Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

The effect of adding gluteus medius strengthening exercise into short foot exercise in children with excessive body weight with flexible flat foot

Protocol summary

Study aim
The aim of the present study was to investigate the effect of adding gluteus medius strengthening exercises into short foot exercises in children with excessive body weight with flexible flat foot.

Design
Clinical trial with control group, single blind, randomized, parallel groups, sample size 50 people, randomization software: Random Number Generator

Settings and conduct
The tests will be conducted in the Sports Science Laboratory of the National University of Malayer by experts in the field, and then the intervention and training will take place in the Takhti Sports Hall of this city. During the testing, the outcome assessors and data analysts will be unaware of the main purpose of the research.

Participants/Inclusion and exclusion criteria
Inclusion criteria included: girls between 10 and 13 years old, has a flat, flexible foot, no history of lower limb injury or surgery, navicular bone loss index greater than 10 mm, no use of orthopedic insoles in the past six months, body mass index greater than 19 kg/m2, and puberty onset. exclusion criteria included: use of orthopedic insoles, having neuromuscular problems

Intervention groups
Gluteus medius strengthening exercises and short foot exercises group, short foot exercises control group

Main outcome variables
Navicular drop greater than 10 mm

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20250527065930N1**
Registration date: **2025-11-17, 1404/08/26**
Registration timing: **retrospective**
Last update: **2025-11-17, 1404/08/26**
Update count: **0**

Registration date
2025-11-17, 1404/08/26

Registrant information

Name
Mobina Roostaei
Name of organization / entity
Bu Ali Sina University
Country
Iran (Islamic Republic of)
Phone
+98 81 3830 3243
Email address
m.roostaei@phe.basu.ac.ir

Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2025-09-24, 1404/07/02

Expected recruitment end date
2025-10-04, 1404/07/12

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
The effect of adding gluteus medius strengthening exercise into short foot exercise in children with excessive body weight with flexible flat foot

Public title
The effectiveness of exercise on flat feet

Purpose
Treatment

Inclusion/Exclusion criteria

Inclusion criteria:
Navicular bone loss index greater than 10 mm Body mass index greater than 19 Kg/m2 Girls between 10 and 13 years old No history of lower limb injury or surgery Not using orthopedic insoles in the past six months Has a flat, flexible foot Puberty has occurred
Exclusion criteria:
Use of orthopedic insoles Having neuromuscular problems

Age
From **10 years** old to **13 years** old

Gender
Female

Phase
N/A

Groups that have been masked

- Outcome assessor

Sample size
Target sample size: **50**

Randomization (investigator's opinion)
Randomized

Randomization description
Randomization is done based on the Random Number Generator software and based on the allocation concealment using the SNOSE method, They will be assigned to two groups. We ask the software to randomly assign numbers 1 to 50 to two groups A and B. Group A is the combined group of gluteus medius and short foot strengthening exercises and group B is the short foot exercises group. We put numbers in sealed envelopes, the range of numbers is 1 to 50. The number of subjects is 50 and they will be divided into two groups of 25. Then we ask the participants to take the envelopes containing the numbers and the number that each participant chooses is divided according to the division that we have already done ourselves, which number is in which group, the person will enter the desired group and we perform this kind of randomization of the participants.

Blinding (investigator's opinion)
Single blinded

Blinding description
In this study, outcome assessors, laboratory technicians, are asked to take the desired tests from the patients. These individuals will be unaware of the purpose of the study, the assignment of study groups, and the reason for their presence in the laboratory, and will only assess the variables and record their observations.

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Ethics committee of Bu Ali Sina University

Street address
Bu Ali Sina University, Abu Taleb St, Modares Quarter

City
Hamedan

Province
Hamadan

Postal code
6517838695

Approval date
2024-12-02, 1403/09/12

Ethics committee reference number
IR.BASU.REC.1403.037

Health conditions studied

1

Description of health condition studied
Flexible flat foot

ICD-10 code
M21.40

ICD-10 code description
Flat foot [pes planus] (acquired), unspecified foot

Primary outcomes

1

Description
Navicular drop greater than 10 mm

Timepoint
Before the intervention begins, one day after the intervention ends

Method of measurement
Stretcher

Secondary outcomes

1

Description
Balance

Timepoint
Before the intervention begins, one day after the intervention ends

Method of measurement
Dynamic balance test (Y)

2

Description
Proprioceptive

Timepoint
Before the intervention begins, one day after the intervention ends

Method of measurement
Goniometer

3

Description
Plantar pressure variables
Timepoint
Before the intervention begins, one day after the intervention ends
Method of measurement
Foot scan device

4

Description
Pain
Timepoint
Before the intervention begins, one day after the intervention ends
Method of measurement
VAS pain questionnaire

Intervention groups

1

Description
The intervention group will combine gluteus medius strengthening exercises and short-foot exercises. The exercises will be for 8 weeks and 3 sessions per week for one hour. The equipment used will include a red elastic band with a difficulty level of 4 out of 5, a tennis ball, and a step towel. The exercises will last for one hour, including 10 minutes of warm-up, 40 minutes of specialized exercises for strengthening the gluteus medius and short-foot exercises, and 10 minutes of cool-down. The target muscles in this intervention include the gluteus medius muscle, the tibialis posterior muscle, the tibialis anterior muscle, the abductor hallux and peroneus longus muscles.
Category
Treatment - Devices

2

Description
Control group: the short foot training control group will training for 8 weeks and 3 sessions per week for one hour.
Category
Treatment - Devices

Recruitment centers

1

Recruitment center
Name of recruitment center
Malayer County Education Department
Full name of responsible person
Akbar Farahani
Street address
Malayer County Education Department, Enghelab Boulevard, HamedanProvince, Malayer
City
Malayer
Province
Hamadan
Postal code
6571875856
Phone
+98 81 3334 8800
Email
Akbar.farahani@gmail.com

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Bu Ali Sina University
Full name of responsible person
Farzane Saki
Street address
Bu Ali Sina University, Abu Taleb St,Modares Quarter
City
Hamedan
Province
Hamadan
Postal code
6517838695
Phone
+98 81 3838 1423
Email
f.sport2008@gmail.com
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Bu Ali Sina University
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
Bu Ali Sina University
Full name of responsible person
Mobina Roostaei
Position
Student
Latest degree
Bachelor
Other areas of specialty/work

Sports pathology and corrective exercises

Street address
Bu Ali Sina University, Abu Taleb St , Modares Quarter

City
Hamedan

Province
Hamadan

Postal code
6517838695

Phone
+98 81 3838 1423

Email
m.roostaei@phe.basu.ac.ir

Person responsible for scientific inquiries

Contact

Name of organization / entity
Bu Ali Sina University

Full name of responsible person
Mobina Roostaei

Position
Student

Latest degree
Bachelor

Other areas of specialty/work
Sports pathology and corrective exercises

Street address
Bu Ali Sina University, Abu Taleb St, Modares Quarter

City
Hamedan

Province
Hamadan

Postal code
6517838695

Phone
+98 81 3838 1423

Email
m.roostaei@phe.basu.ac.ir

Person responsible for updating data

Contact

Name of organization / entity
Bu Ali Sina University

Full name of responsible person
Mobina Roostaei

Position
Student

Latest degree
Bachelor

Other areas of specialty/work
Sports pathology and corrective exercises

Street address
Bu Ali Sina University, Abu Taleb St , Modares Quarter

City
Hamedan

Province
Hamadan

Postal code
6517838695

Phone
+98 81 3838 1423

Email
m.roostaei@phe.basu.ac.ir

Sharing plan

Deidentified Individual Participant Data Set (IPD)
Undecided - It is not yet known if there will be a plan to make this available

Study Protocol
Undecided - It is not yet known if there will be a plan to make this available

Statistical Analysis Plan
Undecided - It is not yet known if there will be a plan to make this available

Informed Consent Form
Undecided - It is not yet known if there will be a plan to make this available

Clinical Study Report
Undecided - It is not yet known if there will be a plan to make this available

Analytic Code
Undecided - It is not yet known if there will be a plan to make this available

Data Dictionary
Undecided - It is not yet known if there will be a plan to make this available