Clinical Trial Protocol
Iranian Registry of Clinical Trials

19 Sep 2026

Effects of an 8 week multimodal exercise program (SPARK) on walking mechanics in boys with autism spectrum disorder

Protocol summary

Study aim
The aim of this study was to evaluate the effects of a multimodal exercise program entitled Sports, Play, and Active Recreation for Kids (SPARK) on variables of walking mechanics in boys with autism spectrum disorder (ASD).

Design
A double blind randomized controlled trial

Settings and conduct
Both participants and examiners were unaware of group allocation. During pre and post-tests, children were instructed to walk barefoot along a 15-m walkway. Walking mechanics were measured using foot scan system, motion analysis system, and electromyography system. SPARK was conducted over a period of 8 weeks with three weekly sessions. SPARK included aerobic dance, running games, and jump rope exercises.

Participants/Inclusion and exclusion criteria
Inclusion criteria: the scores of the children with ASD according to the “Gilliam Autism Rating Scale-2” ranged between 62 and 123. Exclusion criteria: Neuromotor or orthopedic disorders or medication that could affect the central nervous system

Intervention groups
SPARK was conducted over a period of 8 weeks with three weekly sessions. SPARK included aerobic dance, running games, and jump rope exercises.

Main outcome variables
Plantar pressure variables; Kinematic analysis; Muscle activities

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20170806035517N4**
Registration date: **2021-11-08, 1400/08/17**
Registration timing: **registered_while_recruiting**
Last update: **2021-11-08, 1400/08/17**
Update count: **0**

Registration date
2021-11-08, 1400/08/17

Registrant information

Name
AmirAli Jafarnezhadgero

Name of organization / entity
University of Mohaghegh Ardabili

Country
Iran (Islamic Republic of)

Phone
+98 45 3351 0903

Email address
a.jafarnezhad@uma.ac.ir

Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2021-11-06, 1400/08/15

Expected recruitment end date
2022-01-10, 1400/10/20

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
Effects of an 8 week multimodal exercise program (SPARK) on walking mechanics in boys with autism spectrum disorder

Public title
Effects of an 8 week multimodal exercise program (SPARK) on walking mechanics in boys with autism spectrum disorder

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

The scores of the children with autism spectrum disorder according to the “Gilliam Autism Rating Scale-2” ranged between 62 and 123 Age range between 7-12 years old

Exclusion criteria:

Neuromotor or orthopedic disorders or medication that could affect the central nervous system

Age

From **7 years** old to **13 years** old

Gender

Male

Phase

N/A

Groups that have been masked

- Participant
- Care provider
- Investigator
- Outcome assessor
- Data analyser

Sample size

Target sample size: **24**

Randomization (investigator's opinion)

Randomized

Randomization description

The block randomization method (block size=4) will be used to allocate study participants into experimental groups. During the randomization procedure, a set of sealed, opaque envelopes will be used to ensure the concealment of the allocation. Each envelope will be contained a card stipulating to which group the participant would be allocated to.

Blinding (investigator's opinion)

Double blinded

Blinding description

Participants will be blinded to group allocation. One examiner will determine whether a participant will eligible for inclusion, while the other will carried out gait analyses of the eligible participants. Both examiners will be unaware of group allocation. Another naïve examiner (i.e., physiotherapist with 10 years professional experience) will be responsible for delivering the treatment to both groups.

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethical Committee of the University of Mohaghegh Ardabili

Street address

University street

City

Ardabil

Province

Ardabil

Postal code

5618953141

Approval date

2021-11-01, 1400/08/10

Ethics committee reference number

IR.UMA.REC.1400.019

Health conditions studied

1

Description of health condition studied

Autism

ICD-10 code

F84.0

ICD-10 code description

Childhood autism

Primary outcomes

1

Description

Platar presuure variables

Timepoint

before and after 8 weeks

Method of measurement

A plantar pressure plate (RsScan International, Belgium, 0.5 m × 0.5× 0.02 m, 4363 sensors)

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: SPARK training

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Ardabili city

Full name of responsible person

AmirAli Jafarnezhadgero

Street address

University street
City
Ardabil
Province
Ardabil
Postal code
5618953141
Phone
+98 45 3233 5149
Email
amiralijafarnezhad@gmail.com

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
University of Mohaghegh Ardabili
Full name of responsible person
Davood Seifzadeh
Street address
University street
City
Ardabil
Province
Ardabil
Postal code
5618953141
Phone
+98 45 3351 0800
Email
seifzadeh@uma.ac.ir
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
No
Title of funding source
University of Mohaghegh Ardabili
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
University of Mohaghegh Ardabili
Full name of responsible person
AmirAli Jafarnezhadgero
Position
Associate professor
Latest degree
Ph.D.
Other areas of specialty/work
Anatomy
Street address
University street
City
Ardabil
Province
Ardabil
Postal code
5618953141
Phone
+98 45 3353 6249
Email
amiralijafarnezhad@gmail.com

Person responsible for scientific inquiries

Contact
Name of organization / entity
University of Mohaghegh Ardabili
Full name of responsible person
AmirAli Jafarnezhadgero
Position
Associate professor
Latest degree
Ph.D.
Other areas of specialty/work
Anatomy
Street address
University street
City
Ardabil
Province
Ardabil
Postal code
5618953141
Phone
+98 45 3353 6249
Email
amiralijafarnezhad@gmail.com

Person responsible for updating data

Contact
Name of organization / entity
University of Mohaghegh Ardabili
Full name of responsible person
AmirAli Jafarnezhadgero
Position
Associate professor
Latest degree
Ph.D.
Other areas of specialty/work
Anatomy
Street address
University street
City
Ardabil
Province
Ardabil

Postal code
5618953141
Phone
+98 45 3353 6249
Email
amiralijafarnezhad@gmail.com

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
Plantar pressure data
When the data will become available and for how long
after publication process
To whom data/document is available
Experts in this field
Under which criteria data/document could be used
Experts in this field
From where data/document is obtainable
by e-mail
What processes are involved for a request to access data/document
by e-mail
Comments
Experts in this field