Clinical Trial Protocol
Iranian Registry of Clinical Trials

10 Jun 2026

The effects of tissue flossing on ankle range of motion, strength, balance, and jump performance in athletes with limited ankle dorsiflexion: a randomized control trial

Protocol summary

Study aim

Investigating the acute and long-term effects of muscle flossing on range of motion, muscle strength, jump performance, and dynamic balance in athletes with limited ankle dorsiflexion range of motion

Design

This study examines the effects of muscle flossing on ankle function in 44 male athletes with limited dorsiflexion. Participants are randomly assigned to intervention or control groups. The 6-week intervention includes assessments before, after, and at follow-up.

Settings and conduct

This sports science study is conducted in Shiraz. Participants are randomly assigned to intervention (6 weeks of flossing exercises) and control groups. Assessments are performed at three stages: pre-test, post-test, and follow-up.

Participants/Inclusion and exclusion criteria

Inclusion Criteria: Sex: Male (only male athletes will be included in the study). Age: Individuals aged 18 to 35 years. Limited Ankle Dorsiflexion: Range of motion of less than 10 degrees in ankle dorsiflexion. No Significant Injury: No major lower limb injuries within the past 6 months. Exclusion Criteria: Use of an ankle brace during the study period. Absence in two consecutive sessions or three non-consecutive sessions. Unwillingness to continue the training protocol at any stage of the study.

Intervention groups

This study compares two intervention groups: a muscle flossing group using elastic bands with active movements, and a control group performing traditional passive stretching. Both undergo six weeks of training. Effects on ankle range of motion, strength, balance, and jump performance in athletes with limited dorsiflexion are evaluated to assess the superiority of flossing over conventional stretching.

Main outcome variables

Ankle range of motion, Ankle strength, Dynamic balance, Vertical jump performance

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20230612058457N7**
Registration date: **2025-06-14, 1404/03/24**
Registration timing: **prospective**

Last update: **2025-06-14, 1404/03/24**
Update count: **0**

Registration date

2025-06-14, 1404/03/24

Registrant information

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Name of organization / entity
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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2025-06-24, 1404/04/03

Expected recruitment end date

2025-10-02, 1404/07/10

Actual recruitment start date

empty

Actual recruitment end date
empty
Trial completion date
empty

Scientific title
The effects of tissue flossing on ankle range of motion, strength, balance, and jump performance in athletes with limited ankle dorsiflexion: a randomized control trial

Public title
Investigating the effect of flossing technique on ankle performance in athletes
Purpose
Supportive
Inclusion/Exclusion criteria
Inclusion criteria:
Sex: Only male athletes will participate in the study. Age: Individuals between 18 and 35 years old. Limitation in ankle dorsiflexion: Having an ankle dorsiflexion range of motion less than 10 degrees (as measured using a goniometer). No significant injury: No significant lower limb injury in the past six months.
Exclusion criteria:
Use of an ankle brace during the study period. Absence from two consecutive sessions, or Absence from three non-consecutive sessions. Lack of willingness to continue participation at any stage of the study.
Age
From **18 years** old to **35 years** old
Gender
Male

Phase
3
Groups that have been masked
No information
Sample size
Target sample size: **44**
Randomization (investigator's opinion)
Randomized
Randomization description
In this study, individual simple randomization was performed, whereby each participant was independently assigned to either the intervention or control group. To generate the random sequence, the website www.randomizer.org was used. First, a list of eligible participants was prepared, and then the group allocation sequence was determined using the online tool provided by this website. Stratified randomization was not used in this study. To maintain allocation concealment, the random sequence was prepared by a member of the research team, and participants' group assignments were carried out using sealed, numbered envelopes, ensuring that participants remained unaware of their group allocation until the moment of assignment. This method helps minimize allocation bias and enhances the scientific rigor of the study.
Blinding (investigator's opinion)
Not blinded
Blinding description
Placebo
Not used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Research Ethics Committees of University of Guilan
Street address
5th Kilometer of Persian Gulf Highway, Rasht, Guilan Province, Iran
City
Rasht
Province
Guilan
Postal code
4199613776
Approval date
2025-04-14, 1404/01/25
Ethics committee reference number
IR.GUILAN.REC.1404.017

Health conditions studied

1

Description of health condition studied
Limited ankle range of motion
ICD-10 code
M25.6
ICD-10 code description
Stiffness of joint, not elsewhere classified

Primary outcomes

1

Description
In the current study, the range of motion of the ankle joint is being investigated.
Timepoint
Measurements will be taken at baseline (before intervention), as well as 6 and 12 weeks after implementing the protocol.
Method of measurement
I tis measured using a goniomete

2

Description
In the current study, the strength of ankle joint is being investigated.
Timepoint
Measurements will be taken at baseline (before intervention), as well as 6 and 12 weeks after

implementing the protocol.

Method of measurement

It is assessed using an isokinetic dynamometer.

3

Description

In the current study, the dynamic balance is being investigated.

Timepoint

Measurements will be taken at baseline (before intervention), as well as 6 and 12 weeks after implementing the protocol.

Method of measurement

It is measured using the Y Balance test.

4

Description

In the current study, the vertical jump is being investigated.

Timepoint

Measurements will be taken at baseline (before intervention), as well as 6 and 12 weeks after implementing the protocol.

Method of measurement

It is measured using the Sargent jump test.

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: Participants in this group will undergo a tissue flossing intervention. In this method, an elastic flossing band is used to apply compression around the ankle joint (at 50–60% of maximum tension), while performing active movements including ankle pumps, bodyweight squats, and lunges. Each exercise is performed in 3 sets with specific durations (based on the study protocol), and the process is repeated three times per week for a period of six weeks. The aim of this intervention is to improve range of motion, strength, balance, and jump performance through mechanisms such as increased blood flow and temporary changes in fascial tissue properties.

Category

Rehabilitation

2

Description

Control group: Participants in this group will perform passive stretching exercises to improve ankle range of motion. These exercises target the calf muscles (gastrocnemius and soleus), with each stretch held for 30 seconds and repeated for 3 sets, with 15 seconds of rest between sets. This intervention is carried out three times per week for a duration of six weeks. The aim of this approach is to increase ankle mobility without the use of tissue compression.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Department of Physical Education and Sports Sciences, Faculty of Educational Sciences and Psychology

Full name of responsible person

Mohammad Alimoradi

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Iran National Science Foundation: (INSF)

Full name of responsible person

Ali Mohammad Soltani

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Tehran, North Kargar Street, above the Jalal Al-e Ahmad intersection, Fifth Street, No. 33.

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Email

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Grant name

Grant code / Reference number

4037605

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

Yes

Title of funding source

Iran National Science Foundation: (INSF)

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 Bahonar University
Full name of responsible person
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Latest degree
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Other areas of specialty/work
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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
Not applicable
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
All data will be shared after anonymizing individuals, ensuring their non-identifiability.
When the data will become available and for how long
The data access period will start immeduately after the results are printed.
To whom data/document is available
The data will be made available to researchers, organizations, and institutions related to the athletes.
Under which criteria data/document could be used
In order to assist scientific research and promote the implementation of executive goals with a focus on

enhancing the performance of athletes.

From where data/document is obtainable

Mohammad Alimoradi/malimoradi@sport.uk.ac.ir

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

Requests for access to data will be answered within a week.

Comments