

Clinical Trial Protocol

Iranian Registry of Clinical Trials

02 Jul 2026

Comparison of the effect of hip- and ankle- focused training programs on biomechanical risk factors of anterior cruciate ligament injury in female basketball players

Protocol summary

Study aim

The general purpose of this research is to compare the effect of a training program with an emphasis on hip and ankle on biomechanical risk factors of anterior cruciate ligament injury in female basketball players based on the regional dependence model.

Design

The clinical trial has two experimental groups and one control group, with parallel, double-blind, randomized groups, and the sample size of the target population is estimated to be 15 people for each group using Gpower software.

Settings and conduct

Research Institute of Physical Education and Sports Sciences, jumping and landing test on force plate and motion analysis by motion device.

Participants/Inclusion and exclusion criteria

The entry conditions for the participants are female basketball players between the ages of 14 and 18 who do not have any injuries or deformities of the lower limbs.

Intervention groups

Hip- and Ankle-focused training program , 8 weeks and three session in a week, two experimental group and one control group

Main outcome variables

knee, ankle and hip angles

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20221002056077N1**

Registration date: **2022-11-12, 1401/08/21**

Registration timing: **retrospective**

Last update: **2022-11-12, 1401/08/21**

Update count: **0**

Registration date

2022-11-12, 1401/08/21

Registrant information

Name

Noushafarin Azad

Name of organization / entity

Country

Iran (Islamic Republic of)

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+98 11 4308 2994

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nushin.azad@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2022-06-29, 1401/04/08

Expected recruitment end date

2022-07-11, 1401/04/20

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparison of the effect of hip- and ankle- focused training programs on biomechanical risk factors of anterior cruciate ligament injury in female basketball players

Public title

Comparison of the effect of hip- and ankle- focused training programs on biomechanical risk factors of

anterior cruciate ligament injury in female basketball players: Based on the Regional Interdependence Model

Purpose

Prevention

Inclusion/Exclusion criteria

Inclusion criteria:

A member of one of youth basketball league teams of Tehran province The age range of the players should be between 14 and 18 years Have an average of 3 training sessions per week Players must be matured No history of knee ligament tears No significant abnormalities in lower limbs

Exclusion criteria:

Not to exercise 3 sessions a week regularly Not to follow training protocols regularly Not to participate in the post-test Using any other systematic injury prevention exercise program

Age

From **14 years** old to **18 years** old

Gender

Female

Phase

N/A

Groups that have been masked

- Participant
- Data analyser

Sample size

Target sample size: **36**

Randomization (investigator's opinion)

Randomized

Randomization description

Simple randomization instrument: Packet In this method, the researcher gives a special number to each teams. And there are those numbers in the selected envelopes. Therefore, she will have numbered envelopes as many as the number of teams. Then he pours them into a bag or container and stirs them. Then she takes out them one by one and writes down their numbers. And the first to third teams are randomly assigned to the control and intervention groups

Blinding (investigator's opinion)

Single blinded

Blinding description

The participants, including two experimental groups and a control group, as well as the data analyst, have been blinded. The groups and the data analyst are blinded in a way that they do not know which group they belong to.

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethical Committee of Research Institute of Physical Education and Sports Sciences

Street address

No.3, Fifth Ave, Miremad St, Ostad Motahati St, Tehran

City

Tehran

Province

Tehran

Postal code

1587958711

Approval date

2022-05-21, 1401/02/31

Ethics committee reference number

IR.SSRC.REC.1401.036

Health conditions studied

1

Description of health condition studied

Cruciate knee ligament injury

ICD-10 code

M36

ICD-10 code description

Systemic disorders of connective tissue in diseases classified elsewhere

Primary outcomes

1

Description

The angle of the ankle

Timepoint

In pre- and post-test

Method of measurement

Motion analysis device and force plate

2

Description

The angle of knee

Timepoint

In pre- and post-test

Method of measurement

Motion analysis device and force plate

3

Description

The angle of hip

Timepoint

In pre- and post-test

Method of measurement

Motion analysis device and force plate

Secondary outcomes

empty

Intervention groups

1

Description

First intervention group: The first intervention group will be given eight weeks of hip strengthening exercises along with PEP exercise program for three sessions a week for eight weeks. These exercises are performed in the warm-up section of the players' daily exercises and last for twenty minutes. In the exercises, the mini-loop band of Traband brand with medium resistance is used.

Category

Prevention

2

Description

Second intervention group: The second intervention group will be given eight weeks of ankle strengthening exercises along with PEP exercise program for three sessions a week for eight weeks. These exercises are performed in the warm-up section of the players' daily exercises and last for twenty minutes. In the exercises, the mini-loop band of Traband brand with medium resistance is used.

Category

Prevention

3

Description

Control group: The control group will be given eight weeks of PEP exercise program for three sessions a week for eight weeks. These exercises are performed in the warm-up section of the players' daily exercises and last for twenty minutes. In the exercises, the mini-loop band of Traband brand with medium resistance is used.

Category

Prevention

Recruitment centers

1

Recruitment center

Name of recruitment center

Research Institute of Physical Education and Sports Sciences

Full name of responsible person

Mostafa Zarei

Street address

5th Dead End, District 7, Miremad St, Ostad Motahari St ,Tehran, Tehran Province

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Web page address

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Shahid Beheshti University of Medical Sciences

Full name of responsible person

Afshin Zarqi

Street address

Daneshjou Blvd, District 1, Tehran, Tehran Province

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1983969411

Phone

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Email

pr-office@sbu.ac.ir

Web page address

<https://www.sbu.ac.ir/>

Grant name

Grant code / Reference number

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

Yes

Title of funding source

Shahid Beheshti University of Medical Sciences

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

Shahid Beheshti University of Medical Sciences

Full name of responsible person

Mostafa Zareii

Position

Professor

Latest degree

Ph.D.

Other areas of specialty/work

Teaching
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Person responsible for scientific inquiries

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Person responsible for updating data

Contact

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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

Movement analysis

When the data will become available and for how long

After result edition

To whom data/document is available

Academics

Under which criteria data/document could be used

Studios

From where data/document is obtainable

nushin.azad@gmail.com

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

Send request with an email and we check and send it in 15 days

Comments