

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 2026

The effect of Hamstring eccentric training on knee strength and proprioception , as well as the hamstring flexibility and lower extremity performance in active females having hamstring tightness.

Protocol summary

Study aim

The effect of Hamstring eccentric training on knee strength and proprioception, as well as the hamstring flexibility and lower extremity performance in active females with hamstring tightness.

Design

A clinical trial of controlled and randomized double-blind, placebo type

Settings and conduct

The study was conducted at Kharazmi University. The subjects of this study included 24 active female athletes (12 from experimental group and 12 from control group) with hamstring tightness. For measurement of the strength (eccentric and concentric peak torque and time to reach the peak torque in speeds of 60 and 180 degree per second) and proprioception, hamstring flexibility and lower extremity performance, respectively the device of isokinetic dynamometer , passive knee extension test, hopping test and single leg bridge test were used. The Measurements were made before trainings and 6 weeks after resistance eccentric hamstring trainings .

Participants/Inclusion and exclusion criteria

Active female students within the age range of 18-25 having all the below conditions: Hamstring tightness, normal BMI range of 20-25 : a previous history of lower extremity injuries, a previous history of neurological disorders, Physiotherapy and movement therapy within the last six months, Joint problems, A previous history of lower extremity surgery or fracture and Pregnancy

Intervention groups

Control group and experimental group The experimental group completed eccentric hamstring trainings in six weeks and at the same time the control group performed their daily activities.

Main outcome variables

strength, proprioception, flexibility, lower extremity performance

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20190611043865N1**

Registration date: **2019-08-28, 1398/06/06**

Registration timing: **retrospective**

Last update: **2019-08-28, 1398/06/06**

Update count: **0**

Registration date

2019-08-28, 1398/06/06

Registrant information

Name

Aisan Fardmehregan

Name of organization / entity

Kharazmi University

Country

Iran (Islamic Republic of)

Phone

+98 21 2222 8001

Email address

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2018-07-31, 1397/05/09

Expected recruitment end date

2018-09-29, 1397/07/07

Actual recruitment start date

2018-08-05, 1397/05/14

Actual recruitment end date

2018-10-01, 1397/07/09

Trial completion date

2018-10-01, 1397/07/09

Scientific title

The effect of Hamstring eccentric training on knee strength and proprioception, as well as the hamstring flexibility and lower extremity performance in active females having hamstring tightness.

Public title

The effect of Hamstring eccentric training on knee strength and proprioception, as well as the hamstring flexibility and lower extremity performance in active females with hamstring tightness

Purpose

Prevention

Inclusion/Exclusion criteria

Inclusion criteria:

Active female students with the age range of 18-25 with hamstring tightness having the normal Body Mass Index range (BMI) of 20-25

Exclusion criteria:

A previous history of lower extremity injuries A previous history of neurological disorders Physiotherapy and movement therapy within previous six months Joint problems A previous history of lower extremity surgery or fracture Pregnancy

Age

From **18 years** old to **25 years** old

Gender

Female

Phase

N/A

Groups that have been masked

- Participant
- Outcome assessor

Sample size

Target sample size: **28**

Actual sample size reached: **24**

Randomization (investigator's opinion)

Randomized

Randomization description

Randomly

Blinding (investigator's opinion)

Double blinded

Blinding description

The evaluators and the test subjects were not aware of the grouping

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics Committee for Research at Tarbiat Modarres University

Street address

Tehran, Jalal Al Ahmad, Nasr Bridge

City

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Province

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Postal code

14115-111

Approval date

2018-07-20, 1397/04/29

Ethics committee reference number

IR.MODARES.REC.1397.042

Health conditions studied

1

Description of health condition studied

Hamstring tightness

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

Knee strength

Timepoint

Before and after intervention

Method of measurement

Isokinetic Dynamometer (Biodex-3) to measure knee flexion and extension

2

Description

Knee proprioception

Timepoint

Before and after intervention

Method of measurement

Assessment of proprioception by objective angle retrieval method using the dynamometer isokinetic device

3

Description

Hamstring flexibility

Timepoint

Before and after intervention

Method of measurement

Passive knee extension test

4

Description

Lower extremity performance

Timepoint

Before and after intervention

Method of measurement

Hopping and single leg bridge tests

Secondary outcomes

empty

Intervention groups**1****Description**

Intervention group: hamstring Eccentric training for six weeks, three 30 minutes sessions per week

Category

Prevention

2**Description**

Control group: Without any intervention

Category

Prevention

Recruitment centers**1****Recruitment center****Name of recruitment center**

kharazmi university

Full name of responsible person

Aisan Fardmehregan

Street address

Department of Biomechanics and Sports Injury,
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Sponsors / Funding sources**1****Sponsor****Name of organization / entity**

Kharazmi university

Full name of responsible person

Amir letafatkar

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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

Kharazmi 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**

Kharazmi University

Full name of responsible person

Amir letafatkar

Position

Associate professor

Latest degree

Ph.D.

Other areas of specialty/work

Sport Injuries and Corrective Exercises

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Person responsible for scientific inquiries

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Name of organization / entity

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Full name of responsible person

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Latest degree

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Other areas of specialty/work

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Other areas of specialty/work

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

No - There is not a plan to make this available

Justification/reason for indecision/not sharing IPD

The university has not allowed the researcher to do so.

Study Protocol

Yes - There is a plan to make this available

Statistical Analysis Plan

No - There is not 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

Not applicable

Title and more details about the data/document

Only part of the data, such as information about the original outcome or alike, can be shared.

When the data will become available and for how long

Access to data, starts 6 months after results are printed

To whom data/document is available

Researchers working in academic and scientific institutions

Under which criteria data/document could be used

For scientific and research purposes with mentioning the research title and researcher name

From where data/document is obtainable

Request by Email from the Researcher:

std_a.mehregan@khu.ac.ir

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

Request by Email Researcher, std_a.mehregan@khu.ac.ir

Comments