Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

The effect of PRI and Osar core stability exercises with using breathing approach on reducing the risk of lower extremity injuries in female futsal player

Protocol summary

Study aim
To investigate the effect of PRI- and OSAR-based core stability exercises on reducing lower-extremity injury risk factors in female futsal players.

Design
Randomized clinical trial (RCT) with pretest-posttest and control group.

Settings and conduct
The study will be conducted in selected sports clubs in Tehran without blinding.

Participants/Inclusion and exclusion criteria
39 female players (16-25 yrs) with ≥6 months futsal training, core deficiency (McGill), no prior lower-limb injury/surgery. Exclusion: absence ≥2 consecutive sessions or any injury.

Intervention groups
PRI Group (Core stability exercises using PRI method): Participants performed specific exercises for 8 weeks, 3 sessions per week, aimed at improving postural alignment, trunk and pelvic control, and correcting breathing patterns. The main emphasis was on activating deep core muscles and guided diaphragmatic breathing. Exercises included: 90/90 Hip Lift with Balloon, 90/90 Hemi bridge with Balloon, breathing exercises in various positions, etc. Each session included 5–10 minutes of warm-up and cool-down. OSAR Group (Core stability exercises using OSAR method): This group also performed 8 weeks, 3 sessions per week of exercises designed to improve neuromuscular control, trunk-pelvis-thigh coordination, and correct lower extremity movement patterns. Exercises were primarily bodyweight without specialized equipment, including: squat, forward lunge, hip hinge, pelvic tilt, modified wall plank with hip flexion, pull-over, etc. Emphasis was on movement control in correct patterns and coordination of breathing with movement. Control Group: The control group received no intervention other than their routine team training.

Main outcome variables
LESS score (landing quality), TJA indices (dynamic knee valgus), and Functional Popliteal Angle (FPA).

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20221231056996N1**
Registration date: **2026-06-03, 1405/03/13**
Registration timing: **prospective**

Last update: **2026-06-03, 1405/03/13**
Update count: **0**

Registration date
2026-06-03, 1405/03/13

Registrant information

Name
Mohammadreza Seyedi

Name of organization / entity
Sport Sciences Research Institute

Country
Iran (Islamic Republic of)

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2026-06-10, 1405/03/20

Expected recruitment end date
2026-08-11, 1405/05/20

Actual recruitment start date
empty
Actual recruitment end date
empty
Trial completion date
empty

Scientific title
The effect of PRI and Osar core stability exercises with using breathing approach on reducing the risk of lower extremity injuries in female futsal player

Public title
The effect of PRI and Osar core stability exercises with using breathing approach on reducing the risk of lower extremity injuries in female futsal player
Purpose
Supportive
Inclusion/Exclusion criteria
Inclusion criteria:
Age range between 16–25 years At least 6 months of regular futsal training experience Participants with core stability deficiency according to the McGill test assessment Participants must have no previous or chronic lower extremity injuries Participants must have no history of surgery in the lower extremity joints
Exclusion criteria:
Absence from 2 consecutive sessions or 3 sessions during the entire protocol implementation period Occurrence of injury in any of the participants during the research period, as reported by the individual or the coach
Age
From **16 years** old to **25 years** old
Gender
Female

Phase
N/A
Groups that have been masked
No information
Sample size
Target sample size: **39**
Randomization (investigator's opinion)
Randomized
Randomization description
In this three-group study, eligible participants after meeting inclusion criteria will be assigned to three groups (two experimental groups and one control group) using simple randomization via online random number generation software (e.g., Random Allocation Software or Sealed Envelope). To ensure allocation concealment, the randomization results will be placed in opaque sealed envelopes, and both the researcher and participants will remain blinded to group allocation until the start of the intervention.
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 Committee of the Sport Sciences Research Institute
Street address
Motahhari st. MirEmad 5th
City
Tehran
Province
Tehran
Postal code
1587958711
Approval date
2025-09-22, 1404/06/31
Ethics committee reference number
IR.SSRC.REC.1404.092

Health conditions studied

1

Description of health condition studied
The participants had no acute or chronic diseases or lower extremity injuries. The only identified problem was core stability deficiency (weakness in deep trunk muscle endurance) based on the McGill test.
ICD-10 code
M.62.8
ICD-10 code description
M62.8

Primary outcomes

1

Description
Landing Error Scoring System (LESS) score as an indicator of landing quality
Timepoint
pre and post test evaluation
Method of measurement
video capture and questionnaire

Secondary outcomes

empty

Intervention groups

1

Description

Control group: The control group received no intervention other than their routine team training.

Category

Rehabilitation

2

Description

PRI Group (Core stability exercises using PRI method):Participants performed specific exercises for 8 weeks, 3 sessions per week, aimed at improving postural alignment, trunk and pelvic control, and correcting breathing patterns. The main emphasis was on activating deep core muscles and guided diaphragmatic breathing. Exercises included: 90/90 Hip Lift with Balloon, 90/90 Hemi bridge with Balloon, breathing exercises in various positions, etc. Each session included 5–10 minutes of warm-up and cool-down.

Category

Rehabilitation

3

Description

Intervention group: OSAR Group (Core stability exercises using OSAR method):This group also performed 8 weeks, 3 sessions per week of exercises designed to improve neuromuscular control, trunk-pelvis-thigh coordination, and correct lower extremity movement patterns. Exercises were primarily bodyweight without specialized equipment, including: squat, forward lunge, hip hinge, pelvic tilt, modified wall plank with hip flexion, pull-over, etc. Emphasis was on movement control in correct patterns and coordination of breathing with movement.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center
Mahtab

Full name of responsible person
Farzaneh Jalilvand

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity
Islamic Azad University

Full name of responsible person
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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
Islamic Azad University

Proportion provided by this source
100

Public or private sector
Private

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
Sport sciences research Institute

Full name of responsible person
Mohammadreza Seyedi

Position
Assistant professor

Latest degree
Ph.D.

Other areas of specialty/work
Sport Medicine

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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
Data information will be published only in the form of articles and statistical results.

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