

Clinical Trial Protocol

Iranian Registry of Clinical Trials

11 Sep 2026

The efficacy of mirror therapy on lower limb motor function in children with Hemiplegic cerebral palsy 5 to 12 years

Protocol summary

Study aim

Evaluation of the effectiveness of mirror therapy on lower limb motor function in children with hemiplegic cerebral palsy aged 5 to 12 years.

Design

The clinical trial consists of a control group and a treatment group, double blind study, randomized by lottery method.

Settings and conduct

To evaluate people, they refer to the movement laboratory of Shahid Beheshti Rehabilitation School and to perform the intervention to Tavanyab Rehabilitation Clinic. At the beginning and end of the intervention, two stages of evaluation are performed and one month after the end of the intervention, the last stage of evaluation is performed.

Participants/Inclusion and exclusion criteria

Having a diagnosis of spastic hemiplegia cerebral palsy
Ability to walk independently at least 10 meters
Absence of uncontrolled seizures
No orthopedic surgery on the lower extremities
Absence of fixed limitations in the lower limb joints
Do not inject Botox for at least 6 months before the intervention
No visual or auditory problems that have not been corrected or treated
Ability to follow verbal instructions
GMFCS levels one and two
Absence of hemianopsia and unilateral neglect
Absence of other neurological diseases
The modified Ashworth Scale is less than 3

Intervention groups

The intervention is held for both groups 5 sessions per week for one month. Each session consists of 30 minutes of conventional occupational therapy intervention and 15 minutes of mirror therapy. Then, while people should look at the image of a healthy body in the mirror (in the control group, people look at the image of the affected side in the mirror), people are asked to do the following three movements: 1. Ankle dorsiflexion with knee extension 2. flexion knee, ankle and hip joints 3. flexion the knee more than 90 degrees.

Main outcome variables

Static/dynamic balance, step/stride length, stance/swing phase time, spasticity score

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20211106052977N1**

Registration date: **2022-08-12, 1401/05/21**

Registration timing: **retrospective**

Last update: **2022-08-12, 1401/05/21**

Update count: **0**

Registration date

2022-08-12, 1401/05/21

Registrant information

Name

Javad Alipour

Name of organization / entity

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2021-05-10, 1400/02/20

Expected recruitment end date

2022-03-21, 1401/01/01

Actual recruitment start date

2021-06-22, 1400/04/01

Actual recruitment end date

2022-07-21, 1401/04/30
Trial completion date
 2022-08-06, 1401/05/15

Scientific title
 The efficacy of mirror therapy on lower limb motor function in children with Hemiplegic cerebral palsy 5 to 12 years

Public title
 The effect of mirror therapy on the lower extremities of children with Hemiplegic cerebral palsy

Purpose
 Treatment

Inclusion/Exclusion criteria
Inclusion criteria:
 The child should be between 5 and 12 years old. The child should be diagnosed with spastic hemiplegia according to a pediatric neurologist. The child must be able to walk independently at least 10 meters. The child's muscle tone should be less than 3 on the MODIFIED ASHWORTH scale. The child must be able to follow verbal instructions. The child should be at levels one and two according to the GMFCS scale in terms of gross motor function.
Exclusion criteria:
 The child has uncontrolled seizures. The child has a cognitive disability according to medical history. The child has a problem with hemianopia and unilateral neglect. The child has other neurological diseases. The child has had orthopedic surgery on the lower limb according to medical history. The child has a fixed limit on range of motion in the lower limb joints. According to medical history, the child has Auditory acuity problems that have not been corrected or treated. According to medical history, the child has Visual acuity problems that have not been corrected or treated. The child had a Botox injection in the lower limb for up to 6 months before the intervention.

Age
 From **5 years** old to **12 years** old

Gender
 Both

Phase
 N/A

Groups that have been masked

- Participant
- Outcome assessor
- Data analyser

Sample size
 Target sample size: **24**
 Actual sample size reached: **20**

Randomization (investigator's opinion)
 Randomized

Randomization description
 By simple random sampling using lottery (random allocation law) and without placement (according to the number of people in both groups, the two letters A and B, where the letter A represents the control group and the letter B represents the treatment group, on paper In the next step, the papers are poured into the bag, then the

papers are randomly removed from the bag without replacement and the sequence created is recorded.) The children are divided into a control group and a treatment group.

Blinding (investigator's opinion)
 Double blinded

Blinding description
 In this research, participants are unaware that they are in the control or treatment group because the treatment group receives mirror therapy and the control group receives sham therapy. The evaluator is also unaware of the assignment of individuals to the control and treatment group. In addition, the data analyzer is unaware of assigning individuals to the control and treatment groups because they are defined as groups A and B.

Placebo
 Used

Assignment
 Parallel

Other design features

Secondary Ids
 empty

Ethics committees

1

Ethics committee
Name of ethics committee
 Ethics committee of Shahid Beheshti University of Medical Sciences
Street address
 No 26, shiraz Street, west zayandeh rood Avenue, vanak square, Tehran, Iran
City
 Tehran
Province
 Tehran
Postal code
 1991613651

Approval date
 2021-03-09, 1399/12/19

Ethics committee reference number
 IR.SBMU.RETECH.REC.1399.1382

Health conditions studied

1

Description of health condition studied
 cerebral palsy

ICD-10 code
ICD-10 code description

Primary outcomes

1

Description

Dynamic balance score in the timed up and go test

Timepoint

Determining the dynamic balance score before the intervention, at the end of the intervention period and one month after the intervention

Method of measurement

Timed Up and Go Test

2

Description

Static balance score in the pediatric balance scale

Timepoint

Determining the static balance score before the intervention, at the end of the intervention period and one month after the intervention

Method of measurement

pediatric balance scale

3

Description

Step length obtained by analyzing data of gait analysis system

Timepoint

Determining the length of the step before the intervention, at the end of the intervention period and one month after the intervention

Method of measurement

gait analysis system

4

Description

stride length obtained by analyzing data of gait analysis system

Timepoint

Determining the length of the stride before the intervention, at the end of the intervention period and one month after the intervention

Method of measurement

gait analysis system

5

Description

stance phase time obtained by analyzing data of gait analysis system

Timepoint

Determining the stance phase time before the intervention, at the end of the intervention period and one month after the intervention

Method of measurement

gait analysis system

6

Description

swing phase time obtained by analyzing data of gait analysis system

Timepoint

Determining the swing phase time before the intervention, at the end of the intervention period and

one month after the intervention

Method of measurement

gait analysis system

7

Description

Spasticity score calculated using the modified Ashworth scale.

Timepoint

Determination of spasticity before the intervention, at the end of the intervention period and one month after the intervention

Method of measurement

modified Ashworth scale

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: This group undergoes rehabilitation treatment 5 days a week for 4 weeks. In each session, 30 minutes of conventional occupational therapy intervention and 15 minutes of mirror therapy intervention are performed (10 minutes of rest is provided between occupational therapy and mirror therapy), in which a mirror is placed vertically between the two lower limbs so that People see the healthy side in the mirror, then while people should look at the image of a healthy body in the mirror, they are asked to do the following three movements: 1. Ankle dorsiflexion with knee extension 2. hip & knee & ankle flexion 3. knee flexion more than 90 degrees.

Category

Rehabilitation

2

Description

Control group: This group undergoes rehabilitation treatment 5 days a week for 4 weeks. In each session, 30 minutes of conventional occupational therapy intervention and 15 minutes of mirror therapy intervention are performed (10 minutes of rest is provided between occupational therapy and mirror therapy), in which a mirror is placed vertically between the two lower limbs so that People see the unhealthy side in the mirror, then while people should look at the image of a healthy body in the mirror, they are asked to do the following three movements: 1. Ankle dorsiflexion with knee extension 2. hip & knee & ankle flexion 3. knee flexion more than 90 degrees.

Category

Placebo

Recruitment centers

1

Recruitment center

Name of recruitment center

Tavanyab Rehabilitation Center

Full name of responsible person

mahmood oliaee

Street address

No. 2, Javaheri ave, N Kargar st, Enghelab Sq, Tehran, Iran

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Phone

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Info@tavanyab.ir

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Shahid Beheshti University of Medical Sciences

Full name of responsible person

Vice Chancellor for Research and Technology of Shahid Beheshti University of Medical Sciences

Street address

Floor 5, Headquarters Building 2, Shahid Beheshti University of Medical Sciences and Health Services, Shahid Abbas Arabi St., Yemen St., Shahid Chamran Highway

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Mpajouhesh@sbmu.ac.ir

Grant name

Grant code / Reference number

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

Yes

Title of funding source

Shahid Beheshti 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

Shahid Beheshti University of Medical Sciences

Full name of responsible person

Reihaneh Askary Kachooosangy

Position

Assistant Professor

Latest degree

Ph.D.

Other areas of specialty/work

Occupational Therapy

Street address

Imam Hussein Hospital, Madani St, Tehran

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Email

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Person responsible for scientific inquiries

Contact

Name of organization / entity

Shahid Beheshti University of Medical Sciences

Full name of responsible person

Javad Alipour

Position

student

Latest degree

Bachelor

Other areas of specialty/work

Occupational Therapy

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Person responsible for updating data

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Latest degree

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Other areas of specialty/work

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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

Yes - There is a plan to make this available

Data Dictionary

Yes - There is a plan to make this available

Title and more details about the data/document

Data related to the main outcomes and demographic factors can be shared after the individuals are not identified.

When the data will become available and for how long

It is possible to start the data access period after 6 months from the printing of the results.

To whom data/document is available

Research-related data is only available upon request to researchers affiliated with academic institutions.

Under which criteria data/document could be used

Research-related data and documentation can only be used if used in conjunction with related research.

From where data/document is obtainable

To receive the documents, researchers can apply by sending a message with sufficient explanations to j.alipour76@gmail.com to receive the documents and data.

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

After sending the message to the mentioned email, the researchers will be notified of the result of the request after one to two weeks.

Comments