Clinical Trial Protocol
Iranian Registry of Clinical Trials

08 Nov 2026

Investigating the efficacy of mixed training regimen of verbal working memory and visuo-motor activity on verbal working memory, postural control and reading skills in persian dyslexic children, aged 6 to 12 years

Protocol summary

Study aim

Investigating the efficacy of mixed training regimen of verbal working memory and visuo-motor activity on verbal working memory, postural control and reading skills in persian dyslexic children, aged 6 to 12 years.

Design

A Comparative double-blind clinical trial (phase-II) with experiment and control groups.also, the assessments will be done before and after treatment Pre-test→ Treatment: 4w,3d/w,30-45 min/d→ Post-test

Settings and conduct

This is the first study applying the mixed training regimen of VWM and visuo-motor activity in dyslexic children, aged 6 to 12 years old. Participants will be recruited from governmental primary schools and rehabilitation centers. They will be divided into tow groups as intervention and control. participants and data analyzer will be blinded as double-blinded study. After pre-treatment assessment and treatment (4 w, 3 d/w, 30-45 min/d) we will do the post-treatment assessments.

Participants/Inclusion and exclusion criteria

Dyslexic children; 6-12 years old; Native farsi language-unilingual; Multi-centers in Tehran city; Moderate socioeconomic level; Right-handed; Normal or corrected visual ability; Normal hearing ability; No history of head injuries and symptoms of brain damage; No history of psychiatric disorders; Full- IQ scores above 85; Without ADHD; Do not use drugs that may affect attention

Intervention groups

Subjects in experiment group will receive the mixed training regimen of verbal working memory and visuo-motor activity. also, subjects in control groups will receive the training regimen of verbal working memory.

Main outcome variables

The function of VWM; the function of postural control; the function of word reading; the function of wordchain; the function of rhyming; the function of text comprehension; the function of phoneme deletion; the function of non-word reading; the function of semantic categories; the full IQ score; ADHD; age; study groups

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20171219037953N1**
Registration date: **2018-02-08, 1396/11/19**
Registration timing: **prospective**

Last update: **2018-02-08, 1396/11/19**
Update count: **0**

Registration date

2018-02-08, 1396/11/19

Registrant information

Name

Mehdi Ramezani

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 21 3340 1194

Email address

ergotherapist.ramezani@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2018-02-20, 1396/12/01

Expected recruitment end date

2019-02-20, 1397/12/01

Actual recruitment start date

empty

Actual recruitment end date
empty
Trial completion date
empty

Scientific title
Investigating the efficacy of mixed training regimen of verbal working memory and visuo-motor activity on verbal working memory, postural control and reading skills in persian dyslexic children, aged 6 to 12 years

Public title
Investigating the efficacy of mixed training regimen of verbal working memory in dyslexic children
Purpose
Treatment
Inclusion/Exclusion criteria
Inclusion criteria:
Diagnosing dyslexia by WISC IV Aged 6-12 y Students of Schools in Tehran and the moderate socioeconomic status Right-handed Normal or corrected to normal visual acuity Normal hearing status No history of head injury No history of psychiatric disorders Full IQ score greater than 85 Without co morbidity with ADHD Persian monolingual Do not using of druges affect on attention
Exclusion criteria:
Not attending in pretest assessment and training sessions Participation in training sessions Less than 75% of all sessions/ less than 9 sessions out of 12 sessions Not attending in post-test assessment sessions
Age
From **6 years** old to **12 years** old
Gender
Both

Phase
N/A
Groups that have been masked

- Participant
- Data analyser

Sample size
Target sample size: **40**
Randomization (investigator's opinion)
Randomized
Randomization description
After selecting the available samples based on the inclusion criteria, Individuals are randomly (coin throwing method) divided into two groups, experiment (EG) and active control (CG). Head of the coin, EG (10-20). Tail of the coin, CG (10-20).
Blinding (investigator's opinion)
Double blinded
Blinding description
In this double-blinded study, blinding will be applied to all participants and outcome assessment. Blinding of participants is possible. They will not know in which group they have been placed. Although, parent will know in which group their child has been placed. After finishing the treatment period, the data will be analyzed by a blinded statistician who will receive coded data. He/she will not know who is participating in which group.
Placebo
Not used
Assignment
Parallel
Other design features
Training regimen will be done by self-manufactured trainer robot for 4 weeks, 3 times a week, 30 to 45 minutes in every sessions.

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Iran University of Medical Sciences
Street address
Hemmat highway
City
Tehran
Province
Tehran
Postal code
1449614535
Approval date
2017-12-08, 1396/09/17
Ethics committee reference number
IR.IUMS.REC 1396.31977

Health conditions studied

1

Description of health condition studied
Developmental dyslexia or specific reading disorder
ICD-10 code
F81.0
ICD-10 code description
Specific reading disorder

Primary outcomes

1

Description
Verbal working memory
Timepoint
Before and after treatment, 4-5 weeks.
Method of measurement
Forward and backward digit span

Secondary outcomes

1

Description
Postural control
Timepoint

Before and after treatment-4 to 5 weeks

Method of measurement

Cop data of force platform tool

2

Description

Reading Skills

Timepoint

Before and after treatment-4 to 5 weeks

Method of measurement

Scores of reading skills native battery sub tests

3

Description

Changes in functional connectivity of VI and Crus I lobules of the cerebellum

Timepoint

Before and after treatment-4 to 5 weeks

Method of measurement

Resting-state fMRI

Intervention groups

1

Description

Intervention group: participants in this group will receive the mixed training regimen of verbal working memory and visual-motor activity: presenting the word; decomposition of the word to it’s letters/ moving of the platform; repetition of the previous step by Active movements of the child; retrieving the letters of the word.

Category

Treatment - Devices

2

Description

Control group: participants in this group will receive the training of verbal working memory: presenting the word; decomposition of the word to it’s letters; retrieving the letters of the word.

Category

Treatment - Devices

Recruitment centers

1

Recruitment center

Name of recruitment center

Governmental primary schools

Full name of responsible person

Government

Street address

Unknown

City

Tehran

Province

Tehran

Postal code

۱۴۴۹۶۱۴۵۳۵

Phone

+98 21 86701

Fax

Email

ergotherapist.ramezani@gmail.com

Web page address

https://www.iums.ac.ir

2

Recruitment center

Name of recruitment center

Rehabilitation centers

Full name of responsible person

Unknown

Street address

Unknown

City

Tehran

Province

Tehran

Postal code

۱۴۴۹۶۱۴۵۳۵

Phone

+98 21 86701

Fax

Email

ergotherapist.ramezani@gmail.com

Web page address

https://www.iums.ac.ir

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Iran University of Medical Sciences

Full name of responsible person

Dr.Malakouti

Street address

Hemmat highway

City

Tehran

Province

Tehran

Postal code

14665354

Phone

+98 21 81631

Fax

+98 21 81631

Email

ergotherapist.ramezani@gmail.com

Web page address

https://www.iums.ac.ir

Grant name

no

Grant code / Reference number

خیر

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

Title of funding source
Iran 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
Iran University of Medical Sciences

Full name of responsible person
Mehdi Ramezani

Position
PhD student

Latest degree
Master

Other areas of specialty/work
Neuroscience

Street address
Hemmat highway

City
Tehran

Province
Tehran

Postal code
14665354

Phone
+98 21 81631

Fax
+98 21 81631

Email
ergotherapist.ramezani@gmail.com

Web page address
https://www.iums.ac.ir

Person responsible for scientific inquiries

Contact

Name of organization / entity
Iran University of Medical Sciences

Full name of responsible person
Mehdi Ramezani

Position
PhD student

Latest degree
Master

Other areas of specialty/work
Neuroscience

Street address
Hemmat highway

City
Tehran

Province
Tehran

Postal code
14665354

Phone
+98 21 3340 1194

Fax
+98 21 3340 1194

Email
ergotherapist.ramezani@gmail.com

Web page address
https://www.iums.ac.ir

Person responsible for updating data

Contact

Name of organization / entity
Iran University of Medical Sciences

Full name of responsible person
Mehdi Ramezani

Position
PhD student

Latest degree
Master

Other areas of specialty/work
Neuroscience

Street address
Hemmat highway

City
Tehran

Province
Tehran

Postal code
14665354

Phone
+98 21 81631

Fax
+98 21 81631

Email
ergotherapist.ramezani@gmail.com

Web page address
https://www.iums.ac.ir

Sharing plan

Deidentified Individual Participant Data Set (IPD)
Yes - There is a plan to make this available

Study Protocol
Yes - There is a plan to make this available

Statistical Analysis Plan
Yes - There is a plan to make this available

Informed Consent Form
Yes - There is 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

age score of full IQ sex scores of verbal working memory scores of postural control parameters changes of functional connectivity scores of reading subtests

When the data will become available and for how long

6 month after publication of papers

To whom data/document is available

active researchers

Under which criteria data/document could be used

scientific using

From where data/document is obtainable

electronic post address

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

until one month after request

Comments

no