Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 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 Ocupational 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، پلاک90

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