Clinical Trial Protocol
Iranian Registry of Clinical Trials

09 Nov 2026

The Effect of Sport-metrics Training on Knee Proprioception, Lower Limb Kinematics, and Neuromuscular Control in Football Players with Dynamic Knee Valgus

Protocol summary

Study aim
To investigate the effect of football-specific Sportmetrics training on knee proprioception, lower limb kinematics during single-leg landing, and inhibitory control in football players with dynamic knee valgus

Design
Clinical trial with control group, with parallel group, single blinded, randomized

Settings and conduct
The study will be conducted in a controlled environment at the Sports Rehabilitation Laboratory of Bu-Ali Sina University in Hamedan by specialists in this field, and the intervention and training sessions will subsequently take place in the university's sports hall. After initial screening and confirmation of the presence of dynamic knee valgus, participants will be randomly assigned to either the intervention or control group. In the pre-test phase, knee proprioception, lower limb kinematics during single-leg landing, and inhibitory control will be assessed. The intervention group will then undergo a 6-week sport-specific plyometric training program for football, while the control group will continue their usual activities. Following the intervention period, post-test assessments will be conducted under the same conditions as the pre-test. This study will be single-blinded, and the assessor responsible for data collection will remain unaware of participants' group allocation.

Participants/Inclusion and exclusion criteria
Male football players aged 18–25 years with at least two years of regular football participation, diagnosed with dynamic knee valgus based on the Overhead Squat Test, with no history of acute or chronic lower extremity injury during the previous six months and no history of knee, hip, or ankle surgery during the previous 12 months, who provide written informed consent to participate in the study.

Intervention groups
Sportmetrics training group , control group

Main outcome variables
Knee proprioception, lower extremity kinematics, inhibitory control

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20260620069887N3**
Registration date: **2026-06-29, 1405/04/08**
Registration timing: **prospective**

Last update: **2026-06-29, 1405/04/08**
Update count: **0**

Registration date
2026-06-29, 1405/04/08

Registrant information

Name
Raziyeh Taheri

Name of organization / entity
Bu-ali sina-hamedan

Country
Iran (Islamic Republic of)

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+98 81 3323 2831

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2026-07-11, 1405/04/20

Expected recruitment end date
2026-08-08, 1405/05/17

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

Scientific title
The Effect of Sport-metrics Training on Knee Proprioception, Lower Limb Kinematics, and Neuromuscular Control in Football Players with Dynamic Knee Valgus

Public title
Effect of Football-Specific Sportmetrics Training on Knee Function and Motor Control in Football Players with Dynamic Knee Valgus
Purpose
Treatment
Inclusion/Exclusion criteria
Inclusion criteria:
Male football players aged 18–25 years At least two years of regular football participation Presence of dynamic knee valgus confirmed by the Overhead Squat Test No history of acute or chronic lower extremity injury within the previous six months No history of knee, hip, or ankle surgery within the previous 12 months Willingness to participate and provision of written informed consent
Exclusion criteria:
Occurrence of any musculoskeletal pain or injury during the intervention period Absence from more than 20% of the training sessions Participation in other corrective exercise or rehabilitation programs during the study period Voluntary withdrawal from the study at any stage
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
After baseline assessment, participants were randomly assigned to the intervention and control groups (1:1) using simple randomization with Random Number Generator software. The unit of randomization was the individual participant, and no stratification was applied. The random sequence was computer-generated, and allocation concealment was not performed.
Blinding (investigator's opinion)
Single blinded
Blinding description
This study will be conducted as a single-blind trial. The assessor responsible for data collection and pre-test/post-test evaluations will be blinded to participants' group allocation. To minimize assessment bias, participants will be coded in a manner that prevents the assessor from identifying whether they belong to the intervention or control group.
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.1405.012

Health conditions studied

1

Description of health condition studied
Dynamic Knee Valgus
ICD-10 code
M21.0
ICD-10 code description
Valgus deformity, not elsewhere classified

Primary outcomes

1

Description
Kinematic analysis during single-leg landing
Timepoint
Before the intervention begins, One day after the end of the intervention
Method of measurement
Measured using two-dimensional kinematic analysis of a single-leg landing task with Kinovea software.

2

Description
Knee Joint Proprioception
Timepoint

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

Method of measurement

Measured using the joint position reproduction test at 45° of knee extension.

3

Description

Inhibitory Control

Timepoint

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

Method of measurement

Measured using the Stroop Test under standardized laboratory conditions

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: Sport-metrics training will last for 6 weeks, with 3 1-hour sessions per week.

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

Ahmad alajili

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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

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

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

Ahmad Al ajili

Position

student

Latest degree

Bachelor

Other areas of specialty/work

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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