Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

The Effects of Myofascial Release and Stretching of the Hamstring and Plantar Fascia on Range of Motion, Cervical Proprioception, Static and Dynamic Balance, Muscle Strength, and Jump Performance

Protocol summary

Study aim
The Effects of Myofascial Release and Stretching of the Hamstring and Plantar Fascia on Range of Motion, Cervical Proprioception, Static and Dynamic Balance, Muscle Strength, and Jump Performance

Design
Clinical trial with control group, with parallel groups, No blinding, randomized, on 80 people, lottery was used for randomization.

Settings and conduct
Place of study: Faculty of Physical Education, University of Tehran; Study population: athletes; Type of blinding: without blinding

Participants/Inclusion and exclusion criteria
Inclusion criteria: male; age range from 18 to 40 years; People who want to take the test and complete the consent form; No history of musculoskeletal pain in the last two weeks Exclusion criteria: hypermobility; Using flexibility and yoga exercise programs for more than 6 months; severe orthopedic problem; 6 months history of back pain, neck pain and soft tissue damage; Fibromyalgia and other psychological problems

Intervention groups
Intervention Group 1: Includes myofascial release of the hamstring muscle and plantar fascia using a foam roller and massage ball performed by the participant themselves. Intervention Group 2: Includes static stretching of the hamstring muscle and plantar fascia performed by the researcher.

Main outcome variables
Cervical Range of motion Dynamic Balance Static Balance Muscle Strength Cervical Proprioception Jump Performance or Jump Height

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20240521061862N3**
Registration date: **2025-07-15, 1404/04/24**
Registration timing: **prospective**

Last update: **2025-07-15, 1404/04/24**
Update count: **0**

Registration date
2025-07-15, 1404/04/24

Registrant information

Name
Behrouz Jafari
Name of organization / entity
The university of Tehran
Country
Iran (Islamic Republic of)
Phone
+98 21 8602 0153
Email address
jaffari_behroz@yahoo.com

Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2025-08-06, 1404/05/15

Expected recruitment end date
2025-11-06, 1404/08/15

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title

The Effects of Myofascial Release and Stretching of the Hamstring and Plantar Fascia on Range of Motion, Cervical Proprioception, Static and Dynamic Balance, Muscle Strength, and Jump Performance

Public title

Investigating the Effects of Hamstring and Plantar Fascia Release and Stretching on Range of Motion, Balance, Strength, and Jumping Ability

Purpose

Prevention

Inclusion/Exclusion criteria

Inclusion criteria:

Being male Age range from 18 to 40 years People who want to take the test and complete the consent form.

Exclusion criteria:

Hypermobility (Beton test score 4 and more) Using flexibility and yoga exercise programs for more than 6 months Severe orthopedic problem, Fibromyalgia and other mental problems (using the GHQ-12 general health questionnaire) Having a history of surgery History of musculoskeletal pain in the last two weeks

Age

From **18 years** old to **40 years** old

Gender

Male

Phase

2-3

Groups that have been masked

No information

Sample size

Target sample size: **80**

Randomization (investigator's opinion)

Randomized

Randomization description

After identifying the people to participate in the research, a simple randomization method was used. In such a way that the selection of participants was completely based on chance and probability and every participant had the same chance to enter the sample. The main factor for us was that each participant had an equal chance of being placed in each group. Then, with the lottery method, the names of the people were written on paper and placed in a container, and someone other than the researchers randomly picked the names, and the names that were the first to leave the intervention group and the rest of the control group. In the randomization process, the researchers had no involvement and this work was done by an uninformed person.

Blinding (investigator's opinion)

Not blinded

Blinding description

Placebo

Used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics Committee of the Sport Sciences Research Institute

Street address

No. 195, Valiasr alley, Ghari street, Heydari street, Sabalan

City

Tehran

Province

Tehran

Postal code

1636818665

Approval date

2022-11-02, 1401/08/11

Ethics committee reference number

SSRI.REC.2211.1933

Health conditions studied

1

Description of health condition studied

Limited Cervical Range of Motion and Hamstring Muscle Shortness

ICD-10 code

M54.2

ICD-10 code description

Cervicalgia

Primary outcomes

1

Description

Neck range of motion including flexion, extension, lateral flexion and rotation

Timepoint

Before the test and after the test after doing 6 weeks of training

Method of measurement

Using the Measure Angles Bubble Level protractor and protractor version 3.99.92 application on the iPhone 13 Pro Max smartphone

2

Description

Neck proprioception

Timepoint

Before and immediately after intervention

Method of measurement

Angle reconstruction error method to check the proprioceptive condition using laser pen and graduated plate

3

Description
Static Balance
Timepoint
Before and immediately after intervention
Method of measurement
Static balance was assessed using the Single-Leg Stance Test with Eyes Closed. In this test, the participant stands on their dominant leg on a flat surface, lifts the opposite foot off the ground, and closes their eyes. The duration for which balance is maintained without losing posture is recorded as an indicator of static balance

4

Description
Dynamic balance
Timepoint
Before and immediately after intervention
Method of measurement
Dynamic balance was assessed using the Y-Balance Test. In this test, the participant stands on one leg (the stance leg) while reaching the other leg in three directions: anterior, posteromedial, and posterolateral. The maximum reach distance in each direction, without losing balance, is measured and recorded. This test is a reliable and valid method for evaluating neuromuscular control and dynamic postural stability

5

Description
Jump Distance
Timepoint
Before and immediately after intervention
Method of measurement
Lower limb power and functional performance were assessed using the Single-Leg Hop Test. In this test, the participant stands on one leg and performs a maximal forward jump, landing on the same leg. The test was performed separately for both the right and left legs. The distance from the toe at take-off to the heel at landing is measured and recorded. This test is widely used and validated for evaluating explosive muscular power, limb symmetry, and functional lower extremity performance

Secondary outcomes

empty

Intervention groups

1

Description
Intervention Group 1:Self-myofascial release of the hamstring muscles and plantar fascia was performed using a foam roller and massage ball by the participant. The participant sat on the floor with the foam roller placed under the posterior part of both thighs. By shifting their body weight onto the foam roller, they slowly rolled back and forth along the hamstrings. This movement was performed for 2 minutes, in 3 sets.Next, the participant sat on a chair and placed a massage ball under the sole of the foot. By applying slight pressure, they rolled the foot slowly back and forth over the ball. This exercise was also performed for 2 minutes, in 3 sets for each foot.
Category
Prevention

2

Description
Intervention Group2:The participant lay supine on the floor while the researcher passively lifted one leg upward, keeping the knee extended, until the participant reported a sensation of stretch accompanied by mild discomfort. The position was held for 30 seconds and repeated three times for each leg.Next, while still lying on the floor, the participant was instructed to place a resistance band around the ball of the foot and actively pull it toward themselves until a stretch was felt in the plantar aspect of the foot. This stretch was also held for 30 seconds and performed in 3 sets for each foot.
Category
Prevention

3

Description
Control group: No intervention was applied
Category
Prevention

Recruitment centers

1

Recruitment center
Name of recruitment center
Tehran University
Full name of responsible person
Behrouz Jafari
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No. 195, Valiasr alley, Ghari street, Heydari street, Sabalan
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Faculty of Physical Education, University of Tehran

Full name of responsible person
Behrouz jafari
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No. 195, Valiasr alley, Ghari street, Heydari street, Sabalan
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Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?
No

Title of funding source
Faculty of Physical Education, University of Tehran

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
Faculty of Physical Education, University of Tehran
Full name of responsible person
Behrouz jafari
Position
PhD Holder and Researcher at the University of Tehran
Latest degree
Ph.D.
Other areas of specialty/work
Sport Injuries & Corrective Exercises
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Person responsible for scientific inquiries

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Full name of responsible person
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Person responsible for updating data

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Sharing plan

Deidentified Individual Participant Data Set (IPD)
Undecided - It is not yet known if there will be a plan to make this available

Study Protocol

Undecided - It is not yet known if there will be a plan to make this available

Statistical Analysis Plan

Undecided - It is not yet known if there will be a plan to make this available

Informed Consent Form

Undecided - It is not yet known if there will be a plan to make this available

Clinical Study Report

Undecided - It is not yet known if there will be a plan to make this available

Analytic Code

Undecided - It is not yet known if there will be a plan to make this available

Data Dictionary

Undecided - It is not yet known if there will be a plan to make this available