Clinical Trial Protocol
Iranian Registry of Clinical Trials

31 Oct 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 measurment 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)

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+98 21 2222 8001

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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 femals 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 movment 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
Randomaly

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

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Tehran

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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
Assesment 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, Faculty of Physical Education and Sport Sciences, Kharazmi University, Mirdamad, Shahid Keshvari, Iran
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Sponsors / Funding sources

1

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Name of organization / entity
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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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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