Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 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
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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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Modares Town, Abu Taleb Street, Bu Ali Sina University
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Bu Ali Sina University
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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
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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