

Clinical Trial Protocol

Iranian Registry of Clinical Trials

11 Sep 2026

The effect of short-foot training on balance, proprioception, and plantar pressures in runners with medial tibial stress syndrome

Protocol summary

Study aim

The aim of this study is to investigate the effect of a six-week Short-Foot Exercise program on balance, ankle proprioception, and plantar pressure in runners with medial tibial stress syndrome.

Design

A randomized, single-blind, parallel-group controlled clinical trial involving 30 participants. Participants will be allocated to the Short-Foot Exercise and control groups using simple randomization generated by Random Number Generator software.

Settings and conduct

Baseline and post-intervention assessments will be conducted by qualified specialists at the Sports Rehabilitation Laboratory of Bu-Ali Sina University. Following baseline assessment, participants will be randomly allocated to the exercise and control groups. The Short-Foot Exercise program will be performed for 6 weeks, 3 sessions per week, in the university sports halls. This study will be conducted as a single-blind trial, in which the outcome assessor will be unaware of group allocation.

Participants/Inclusion and exclusion criteria

Inclusion criteria include male runners aged 18–25 years with medial tibial stress syndrome, pain along the medial aspect of the lower leg during or after physical activity, and provision of written informed consent. Exclusion criteria include a history of lower-extremity surgery within the previous 12 months, the presence of acute or chronic lower-extremity injury, neurological or musculoskeletal disorders affecting performance, and participation in other rehabilitation or similar exercise programs at the time of enrollment.

Intervention groups

Short-foot training group, control group

Main outcome variables

Dynamic balance, ankle proprioception, and plantar pressure

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20260620069887N4**

Registration date: **2026-07-14, 1405/04/23**

Registration timing: **prospective**

Last update: **2026-07-14, 1405/04/23**

Update count: **0**

Registration date

2026-07-14, 1405/04/23

Registrant information

Name

Raziyeh Taheri

Name of organization / entity

Bu-ali sina-hamedan

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2026-07-25, 1405/05/03

Expected recruitment end date

2026-08-19, 1405/05/28

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The effect of short-foot training on balance, proprioception, and plantar pressures in runners with medial tibial stress syndrome

Public title

Effect of Short-foot training on Balance, proprioception, and plantar pressures in Runners with Shin Pain

Purpose

Treatment

Inclusion/Exclusion criteria**Inclusion criteria:**

Male runners aged 18–25 years Regularly active runners
Clinical diagnosis of medial tibial stress syndrome (MTSS)
Presence of pain along the posteromedial border of the tibia during or after activity Willingness to participate and provide written informed consent

Exclusion criteria:

History of lower-extremity surgery within the previous 12 months. Presence of acute or chronic lower-extremity injury. Neurological or musculoskeletal disorders affecting performance. Participation in rehabilitation or similar corrective exercise programs.

Age

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

Gender

Male

Phase

N/A

Groups that have been masked

- Outcome assessor

Sample size

Target sample size: **30**

Randomization (investigator's opinion)

Randomized

Randomization description

Participants will be allocated using simple randomization at the individual level. After confirming eligibility, obtaining written informed consent, and completing the baseline assessments, each participant will be assigned a unique study identification number according to the order of enrollment. The random allocation sequence will then be generated using Random Number Generator software based on computer-generated random numbers. Participants will be assigned sequentially according to the generated randomization list in a 1:1 ratio to either the football-specific Sportmetric training group or the control group. Stratified randomization will not be applied, and allocation concealment will not be performed.

Blinding (investigator's opinion)

Single blinded

Blinding description

This study will be conducted as a single-blind trial. The outcome assessor will be blinded to group allocation and will perform all baseline and post-intervention assessments without knowledge of participants' group assignments. Due to the nature of the intervention, participants and the researcher responsible for delivering the exercises cannot be blinded.

Placebo

Not used

Assignment

Parallel

Other design features**Secondary Ids**

empty

Ethics committees**1****Ethics committee****Name of ethics committee**

Ethics committee of Bu Ali Sina University

Street address

Bu Ali Sina University, Abu Taleb St, Modares town

City

Hamedan

Province

Hamadan

Postal code

3869565178

Approval date

2026-04-18, 1405/01/29

Ethics committee reference number

IR.BASU.REC.1405.011

Health conditions studied**1****Description of health condition studied**

Medial Tibial Stress Syndrome (MTSS)

ICD-10 code

M76.8

ICD-10 code description

Other specified enthesopathies of lower limb, excluding foot

Primary outcomes**1****Description**

Balance

Timepoint

Before the intervention begins, One day after the end of the intervention

Method of measurement

Dynamic balance is measured using the Y Balance Test based on the normalized maximum reach distance in the anterior, posteromedial, and posterolateral directions.

2**Description**

proprioception

Timepoint

Before the intervention begins, One day after the end of the intervention

Method of measurement

Ankle proprioception is measured using the Joint Position Reproduction Test with a universal goniometer based on the absolute joint position reproduction error.

3

Description

plantar pressures

Timepoint

Before the intervention begins, One day after the end of the intervention

Method of measurement

Plantar pressure is measured using the Footscan system based on plantar pressure distribution parameters.

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: Short-foot training, Participants in this group will perform a Short-Foot Exercise program for 6 weeks, three sessions per week, with each session lasting 30–45 minutes under the supervision of the researcher. The program includes exercises to activate and strengthen the intrinsic foot muscles, with progressive advancement from sitting to standing, single-leg stance, and unstable surface exercises.

Category

Rehabilitation

2

Description

Control group: No Intervention

Category

Other

Recruitment centers

1

Recruitment center

Name of recruitment center

Hamadan Province Sports Directorate

Full name of responsible person

Ali Al zeidi

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Sponsors / Funding sources

1

Sponsor

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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

Bu Ali Sina 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

Bu Ali Sina University

Full name of responsible person

Ali Al zeidi

Position

student

Latest degree

Bachelor

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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