and another group is received sham Neurofeedback. In the case of parents tendency, all children receive private education in mathematics. Each child will be received 20 of at least 30 minutes sessions neurofeedback therapy by treatment duration of 10-12 weeks. For placebo treatment, all the situations are exactly similar to the real neurofeedback treatment except the starting tone and its continuity which is random, without consideration of electroencephalogram (EEG) activity. Before the treatment, EEG will be taken from each child. Main outcome: After twenty therapy sessions, the mathematical disorder test and EEG are recorded for all the patients. Ratio of alpha to theta will be recorded before and after the each session. Furthermore all the patients will be followed three months and one year after completing the treatment by

mathematical disorder test.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT201306189175N6**

Registration date: **2013-09-13, 1392/06/22**

Registration timing: **registered_while_recruiting**

Last update:

Update count: **0**

Registration date

2013-09-13, 1392/06/22

Registrant information

Name

Lida Jarahi

Name of organization / entity

Mashhad University of Medical Sciences

Country

Iran (Islamic Republic of)

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+98 51 1882 9262

Email address

jarahil@mums.ac.ir

Recruitment status

Recruitment complete

Funding source

Research Council of Mashhad University of Medical Sciences

Expected recruitment start date

2011-10-11, 1390/07/19

Expected recruitment end date

2013-10-11, 1392/07/19

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparison the therapeutic effect of neurofeedback and sham neurofeedback in the treatment of mathematics disorder in third-grade elementary school children

Public title

Evaluation of neurofeedback therapy in children with mathematics disorder

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria: without any neurological and psychiatric disorders, except learning disorder, IQ scores are at least 70, having the abnormal electroencephalogram (EEG) in alpha/theta, third elementary school grade Exclusion criteria: any neurological and psychiatric disorders, having the normal electroencephalogram (EEG) in alpha/theta, age more than 10 and lower than 9

Age

From **9 years** old to **10 years** old

Gender

Both

Phase

2-3

Groups that have been masked

No information

Sample size

Target sample size: **28**

Randomization (investigator's opinion)

Randomized

Randomization description**Blinding (investigator's opinion)**

Not blinded

Blinding description**Placebo**

Used

Assignment

Parallel

Other design features

Randomization is done using a random number table

Secondary Ids

empty

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

Ethics committee of Mashhad University of Medical Sciences

Street address

Central Building of Mashhad University of Medical Sciences

City

Mashhad

Postal code**Approval date**

2011-03-01, 1389/12/10

Ethics committee reference number

511/3829

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

Specific disorder of arithmetical skills

ICD-10 code

F81.2

ICD-10 code description

Involves a specific impairment in arithmetical skills that is not solely explicable on the basis of general mental retardation or of inadequate schooling. The deficit concerns mastery of basic computational skills of addition, subtraction, multiplication,

Primary outcomes**1****Description**

Mathematic disorder

Timepoint

At the first and end of each 20 treatment sessions, 3 months and 1 year after completing the treatment

Method of measurement

Mathematic scale and Educational records

Secondary outcomes

empty

Intervention groups**1****Description**

For intervention group: Mathematical education in 20 sessions will be done. Then Neurofeedback treatment according to the record program PROCOMP 2 in 20 sessions, at least 30 minutes during 10-12 weeks will be done

Category

Treatment - Devices

2**Description**

For control group: Mathematical education in 20 sessions will be done. Then similar to the neurofeedback treatment according to the record program PROCOMP 2 in 20 sessions, at least 30 minutes during 10-12 weeks will be done. But start tone and its continuity is without consideration of electroencephalogram activity randomly

Category

Recruitment centers**1****Recruitment center****Name of recruitment center**

Psychiatry and Behavioral Sciences Research Center

Full name of responsible person

Dr Peiman Hashemian

Street address

Ibn Sina Hospital, Hor Amerli Street

City

Mashhad

Sponsors / Funding sources**1****Sponsor****Name of organization / entity**Vice chancellor for research, Mashhad University of
Medical Sciences**Full name of responsible person**

Dr Mohsen Tafaghodi

Street addressCentral Building of Mashhad University of Medical
Sciences**City**

Mashhad

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

Yes

Title of funding sourceVice chancellor for research, Mashhad 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****Contact****Name of organization / entity**

Mashhad University of Medical Sciences

Full name of responsible person

Dr Peiman Hashemian

Position

Child and Adolescent Psychiatrist

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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