

Clinical Trial Protocol

Iranian Registry of Clinical Trials

26 Jun 2026

Effect of circuit training on some physiological factors, lower leg muscle activity, gross motor function and activity daily living on spastic cerebral palsy children

Protocol summary

Study aim

Effect of circuit training on some physiological factors, lower leg muscle activity, gross motor function and activity daily living on spastic cerebral palsy children

Design

In this study, 34 children with cerebral palsy will be voluntarily attended. Which are randomly divided into two groups of experimental group (n=17) and control group (n=17).

Settings and conduct

The present study is a randomized controlled trial on children with cerebral palsy in Rasht city. Subjects will attend a circular exercise program for 12 weeks. Measurement of some physiological factors, lower extremity muscle activity, gross motor function and daily life activity, before and after 12 weeks of circular training will be performed.

Participants/Inclusion and exclusion criteria

Inclusion criteria: Having age ranges of 7-16 years
Spastic diplegia cerebral palsy Ambulation ability
Exclusion criteria: More than three session absence from the training Botox injection or surgery in period of intervention

Intervention groups

Intervention group: 12 weeks of high intensity circuit training, three sessions per week, in each training session of 3 round of training circle, which consists of 6 training stations, with 30 seconds of exercise and 30 seconds break between, them as: sit to stand exercise, heel rises, forward lunges, and a lateral step-up exercise, lifting the medicine ball of the floor and placing on the chair and a motivational game station throwing off the ball Within the basket of 5 meters from a warm-up at the beginning of the session and a cool down at the end of the session. In addition 12 weeks and one session per week of normal occupational therapy training Control group: 12 weeks and one session per week of normal

occupational therapy

Main outcome variables

Gross Motor Function and Lower leg muscle activity

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20150531022498N33**

Registration date: **2020-06-06, 1399/03/17**

Registration timing: **retrospective**

Last update: **2020-06-06, 1399/03/17**

Update count: **0**

Registration date

2020-06-06, 1399/03/17

Registrant information

Name

Ramin Shabani

Name of organization / entity

Islamic Azad University

Country

Iran (Islamic Republic of)

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+98 13 3375 2715

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shabani@iaurasht.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2019-02-09, 1397/11/20

Expected recruitment end date

2019-07-22, 1398/04/31

Actual recruitment start date

empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
Effect of circuit training on some physiological factors, lower leg muscle activity, gross motor function and activity daily living on spastic cerebral palsy children

Public title
Effect of circuit training on cerebral palsy children

Purpose
Supportive

Inclusion/Exclusion criteria
Inclusion criteria:
Having age ranges of 7-16 years Spastic diplegia cerebral palsy Ambulation ability
Exclusion criteria:
More than three session absence from the training Botox injection or surgery in period of intervention

Age
From **7 years** old to **16 years** old

Gender
Both

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **34**

Randomization (investigator's opinion)
Randomized

Randomization description
The present study is a randomized controlled trial that thirty four children were selected as participants in the research process. After the necessary investigations and based on the information of the completed questionnaires, the subjects were divided into two groups of 17 people using a lottery by simple random method.

Blinding (investigator's opinion)
Not blinded

Blinding description

Placebo
Not used

Assignment
Factorial

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics Committee of Azad University Rasht Branch

Street address

Islamic Azad University Rasht Branch, Taleshan Bridge, Rasht

City

Rasht

Province

Guilan

Postal code

4147654919

Approval date

2020-05-06, 1399/02/17

Ethics committee reference number

IR.IAU.RASHT.REC.1399.005

Health conditions studied

1

Description of health condition studied

Cerebral Palsy

ICD-10 code

G80

ICD-10 code description

Cerebral palsy

Primary outcomes

1

Description

Gross Motor Function

Timepoint

Before an after of end of intervention

Method of measurement

Using Gross Motor Function Measure (GMFM)

2

Description

Lower leg muscle activity

Timepoint

Before an after of end of intervention

Method of measurement

Using Electromyography device (EMG and evoked-potentialemg-meb-9400k)

Secondary outcomes

1

Description

Body composition

Timepoint

before and after the end of intervention

Method of measurement

With the use of weights, height, gender and SAEHAN Hand Calipers and the Slater Kids Body Composition formula

2

Description

Strength

Timepoint

Before an after of end of intervention

Method of measurement

Using SAEHAN Hand-Grip Dynamometer and SAEHAN Back, Leg & Chest Dynamometer

3

Description

Balance

Timepoint

Before an after of end of intervention

Method of measurement

Using Berg Balance Scale

4

Description

6 Minute Walk Distance

Timepoint

Before an after of end of intervention

Method of measurement

6 Minute Walk Test

5

Description

Activity Daily Living

Timepoint

Before an after of end of intervention

Method of measurement

Using Activity Scale for Kids (ASK)

Intervention groups

1

Description

Intervention group: 12 weeks of high intensity circuit training, three sessions per week, in each training session of 3 round of training circle, which consists of 6 training stations, with 30 seconds of exercise and 30 seconds break between, them as: sit to stand exercise, heel rises, forward lunges, and a lateral step-up exercise, lifting the medicine ball of the floor and placing on the chair and a motivational game station throwing off the ball Within the basket of 5 meters from a warm-up at the beginning of the session and a cool down at the end of the session. in addition 12 weeks and one session per week of normal occupational therapy training

Category

Rehabilitation

2

Description

Control group: 12 weeks and one session per week of normal occupational therapy

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Tavan Occupational Therapy Center

Full name of responsible person

Arash Nasiri Woshmesaraei

Street address

4th Alley, After sadeghinezhad gas station, Gholipour Blvd, Rasht

City

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Province

Guilan

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Phone

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Email

Arashnasiriot@yahoo.com

2

Recruitment center

Name of recruitment center

Mehrpouya physical disability education and rehabilitation center

Full name of responsible person

Negar Rad Nosrati

Street address

خیابان استقامت دوم، کوچه شهید مراد بلال زاده، پلاک 90

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Occupational therapy center

Full name of responsible person

Arash Nasiri Woshmesaraei

Street address

No. 4, 4th Alley, after Sadeghinejad gas station, Gholipour Blvd.

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Phone
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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
Occupational therapy center
Proportion provided by this source
100
Public or private sector
Private
Domestic or foreign origin
Domestic
Category of foreign source of funding
empty
Country of origin
Type of organization providing the funding
Persons

Person responsible for general inquiries

Contact
Name of organization / entity
Islamic Azad University
Full name of responsible person
Arash Nasiri Woshmesaraei
Position
phd student
Latest degree
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Other areas of specialty/work
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arashnasiriot@yahoo.com

Sharing plan

Deidentified Individual Participant Data Set (IPD)
No - There is not a plan to make this available
Justification/reason for indecision/not sharing IPD
No decision has been made yet.
Study Protocol
No - There is not a plan to make this available
Statistical Analysis Plan
No - There is not a plan to make this available
Informed Consent Form
No - There is not a plan to make this available
Clinical Study Report
No - There is not a plan to make this available
Analytic Code
No - There is not a plan to make this available
Data Dictionary
No - There is not a plan to make this available