

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 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)

Phone

+98 13 3375 2715

Email address

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

Rasht

Province

Guilan

Postal code

4153911900

Phone

+98 13 4466 5179

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

City

Rasht

Province

Guilan

Postal code

4146745863

Phone

+98 13 3355 2897

Email

Arashnasiriot@yahoo.com

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.

City

Rasht

Province

Guilan

Postal code

4153911900

Phone

+98 13 4466 5179

Email

arashnasiriot@yahoo.com

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

Master

Other areas of specialty/work

Occupational Therapy

Street address

Islamic Azad University Rasht Branch, Taleshan Bridge, Rasht

City

Rasht

Province

Guilan

Postal code

4153911900

Phone

+98 13 4466 5179

Email

arashnasiriot@yahoo.com

Person responsible for scientific inquiries**Contact****Name of organization / entity**

Islamic Azad University

Full name of responsible person

Dr Ramin Shabani

Position

Associate Professor

Latest degree

Ph.D.

Other areas of specialty/work

Exercise physiology

Street address

Islamic Azad University Rasht Branch, Taleshan Bridge, Rasht

City

Rasht

Province

Guilan

Postal code

4147654919

Phone

+98 13 3342 2153

Email

shabani_msn@yahoo.com

Person responsible for updating data**Contact****Name of organization / entity**

Tavan Occupational Therapy Center

Full name of responsible person

Arash Nasiri Woshmesaraei

Position

Occupational Therapist

Latest degree

Master

Other areas of specialty/work

Occupational Therapy

Street address

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

City

Rasht

Province

Guilan

Postal code

4153911900

Phone

+98 13 4466 5179

Email

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