

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 2026

The effects of Sensorimotor Training on hand function of children with spastic hemiplegia 4-12 years

Protocol summary

Summary

Objectives: In children with spastic hemiplegia, sensorimotor disorder cause inability to do many manual skills, followed by the restriction on doing daily activities and assignments. Because of the important role of manual skills in children's adaptation to the environment and independence in daily life activities, development of these skills is of great importance. The present research aimed to study the effect of sensorimotor training on improving hand function in children with spastic hemiplegia. Experimental design: The present research is a single-blind experimental study. Participants: 40 children with cerebral palsy (spastic hemiplegia) aged 4-12. In the control group, 20 children spastic hemiplegia will receive conventional training on hand function including stretching, strengthening muscles, and fine movements of hands 3 sessions a week for 4 weeks. In the intervention group, 20 other children with spastic hemiplegia, in addition to conventional training on hand function, will perform sensorimotor exercises 3 sessions a week for 4 weeks (each session will last 1 hour). Treatment will be based on the principles of sensory retraining and further use hands. However, unlike the traditional retraining methods in which hands are mainly passive during the intervention, this training requires active and exploratory movements of hands. It should be noted that the sense of sight will be eliminated in order to further stimulate the sensory function of hands. These exercises include detection of objects and their weight, texture, and temperature, manipulation, and subtle movements. Participants of both groups will be evaluated before and after the intervention and a follow-up measurement will be performed in the intervention group one month after the intervention. primary and secondary assessment is Stereognosis, Proprioceptive, Purdue pegboard, MAS, Nine Hole Peg Test.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2016030626926N1**

Registration date: **2016-12-09, 1395/09/19**

Registration timing: **registered_while_recruiting**

Last update:

Update count: **0**

Registration date

2016-12-09, 1395/09/19

Registrant information

Name

Karim Ayoubi Avaz

Name of organization / entity

Semnan University of Medical Sciences

Country

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Recruitment status

Recruitment complete

Funding source

Neuromuscular rehabilitation research center

Expected recruitment start date

2016-06-11, 1395/03/22

Expected recruitment end date

2017-02-10, 1395/11/22

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The effects of Sensorimotor Training on hand function of children with spastic hemiplegia 4-12 years

Public title

study of hand function in cerebral palsy

Purpose

Other

Inclusion/Exclusion criteria

Inclusion criteria: Medical diagnosis of children with spastic hemiplegia; being aged 4-12; the ability to communicate in order to perform tests; mild to moderate spasticity based on the Modified Ashworth Scale, and having a sense of protection in the palm of the hand (the minimum monofilament No. 6.65 and 33 grams).
Exclusion criteria: Lack of cooperation during the intervention or parent's request for stopping the intervention; orthopedic problems such as fixed deformity in hand; impairment of attention and concentration; and significant hearing and vision problems.

Age

From **4 years** old to **12 years** old

Gender

Both

Phase

2-3

Groups that have been masked

No information

Sample size

Target sample size: **40**

Randomization (investigator's opinion)

Randomized

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

Single blinded

Blinding description**Placebo**

Not used

Assignment

Parallel

Other design features**Secondary Ids**

empty

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

Semnan University of Medical Sciences Ethics Committee

Street address

No.47,Semnan university of medical sciences, Basij Blvd, Semnan, Iran

City

Semnan

Postal code**Approval date**

2016-05-25, 1395/03/05

Ethics committee reference number

lr.semums.rec.1395.22

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

Spastic hemiplegic cerebral palsy

ICD-10 code

G80.2, G81

ICD-10 code description

G80.2 Spastic hemiplegic cerebral palsy G81.1 Spastic hemiplegia

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

hand fine movement

Timepoint

Before intervention, The end of each 4 treatment sessions, end of intervention and 1 month after the end of intervention

Method of measurement

purdopegboard, Nine Hole Peg Test

Secondary outcomes**1****Description**

sensory of hand function

Timepoint

Before intervention,The end of each 4 treatment sessions, end of intervention and 1 month after the end of intervention

Method of measurement

sterognosis and Proprioceptive

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

Intervention group:In the intervention group, in addition to conventional occupational therapy training on hand function, will perform sensorimotor exercises 3 sessions a week for 4 weeks (each session will last 1 hour).

Category

Rehabilitation

2**Description**

control group:In the control group, patients will receive conventional occupational therapy training on hand function including stretching, strengthening muscles, and fine movements of hands 3 sessions a week for 4 weeks

(each session will last 1 hour).

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Neruromuscular rehabilitation research center

Full name of responsible person

Karim Ayoubi Avaz

Street address

No.24, Neuromuscular Rehabilitation Research Center, Ghods Blvd, Mashahir square, Semnan, Iran

City

Semnan

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Vice chancellor for research, Semnan University of Medical Sciences

Full name of responsible person

Dr Ali Rashidipour

Street address

No.47, Semnan university of medical sciences, Basij Blvd, Semnan, Iran

City

Semnan

Grant name

Grant code / Reference number

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

Yes

Title of funding source

Vice chancellor for research, Semnan 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

Semnan University of Medical Sciences

Full name of responsible person

Karim Ayoubi Avaz

Position

Master of sciences / Faculty member

Other areas of specialty/work

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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