Clinical Trial Protocol
Iranian Registry of Clinical Trials

08 Nov 2026

Investigating the effectiveness of occupational therapy interventions using transparent 3D digital pegboard on the visual perception skills of children with specific learning disorder 7 to 12 years old

Protocol summary

Study aim

Investigating the effectiveness of occupational therapy interventions using transparent 3D digital pegboard on the visual perception skills of children with specific learning disorder 7 to 12 years old

Design

Clinical trial, with a control group, double-blind, randomized, phase III on 20 patients, RAN# calculator is used for randomization.

Settings and conduct

The intervention will be implemented at the centers affiliated with Iran University of Medical Sciences and rehabilitation centers affiliated with the Education Department of Tabriz or Tehran. The interventions will be implemented individually. It should be noted that routine treatment will continue for both groups. The assessor and analyst are also blinded and are not aware of the allocation of individuals to the groups. This study will not have any costs for the families.

Participants/Inclusion and exclusion criteria

inclusion criteria: 1. Age 7 to 12 years 2. Being Iranian 3. Parental consent 4. Diagnosis of LD 5. Ability to understand instructions Exclusion criteria: 1. Problems with amblyopia and diplopia 2. Absence of more than 3 consecutive sessions. 3. Any major life events that prevent cooperation/participation in the research. 4.Neurological disorder, especially seizures or active epilepsy in the past 6 months 5.Motor problems in the upper limbs

Intervention groups

During the intervention, during the sessions, we first have a 5-minute warm-up, then 10 minutes of working on visual perception skills, then 5 minutes of motor exercises, then 10 to 15 minutes of working on visual perception skills. Visual perception skills will be practiced by digital pegboard.

Main outcome variables

Changes in mean scores of visual perception skills; changes in mean scores of children's 3D visual perception; changes in mean scores of academic performance

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20241227064180N1**
Registration date: **2025-04-06, 1404/01/17**
Registration timing: **retrospective**

Last update: **2025-04-06, 1404/01/17**
Update count: **0**

Registration date

2025-04-06, 1404/01/17

Registrant information

Name

Seyyed Pedram Shahebrahimi

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 41 3477 0074

Email address

p.shahebrahimi@yahoo.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2025-02-03, 1403/11/15

Expected recruitment end date

2025-02-08, 1403/11/20

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Investigating the effectiveness of occupational therapy interventions using transparent 3D digital pegboard on the visual perception skills of children with specific learning disorder 7 to 12 years old

Public title

Investigating the effectiveness of occupational therapy interventions using transparent 3D digital pegboard on the visual perception skills of children

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Age 7 to 12 years Being Iranian and understanding the Persian language by the participants Parental consent Diagnosis of a learning disorder by a pediatrician or psychiatrist Ability to understand instructions, repeated explanation up to 3 times

Exclusion criteria:

Problems with amblyopia and diplopia using the records available in the centers Absence of more than 3 consecutive sessions Any major life event or occurrence that prevents cooperation/participation in the research. Neurological disorder, especially seizures or active seizures in the past 6 months Motor problems in the upper limbs

Age

From **7 years** old to **12 years** old

Gender

Both

Phase

N/A

Groups that have been masked

- Outcome assessor
- Data analyser

Sample size

Target sample size: **22**

Randomization (investigator's opinion)

Randomized

Randomization description

Simple randomization To do this, we use a table of random numbers. After determining the population frame, we assign a code to each individual in the population;(In concealment, each person's name or code is placed in numbered envelopes) then, using the table, we determine the control or intervention group.

Blinding (investigator's opinion)

Double blinded

Blinding description

Since blinding is double-blind (evaluator and statistical analyst): The evaluator/assessor will not be aware of which group the participants belong to during the evaluation; The analyst will only have the data and will not receive information about the intervention and control groups.

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Research ethics committees of Iran University of Medical Sciences

Street address

Iran University of Medical Sciences, Next to Milad Tower, Hemmat Highway, Tehran

City

Tehran

Province

Tehran

Postal code

۱۴۴۹۶۱۴۵۳۵

Approval date

2024-05-21, 1403/03/01

Ethics committee reference number

IR.IUMS.REC.1403.189

Health conditions studied

1

Description of health condition studied

Learning Disorder

ICD-10 code

F81.9

ICD-10 code description

Developmental disorder of scholastic skills, unspecified

Primary outcomes

1

Description

Visual perception skill score in the Visual perception skills-Revised test

Timepoint

Assessment of visual perception skills before intervention, after intervention (end of week 10), one month after the end of the intervention

Method of measurement

Using the Visual Perception Skills-Revised Test

2

Description

3D vision skill score in the Stereo Fly Test

Timepoint
Assessment of 3D vision skills before intervention, after intervention (end of week 10), one month after the end of the intervention
Method of measurement
Using the Stereo Fly Test

Secondary outcomes

1

Description
Academic performance score
Timepoint
Assessment of academic performance before intervention, after intervention (end of week 10), one month after the end of the intervention
Method of measurement
Using academic transcripts

2

Description
Academic performance score
Timepoint
Assessment of academic performance before intervention, after intervention (end of week 10), one month after the end of the intervention
Method of measurement
Using Advanced Progressive Matrices Test

Intervention groups

1

Description
Intervention group: Control Group، Interventions are implemented based on a 20-session treatment protocol that was prepared under the supervision of professors at the Faculty of Rehabilitation at the University of Iran and reviewed by a panel of experts. Interventions for the intervention group will be implemented individually for 10 weeks, 2 sessions per week, and each session will last half an hour to 45 minutes. It should be noted that routine treatment and special training of the centers will continue for both groups. After the completion of the interventions, the post-test will be re-administered by the two aforementioned tests (by the first blind assessor). The results obtained from the two evaluation stages will be statistically analyzed and a follow-up will be conducted for both groups one month later.In the treatment plan written in the protocol, each of the subtests of the Test of Visual Perception Skills (TVPS) is the target of two to three treatment sessions. Note: The transparent 3D digital pegboard was patented with number 109288 on 1402/03/02; it is expected that visual perception skills such as visual discrimination, visual memory, spatial relationships, shape stability, visual sequencing, shape recognition from the background, visual completion, and specifically depth perception skills, 3D vision can be strengthened and improved through this pegboard.
Category
Rehabilitation

2

Description
Intervention group: The intervention group will be implemented based on a 20-session treatment protocol prepared under the supervision of professors of the Faculty of Rehabilitation of the University of Iran and reviewed by a panel of experts. The interventions will be implemented individually for 10 weeks, 2 sessions per week, and each session will last half an hour to 45 minutes. After the interventions are completed, the post-test will be re-administered using the two aforementioned tests (by the first blind evaluator). The results obtained from the two evaluation stages will be statistically analyzed, and a follow-up will be conducted for both groups one month later. In the treatment plan written in the protocol, each of the subtests of the visual perception skills test aims for two to three treatment sessions. According to the existing levels and the division of sessions, the first and second sessions focus on visual discrimination, the third and fourth sessions on form constancy, the fifth and sixth sessions on figure ground discrimination, the seventh to ninth sessions on spatial relations, the tenth to twelfth sessions on visual closure, the thirteenth to fifteenth sessions on sequential memory, the sixteenth to eighteenth sessions on visual memory, and the last two sessions on reviewing and proving what has been learned. An executive instruction is written for each session, and movement exercises are also included during the intervention to prevent the child from getting tired.All of the above goals are expected to be achieved by working with a digital pegboard.
Category
Rehabilitation

Recruitment centers

1

Recruitment center
Name of recruitment center
Learning disorder centers related to education in Tabriz
Full name of responsible person
Tabriz Education Organization
Street address
General Directorate of Education of East Azerbaijan Province, Near to Bag-e-Shomal, Southern Artesh, Tabriz
City
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Province
East Azarbaijan
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5138664611
Phone
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Email
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Iran University of Medical Sciences
Full name of responsible person
Research Vice President , Iran University of Medical Sciences
Street address
Iran University of Medical Sciences, Next to Milad Tower, Hemmat Highway, Tehran
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Province
Tehran
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Phone
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Email
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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
Iran University of Medical Sciences
Proportion provided by this source
5
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
Seyyed Perdam Shahebrahimi
Position
Master Student of Occupational Therapy
Latest degree
Bachelor
Other areas of specialty/work
Occupational Therapy
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Person responsible for scientific inquiries

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Other areas of specialty/work
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Person responsible for updating data

Contact
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Full name of responsible person
Seyyed Pedram Shahebrahimi
Position
Master Student of Occupational Therapy
Latest degree
Bachelor
Other areas of specialty/work
Occupational Therapy
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City
Tabriz
Province
East Azarbaijan
Postal code
5174633948
Phone
+98 41 3477 0074
Email
p.shahebrahimi@yahoo.com

Sharing plan

Deidentified Individual Participant Data Set (IPD)
Undecided - It is not yet known if there will be a plan to make this available

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

Statistical Analysis Plan
Undecided - It is not yet known if there will be 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
Undecided - It is not yet known if there will be a plan to make this available

Analytic Code
Undecided - It is not yet known if there will be a plan to make this available

Data Dictionary
Undecided - It is not yet known if there will be a plan to make this available

Title and more details about the data/document
I will share the study protocol for article registration (for the invented device).

When the data will become available and for how long
The access period will probably start 6 months after receiving the IRCT code.

To whom data/document is available
All individuals who are involved in occupational therapy in some way, including academic researchers, students, licensed clinics, families, etc., as well as individuals in the industry involved in the production of rehabilitation products, can apply to receive protocol documentation.

Under which criteria data/document could be used
Given that the protocol is related to an invented device, when obtaining official permission, written permission must be obtained from the therapist (Researcher) with Written authorization stamped with the therapist's medical system seal and along with the contract.

From where data/document is obtainable
To receive the protocol, please send an email to: p.shahebrahimi@yahoo.com

What processes are involved for a request to access data/document
After sending the email message, the applicant will be contacted within 5 business days to receive written permission and make an appointment.

Comments