Clinical Trial Protocol
Iranian Registry of Clinical Trials

17 Sep 2026

The effects of isolated hip abductor and external rotator muscle strengthening on dynamic knee valgus during single leg landing

Protocol summary

Study aim
To investigate the effect of isolated hip abductor and external rotator muscle strengthening on dynamic knee valgus during single-leg landing.

Design
Two arm parallel group randomized Clinical Trial with blinded outcome assessment

Settings and conduct
Thirty-two males with knee valgus angle more than 9 degree were randomized into a training (n=16) or control group (n=16). The training group carried out 8 weeks of bilateral hip abductor and external rotator strengthening 3 times per week. Pre and post-test hip strength were measured with isokinetic dynamometer (Kin-Com) and motion capture data were collected during 3 single-leg landing trials. Pelvis, hip and knee angles were estimated using QTM and Visual 3D software. the study was carried out in Azad Republic university's laboratory.

Participants/Inclusion and exclusion criteria
To be considered for the study, subjects had to be male (age 19 to 23) and show knee valgus angle more than 8 degrees during jump-landing task . All subjects had a history of at least 2 years participation in/or football, futsal, handball and volleyball, no history of lower extremity surgery, no regular hip muscles strengthening program, no participation in an ACL injury prevention program, no lower extremity injury within 6 months before the study, no limitation in ankle dorsiflexion range of motion and no obvious misalignment in lower extremity

Intervention groups
Intervention group: 8 weeks of bilateral isolated hip abductor and external rotator strengthening exercise

Main outcome variables
Knee valgus angle; hip muscle strength

General information

Reason for update
Provide more information about randomization

Acronym

IRCT registration information
IRCT registration number: **IRCT20190511043552N1**
Registration date: **2019-09-28, 1398/07/06**
Registration timing: **retrospective**

Last update: **2022-03-22, 1401/01/02**
Update count: **1**

Registration date
2019-09-28, 1398/07/06

Registrant information

Name
Mahdi Safari Bak

Name of organization / entity
The University of Isfahan

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Iran (Islamic Republic of)

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2019-07-06, 1398/04/15

Expected recruitment end date
2019-07-16, 1398/04/25

Actual recruitment start date
2019-07-06, 1398/04/15

Actual recruitment end date
2019-07-09, 1398/04/18

Trial completion date
2019-09-19, 1398/06/28

Scientific title
The effects of isolated hip abductor and external rotator

muscle strengthening on dynamic knee valgus during single leg landing

Public title
The effects hip muscles strengthening on dynamic knee valgus
Purpose
Prevention
Inclusion/Exclusion criteria
Inclusion criteria:
subjects had to be male (age 19 to 23) shown knee valgus angle more than 8 degree during jump-landing task subjects had no history of lower extremity surgery no regular hip muscles strengthening program no lower extremity injury within 6 months before the study no limitation in ankle dorsiflexion range of motion no obvious misalignment in lower extremity
Exclusion criteria:
participated in an ACL injury prevention program knee valgus angle less than 8 degree during jump-landing task
Age
From **20 years** old to **25 years** old
Gender
Male

Phase
N/A
Groups that have been masked

- Participant
- Care provider
- Outcome assessor
- Data analyser

Sample size
Target sample size: **36**
Actual sample size reached: **32**
Randomization (investigator's opinion)
Randomized
Randomization description
Randomization of participants was performed through drawing opaque envelopes numbered 1 or 2 by an independent coordinator, not otherwise involved in the study, who created an allocation sequence that assigned participants to the training or control groups.
Blinding (investigator's opinion)
Double blinded
Blinding description
Participants and research assistants (trainers and data analyzer) were blind to group allocation. Group allocation prepared by an independent coordinator were not associated with the rendition of the exercise program. Each groups had independed trainer, not otherwise involved in the study.
Placebo
Not used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Iran National committee for Ethics in Biomedical Research
Street address
Azadi sq, Isfahan university, Isfahan
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Isfehan
Postal code
۸۱۷۴۶۷۳۴۴۱
Approval date
2019-06-30, 1398/04/09
Ethics committee reference number
IR.UI.REC.1398.023

Health conditions studied

1

Description of health condition studied
knee valgus angle
ICD-10 code
ICD-10 code description

Primary outcomes

1

Description
knee valgus angle: medial knee deviation
Timepoint
measurement at the baseline and after eight week exercise
Method of measurement
Visual 3D motion analysis software

2

Description
hip muscles strength
Timepoint
measurement at the baseline and after eight week exercise
Method of measurement
isokinetic dynamometer

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: Eight weeks of Isolated hip abductor

and external rotator strengthening 3 times per week.

Category

Prevention

2

Description

Control group: daily activity

Category

Prevention

Recruitment centers

1

Recruitment center

Name of recruitment center

Khavaran university

Full name of responsible person

Mohsen Behrad

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

The university of Isfahan

Full name of responsible person

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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

The university of Isfahan

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

The Isfahan university

Full name of responsible person

Mahdi Safaribak

Position

Ph.D Student

Latest degree

Master

Other areas of specialty/work

Sport injury and corrective exercise

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Latest degree

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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

Not applicable

Data Dictionary

Not applicable

Title and more details about the data/document

The entire data of individual is publicly available after it will be unidentifiable

When the data will become available and for how long

get started since 2019

To whom data/document is available

All researchers in sport medicine and sport coaches

Under which criteria data/document could be used

There are no special condition and everyone can have access

From where data/document is obtainable

Mahdi Safari bak_ 09151214977_ m.safari950@gmail.com

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

They can access to the data by sending an email or call to the authors after published papers a reports

Comments