Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

The effect of Combine of Short Foot Training with Hip External Rotator Muscles Strengthening on Navicular Drop, Ankle Range of Motion, and Foot Arch Index in Girl Students from 15 to 18 years old with Flexible Flat Foot

Protocol summary

Study aim

The effect of Combine of Short Foot Training with Hip External Rotator Muscles Strengthening on Navicular Drop, Ankle Range of Motion, and Foot Arch Index in Girl Students from 15 to 18 years old with Flexible Flat Foot Posture of Bukan City

Design

The clinical trial has an experimental group and a control group with parallel and randomized groups, which are random allocation software used for randomization.

Settings and conduct

The present study is a quasi-experimental research with a pre-test-post-test design with an experimental group and a control group. 30 female students with flexible flat feet will be randomly divided into two experimental and control groups. The navicular prolapse indices, dorsiflexion and plantarflexion range of motion, and the Stahely index will be measured before and after the exercises.

Participants/Inclusion and exclusion criteria

Entry requirements: Female gender, age range 15 to 18, navicular prolapse greater than 9 mm. Entry requirements: Unwillingness to continue cooperation, absence of more than 2 sessions in the entire training period, creating a specific problem that prevents training.

Intervention groups

The intervention group receives short-leg exercises and strengthening of the external rotator muscles of the thigh, but the control group receives no intervention.

Main outcome variables

Navicular Drop, Ankle Range of Motion, and Foot Arch Index

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20240221061073N2**
Registration date: **2025-06-30, 1404/04/09**
Registration timing: **prospective**

Last update: **2025-06-30, 1404/04/09**
Update count: **0**

Registration date

2025-06-30, 1404/04/09

Registrant information

Name

somayeh momeni

Name of organization / entity

Payame Noor University

Country

Iran (Islamic Republic of)

Phone

+98 21 4492 7037

Email address

dr.momeni@pnu.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2025-08-01, 1404/05/10

Expected recruitment end date

2025-09-01, 1404/06/10

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date
empty

Scientific title
The effect of Combine of Short Foot Training with Hip External Rotator Muscles Strengthening on Navicular Drop, Ankle Range of Motion, and Foot Arch Index in Girl Students from 15 to 18 years old with Flexible Flat Foot

Public title
The effect of Combine of Short Foot Training with Hip External Rotator Muscles Strengthening on giris with Flexible Flat Foot

Purpose
Treatment

Inclusion/Exclusion criteria
Inclusion criteria:
Having Flexible Flat Foot Navicular Drop greater than 9 mm
Exclusion criteria:
Unwillingness to continue cooperation Creating a specific problem that prevents you from continuing to practice

Age
From **15 years** old to **18 years** old

Gender
Female

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **30**
More than 1 sample in each individual
Number of samples in each individual: **2**
Navicular Drop in Right foot and Left foot

Randomization (investigator's opinion)
Randomized

Randomization description
The simple Randomization Method was used to Assign Individuals to two Groups that in this Method It was done by Flip the coin method. This method is usually used to create a random sequence in two-group experiments in such a way that one of the study groups considers the A and the other group the B and based on the sample size, coins were tossed and Individuals are assigned to two random groups. Then, in Order not to Determine Which Group the Individuals will be Assigned to before Dividing them into two Groups, or in other words, Allocation Concealment, the Sequentially numbered, sealed opaque envelopes was used. This method is one of the common methods in concealing random allocation, which is abbreviated to SNOSE method. In this method, after a random sequence, a number of envelopes are prepared and each of the random sequences created is recorded on a card and the cards are placed in the envelopes respectively. In order to maintain a random sequence, the envelopes are numbered in the same way on the outer surface. Finally, the lids of the letter envelopes are glued and placed inside a box, respectively. At the beginning of the registration of participants, according to the order of entry of eligible participants into the study, one of the envelopes of the letter is opened and the assigned group of the participant is revealed.

Blinding (investigator's opinion)
Not blinded

Blinding description

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Payam Noor University
Street address
Payam Noor University, Nakhl Ave, Artesh Blvd, Mini City.
City
Tehran
Province
Tehran
Postal code
193954697

Approval date
2025-04-21, 1404/02/01

Ethics committee reference number
IR.PNU.REC.1404.063

Health conditions studied

1

Description of health condition studied
Flat foot

ICD-10 code
M21.4

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

Primary outcomes

1

Description
Navicular Drop

Timepoint
At the beginning of the study (before the start of the intervention) and after 6 weeks of intervention

Method of measurement
Measurement of the reservoir name to the ground surface

2

Description

Dorsi flexion range of motion

Timepoint

At the beginning of the study (before the start of the intervention) and after 6 weeks of intervention

Method of measurement

With goniometer

3

Description

Plantar flexion range of motion

Timepoint

At the beginning of the study (before the start of the intervention) and after 6 weeks of intervention

Method of measurement

With goniometer

4

Description

Foot arch index

Timepoint

At the beginning of the study (before the start of the intervention) and after 6 weeks of intervention

Method of measurement

Using the Stahali test

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: The intervention group will perform short foot exercises with strengthening exercise for the external rotator muscles. This exercise will be performed for 6 weeks, 3 sessions of 2 hours each week.

Category

Rehabilitation

2

Description

Control group: Without any training and just doing normal daily activities.

Category

N/A

Recruitment centers

1

Recruitment center

Name of recruitment center

Girls upper secondary schools in Bukan Sity

Full name of responsible person

Zhaleh Rabani

Street address

Dental Prosthesis Laboratorry, Bustan Alley 5, Saman Region.

City

Bukan

Province

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5951756191

Phone

+98 44 4625 2546

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zhalerabani1288@gmail.com

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Payam noor University

Full name of responsible person

Alireza Mohadesi

Street address

Payam Noor University, Nakhl Ave, Artesh Blvd, Mini City.

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Tehran

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193954697

Phone

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Email

dr.mohadesi@pnu.ac.ir

Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?

Yes

Title of funding source

Payam noor University

Proportion provided by this source

10

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

Payame Noor University

Full name of responsible person

Somayeh Momeni

Position

Associate professor

Latest degree

Ph.D.

Other areas of specialty/work

Sport injury and corrective exercise

Street address

No 587, Payam Noor University, Ostad Nejatolahi Street.

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Person responsible for scientific inquiries

Contact

Name of organization / entity

Payame Noor University

Full name of responsible person

Somayeh Momeni

Position

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Person responsible for updating data

Contact

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Full name of responsible person

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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

All potentiol data can be shared after people have not been identified

When the data will become available and for how long

Start the access period one year after printing the result

To whom data/document is available

Data will be available to academic and scientific researchers

Under which criteria data/document could be used

Any kind of functional analysis on the submitted data is allowed

From where data/document is obtainable

by Email: dr.momeni@pnu.ac.ir

What processes are involved for a request to access data/document

by Email: dr.momeni@pnu.ac.ir and the reason for using the documents

Comments