Clinical Trial Protocol
Iranian Registry of Clinical Trials

10 Jun 2026

The Effects of Comprehensive and Localized Corrective Exercises on Knee Valgus and Gluteal Muscle Strength and Endurance in Women with Gluteal Muscle Dysfunction

Protocol summary

Study aim

To determine the effects of comprehensive and local corrective exercises on knee valgus and gluteal muscle strength and endurance in women with gluteal muscle dysfunction

Design

A randomized controlled trial with three parallel groups (local corrective exercise, comprehensive corrective exercise, and control), double-blind in outcome assessment, simple randomization with 45 women; random sequence generated using the Random function in Excel and group allocation after screening for inclusion criteria.

Settings and conduct

The study will be conducted on women with gluteal muscle dysfunction at “Zarban” gym in Gorgan. Participants will be assigned to three parallel groups (local corrective exercise, comprehensive corrective exercise, and control). Exercises will be performed for 12 weeks under the researcher’s supervision. Assessors and the data analyst will be blinded.

Participants/Inclusion and exclusion criteria

Inclusion criteria: gluteal muscle dysfunction; age 18–50; female; physically inactive and no regular exercise in the past 6 months; no medical contraindication for exercise Exclusion criteria: history of injury or surgery in the lumbopelvic or lower limb region; progressive neuromuscular disease; severe joint disorder; disc herniation or spondylolisthesis; use of assistive walking devices

Intervention groups

Local corrective exercise group: 12-week program focused on gluteal muscles; Comprehensive corrective exercise group: 12-week program targeting lower limbs and gluteal muscles; Control group: continue usual daily activities without specific exercise program.

Main outcome variables

Gluteal muscle strength (abduction, external rotation, hip extension); gluteal muscle endurance (single-leg bridge hold time); static and dynamic knee valgus (Q-angle and femur–tibia angle during standing and single-leg squat)

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20180521039762N5**
Registration date: **2026-02-05, 1404/11/16**
Registration timing: **prospective**

Last update: **2026-02-05, 1404/11/16**
Update count: **0**

Registration date

2026-02-05, 1404/11/16

Registrant information

Name

Afshin Moghadasi

Name of organization / entity

University of Isfahan

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2026-02-06, 1404/11/17

Expected recruitment end date

2026-02-18, 1404/11/29

Actual recruitment start date
empty
Actual recruitment end date
empty
Trial completion date
empty

Scientific title
The Effects of Comprehensive and Localized Corrective Exercises on Knee Valgus and Gluteal Muscle Strength and Endurance in Women with Gluteal Muscle Dysfunction

Public title
Effect of Corrective Exercises on Knee Valgus and Gluteal Muscle Function in Women
Purpose
Supportive
Inclusion/Exclusion criteria
Inclusion criteria:
Presence of gluteal muscle dysfunction Age range between 18 and 50 years Female gender Physical inactivity and no regular exercise participation during the past 6 months No medical contraindication for participation in exercise programs
Exclusion criteria:
History of serious injury or surgery in the lumbopelvic region or lower limbs Presence of progressive neuromuscular diseases Presence of severe joint disorders such as hip or knee osteoarthritis Intervertebral disc herniation or spondylolisthesis Use of assistive walking devices such as a cane
Age
From **18 years** old to **50 years** old
Gender
Female

Phase
N/A
Groups that have been masked

- Outcome assessor
- Data analyser

Sample size
Target sample size: **45**
Randomization (investigator's opinion)
Randomized
Randomization description
After the initial assessment and screening for inclusion and exclusion criteria, eligible participants will enter the randomization phase. Randomization in this study will be performed as simple randomization with an individual randomization unit. The random sequence will be generated using the Random function in Microsoft Excel. Based on this sequence, participants will be randomly assigned to three equal groups: the local corrective exercise group, the comprehensive corrective exercise group, and the control group.
Blinding (investigator's opinion)
Double blinded
Blinding description
Participants will be aware of their group assignment because the study objectives and interventions are explained to them, and blinding participants is not ethically possible. However, individuals involved in data collection and outcome assessment, including measurement assessors and the data analyst, will be blinded to group assignments. The principal investigator and healthcare personnel (physicians, physiotherapists, or trainers) who interact directly with participants will be aware of the group allocation. The Data Safety and Monitoring Committee and personnel preparing the manuscript will also remain blinded to group assignments. This design minimizes potential bias during data collection and analysis.
Placebo
Not used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Research Ethics Committees of Payame Noor University
Street address
Payame Noor University, Nakhl St., Artesh Blvd., Tehran, Iran
City
Tehran
Province
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Postal code
193954697
Approval date
2024-12-20, 1403/09/30
Ethics committee reference number
IR.PNU.REC.1403.539

Health conditions studied

1

Description of health condition studied
Gluteal muscle dysfunction
ICD-10 code
ICD-10 code description

Primary outcomes

1

Description
- Gluteal muscle strength (abduction, external rotation, hip extension) will be measured using a dynamometer.
Timepoint
Before the intervention and after the 12-week exercise

program

Method of measurement

Dynamometer

2

Description

Gluteal muscle endurance will be measured as the single-leg bridge hold time.

Timepoint

Before the intervention and after the 12-week exercise program

Method of measurement

Timer to measure the duration of the single-leg bridge hold

3

Description

Static and dynamic knee valgus will be assessed by measuring Q-angle and femur–tibia angle during standing and single-leg squat

Timepoint

Before the intervention and after the 12-week exercise program

Method of measurement

Goniometer or video analysis software to measure angles

Secondary outcomes

1

Description

Hip joint flexibility will be assessed by measuring range of motion in abduction and external rotation

Timepoint

Before the exercise program and after the 12-week intervention

Method of measurement

Goniometer to measure joint angles

2

Description

Static balance will be assessed using the single-leg stance test measuring the duration of balance

Timepoint

Before the exercise program and after the 12-week intervention

Method of measurement

Timer to record single-leg stance duration

Intervention groups

1

Description

Intervention group 1 – Local corrective exercise: Participants will follow a 12-week program of exercises focused on gluteal muscles. Sessions will be conducted three times per week under researcher supervision.

Category

Rehabilitation

2

Description

Intervention group 2 – Comprehensive corrective exercise: Participants will follow a 12-week program of exercises targeting the lower limbs and gluteal muscles. Sessions will be conducted three times per week under researcher supervision.

Category

Rehabilitation

3

Description

Control group: Participants will continue their usual daily activities without receiving any specific exercise program.

Category

N/A

Recruitment centers

1

Recruitment center

Name of recruitment center

Zarban Fitness Club

Full name of responsible person

Fatemeh Eskandarian

Street address

No. 40, Sayad Street, Manzarieh Square

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Postal code

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Payame Noor University

Full name of responsible person

Dr. Majid Zamahni

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Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Payame Noor 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
Payame Noor University
Full name of responsible person
Afshin Moghadasi
Position
Assistant professor
Latest degree
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Sports Injury and Corrective Exercises
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Person responsible for updating data

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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
No - There is not 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
Individual participant data (IPD) from the study, after de-identification to ensure participant privacy, will be shared

upon reasonable request with researchers for secondary analyses related to gluteal muscle function and knee valgus. The data will include primary and secondary outcomes, demographic information, and relevant clinical measures.

When the data will become available and for how long

Access to the data and documents will begin after the completion of the study and the publication of the main results. Data preparation will include de-identification of participants' information. Access is expected to be available to interested researchers six months after publication of the results and will continue indefinitely.

To whom data/document is available

Access to the data and documents will be granted to researchers interested in scientific and secondary analyses. Requests for access should include a description of the intended research purpose and type of analysis. The data will not be available for direct commercial use and will be shared only for legitimate scientific research purposes.

Under which criteria data/document could be used

The study data and documents may be used solely for scientific research and secondary analyses related to gluteal muscle function and knee valgus. Applicants must provide a written description of the research purpose and proposed analyses. Direct commercial use of the data is not permitted. Individual participant data will be de-identified to protect privacy. Applicants are required to use the data only for the approved purposes and must not publish results without permission.

From where data/document is obtainable

Applicants requesting access to study data and documents should contact the Principal Investigator: Name: Dr. Afshin Moghadasi Department: Department of Sports Injury and Corrective Exercises Institution: Payame Noor University (PNU) P.O. Box: 19395-4697, Tehran, Iran Email: moghadasi@pnu.ac.ir Phone: +98 918 943 2264 Please include in your email or correspondence a description of the research purpose and proposed analyses so that your request can be evaluated.

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

1. The applicant should submit a written request via email to the Principal Investigator. 2. The request must clearly describe the research purpose, proposed analyses, and the specific data or documents needed. 3. The Principal Investigator will review the request and, if approved, a Data Use Agreement outlining the terms of use will be sent to the applicant. 4. After signing and returning the agreement, the de-identified data and documents will be prepared and provided to the applicant. 5. The entire process typically takes 2 to 4 weeks after a complete and valid request, depending on the volume of data and complexity of the request.

Comments