Clinical Trial Protocol
Iranian Registry of Clinical Trials

08 Nov 2026

The effect of combining of the German Knee Association training program (STOP X) and ankle mobility exercises on lower limb kinematics, landing error, balance and proprioception of adolescent soccer players with dynamic knee valgus.

Protocol summary

Study aim
The purpose of the present study was to investigate the effect of combining of the German Knee Association training program (STOP X) and ankle mobility exercises on lower limb kinematics, landing error, balance and proprioception of adolescent soccer players with dynamic knee valgus.

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

Settings and conduct
The field tests include: single-leg landing test to evaluate knee dynamic valgus, Y balance test to measure dynamic balance, and LESS test will be used to evaluate knee position during landing. A goniometer will also be used to evaluate the knee joint's proprioceptive function.The tests will take place in the sports hall and then the intervention and training will take place in the takhti football stadium.

Participants/Inclusion and exclusion criteria
Inclusion criteria included; Adolescent soccer players with knee dynamic valgus, having at least three training sessions per week, no having any history of back pain or knee and ankle injuries, and exclusion criteria; ligament damage in the ankle and knee, history of surgery in the lower limb, the absence of more than two sessions of the subjects in the exercises.

Intervention groups
STOP X training group, STOP X training combination group and ankle mobility

Main outcome variables
ACL tear of the knee

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20221215056826N2**
Registration date: **2023-03-04, 1401/12/13**
Registration timing: **registered_while_recruiting**

Last update: **2023-03-04, 1401/12/13**
Update count: **0**

Registration date
2023-03-04, 1401/12/13

Registrant information

Name
Yasaman Ghadiri
Name of organization / entity
Boali Sina University
Country
Iran (Islamic Republic of)
Phone
+98 81 3838 1423
Email address
y.ghadiri@phe.basu.ac.ir

Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2023-03-03, 1401/12/12

Expected recruitment end date
2023-03-13, 1401/12/22

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
The effect of combining of the German Knee Association training program (STOP X) and ankle mobility exercises on lower limb kinematics, landing error, balance and proprioception of adolescent soccer players with dynamic knee valgus.

Public title
The effect of combining two separate training protocols on reducing the dynamic knee valgus angle in adolescent soccer players

Purpose
Prevention

Inclusion/Exclusion criteria

Inclusion criteria:
Adolescent soccer players with dynamic knee valgus Not having history of back pain, knee and ankle injuries Having at least three training sessions per week

Exclusion criteria:
Having Ligament damage in the ankle and knee History of lower limb surgery Absence of more than two seasons of subjects in the exercise

Age
From **12 years** old to **15 years** old

Gender
Male

Phase
N/A

Groups that have been masked

- Participant

Sample size
Target sample size: **30**

Randomization (investigator's opinion)
Randomized

Randomization description
Randomization is done based on the Random Number Generator software, and they will be assigned to double groups based on the allocation concealment using the SNOSE method. The randomization of subjects is done in two stages. First, each of the subjects chooses a number between 1-30 using a lottery, then using the Random number generator software, fifteen random numbers are selected between the numbers 1-30, and according to the generated numbers and the selected numbers, the subjects are divided into two groups.

Blinding (investigator's opinion)
Single blinded

Blinding description
These people will be unaware of the purpose of the research, the allocation of study groups and the reason for their presence in the laboratory. And they only evaluate the variables and record their observations. The blinding of the participants will be done in such a way that each group will do their own exercises and in order to achieve the blinding, the members of the two groups will be present in the hall to receive the exercises on two different days.

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 Quarter, Hamedan

City
Hamedan

Province
Hamadan

Postal code
3869565178

Approval date
2022-03-08, 1400/12/17

Ethics committee reference number
IR.BASU.REC.1401.023

Health conditions studied

1

Description of health condition studied
Dynamic knee valgus of adolescent football player

ICD-10 code
S83.5

ICD-10 code description
Sprain of cruciate ligament of knee

Primary outcomes

1

Description
Dynamic knee valgus

Timepoint
Before the intervention begins, one day after the end of the intervention

Method of measurement
Single leg test

2

Description
Landing eror

Timepoint
Before the intervention begins, one day after the end of the intervention

Method of measurement
Less test

3

Description
Y balance
Timepoint
Before the intervention begins, one day after the end of the intervention
Method of measurement
Y balance test

4

Description
Proprioception
Timepoint
Before the intervention begins, one day after the end of the intervention
Method of measurement
Goniometer

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group one: STOP X training, STOP X exercise for 8 weeks and 3 sessions of 1 hour each week. The STOP X protocol includes balance, strength, and jumping exercises designed by the German Knee Association.
Category
Prevention

2

Description
Intervention group two: The combination of STOP X and ankle mobility exercises will be for 8 weeks and 3 sessions of 1 hour each week. The ankle training protocol includes releasing the plantar flexors by wooden roller massager and stretching these muscles in different positions.
Category
Prevention

Recruitment centers

1

Recruitment center
Name of recruitment center
Ghorveh City General Administration of sport
Full name of responsible person
Majid Ghanbari
Street address
Bu Ali Sina University, Abu Taleb St, Modares Quarter, Hamedan
City
Hamedan
Province
Hamadan
Postal code
3869565178
Phone
+98 81 3838 1423
Email
M.ghanbari@phe.basu.ac.ir

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Bu Ali Sina University
Full name of responsible person
Farzane Saki
Street address
Bu Ali Sina University, Abu Taleb St, Modares Quarter, Hamedan
City
Hamedan
Province
Hamadan
Postal code
3869565178
Phone
+98 81 3838 1423
Email
f.sport2008@gmail.com
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
Majid Ghanbari
Position
Student
Latest degree
Bachelor
Other areas of specialty/work
Sport Rehabilitation

Street address
Bu Ali Sina University, Abu Taleb St, Modares Quarter, Hamedan
City
Hamedan
Province
Hamadan
Postal code
3869565178
Phone
+98 81 3838 1423
Email
M.ghanbari@phe.basu.ac.ir

Person responsible for scientific inquiries

Contact
Name of organization / entity
Bu Ali Sina University
Full name of responsible person
Majid Ghanbari
Position
Student
Latest degree
Bachelor
Other areas of specialty/work
Sport Rehabilitation
Street address
Bu Ali Sina University, Abu Taleb St, Modares Quarter, Hamedan
City
Hamedan
Province
Hamadan
Postal code
3869565178
Phone
+98 81 3838 1423
Email
M.Ghanbari@phe.basu.ac.ir

Person responsible for updating data

Contact
Name of organization / entity
Bu Ali Sina University
Full name of responsible person
Majid Ghanbari
Position
Student
Latest degree
Bachelor
Other areas of specialty/work
Sport Rehabilitation
Street address
Bu Ali Sina University, Abu Taleb St, Modares Quarter, Hamedan
City
Hamedan
Province
Hamadan
Postal code
3869565178
Phone
+98 81 3838 1423
Email
M.ghanbari@phe.basu.ac.ir

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