

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 2026

Effect of 6 Week Plyometric Training with Feedback on Lower Extremity Kinematic and GRF Symmetry on Drop Landing Technique of Male Basketball Players with Chronic Ankle Instability

Protocol summary

Study aim

Effect of 6 week plyometric training with feedback on lower extremity kinematic and GRF symmetry on drop landing technique of male basketball players with chronic ankle instability

Design

Randomized control trial with control group, with parallel groups, single blinded

Settings and conduct

Twenty four basketball players suffering from chronic ankle instability qualified to participate in the study will be assigned in two groups (experimental and control). Plyometric exercises will be conducted in fifty-minute sessions for three sessions a week and for six weeks. Participants will do the warm-up for ten minutes followed by plyometric exercises along with feedback (external manual) for thirty minutes, and the last ten minutes for cooling down.

Participants/Inclusion and exclusion criteria

Inclusion conditions: 1- At least having one experience of acute ankle sprain resulted in pain, swelling, and temporary reduction in performance (not in the last three months) 2- Having score less than 27 in Cumberland Ankle Instability Tool 3- Experience of repetitive giving way during the last six months Exclusion conditions: 1- No consent to participation in the research 2- Absent more than three times during the exercises 3- Experience of any influential damage and malformation in researching lower limbs 4- Balance disorders (not resulting from chronic ankle instability) 5- Attending in rehabilitation programs during the last six months

Intervention groups

intervention: Plyometric training with feedback control: They continue their routine basketball exercises

Main outcome variables

Knee flexion angle, Knee valgus angle, GRF symmetry, drop time symmetry

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20191222045850N1**

Registration date: **2020-01-27, 1398/11/07**

Registration timing: **registered_while_recruiting**

Last update: **2020-01-27, 1398/11/07**

Update count: **0**

Registration date

2020-01-27, 1398/11/07

Registrant information

Name

Moein Saghari

Name of organization / entity

The university of Kharazmi

Country

Iran (Islamic Republic of)

Phone

+98 23 3234 3194

Email address

moein.saghari@yahoo.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2019-12-31, 1398/10/10

Expected recruitment end date

2020-03-07, 1398/12/17

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Effect of 6 Week Plyometric Training with Feedback on Lower Extremity Kinematic and GRF Symmetry on Drop Landing Technique of Male Basketball Players with Chronic Ankle Instability

Public title

Effect Plyometric Training with Feedback on Lower Extremity Kinematic and GRF Symmetry

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

At least having one acute ankle sprain resulted in pain, swelling, and temporary reduction in performance (not in the last three months) Having score less than 27 in Cumberland Ankle Instability Tool Experience of repetitive giving way during the last six months

Exclusion criteria:

No consent for participation in the research Absent more than three times during the exercises Experience of any influential damage and malformation in researching lower limbs Balance disorders (not resulting from chronic ankle instability) Attending in rehabilitation programs during the last six months

Age

From **18 years** old to **28 years** old

Gender

Male

Phase

N/A

Groups that have been masked

- Outcome assessor
- Data analyser

Sample size

Target sample size: **24**

Randomization (investigator's opinion)

Randomized

Randomization description

The sample will be categorized into two groups including purposeful and simple random groups based on research participation scales. Randomization is based on four blocks. A series of consecutive numbers generated by the computer's table of numbers. They are randomly placed in opaque envelopes, one blind to patients and intervention groups, randomizing and assigning numbers to groups. Patients in each group were also blinded to randomization and intervention in the other group.

Blinding (investigator's opinion)

Single blinded

Blinding description

Evaluator and analyzer will be kept blind.

Placebo

Not used

Assignment

Parallel

Other design features

-

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics committee of kharazmi University

Street address

Center of Human Movement Sciences Kharazmi University- Mirdamad, South Razan Street, Hesari Street, Keshvari Sport Complex, Tehran, Iran

City

Tehran

Province

Tehran

Postal code

-

Approval date

2019-12-22, 1398/10/01

Ethics committee reference number

IR.KHU.REC.1398.029

Health conditions studied

1

Description of health condition studied

chronic ankle instability

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

knee flexion angle

Timepoint

Knee flexion angle measurements one week before the intervention and one week after the end of training

Method of measurement

3-dimensional Motion analysis systems

2

Description

Knee Valgus angle

Timepoint

Knee Valgus angle measurements one week before the intervention and one week after the end of training

Method of measurement

3-dimensional Motion analysis systems

3

Description

Vertical Ground reaction force

Timepoint

Vertical Ground reaction force measurements one week before the intervention and one week after the end of training

Method of measurement

Force plate

4

Description

Drop time symmetry

Timepoint

Drop time symmetry measurements one week before the intervention and one week after the end of training

Method of measurement

Force plate

5

Description

Maximum knee flexion

Timepoint

Maximum knee flexion measurements one week before the intervention and one week after the end of training

Method of measurement

3-dimensional Motion analysis systems

6

Description

Maximum knee valgus

Timepoint

Maximum knee valgus measurements one week before the intervention and one week after the end of training

Method of measurement

3-dimensional Motion analysis systems

7

Description

initial knee flexion

Timepoint

initial knee flexion measurements one week before the intervention and one week after the end of training

Method of measurement

3-dimensional Motion analysis systems

8

Description

initial knee valgus

Timepoint

initial knee valgus measurements one week before the intervention and one week after the end of training

Method of measurement

3-dimensional Motion analysis systems

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: The exercises lasted 6 weeks, three sessions per week, and each session lasted for 50 minutes. First 10 minutes for warm-up, then 35 minutes of plyometric exercises with external verbal feedback from the instructor, and then 5 minutes cold down.

Category

Rehabilitation

2

Description

Control group: They continue their routine basketball exercises

Category

Other

Recruitment centers

1

Recruitment center

Name of recruitment center

Kharazmi University Health and wellness Center

Full name of responsible person

Moein Saghari

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Kharazmi university

Full name of responsible person

Sadroddin Shojaeddin

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+98 21 4471 8356

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shojaeddin@khu.ac.ir

Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?
Yes

Title of funding source
Kharazmi university

Proportion provided by this source
20

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

Center of Human movement Sciences Kharazmi University

Full name of responsible person

Moein Saghari

Position

Master student of Corrective exercise and sport injury prevention

Latest degree

Master

Other areas of specialty/work

corrective exercise and sport injury prevention

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No.6.1, alley 2, Besat Street, Shahrood, Semnan, Iran

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Person responsible for scientific inquiries

Contact

Name of organization / entity

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Full name of responsible person

Moein Saghari

Position

Master of student

Latest degree

Master

Other areas of specialty/work

Corrective exercise and sport injury

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Person responsible for updating data

Contact

Name of organization / entity

The University of Kharazmi

Full name of responsible person

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Position

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Phone

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Email

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

Yes - There is a plan to make this available

Study Protocol

Yes - There is a plan to make this available

Statistical Analysis Plan

Yes - There is a plan to make this available

Informed Consent Form

Yes - There is a plan to make this available

Clinical Study Report

Yes - There is a plan to make this available

Analytic Code

Yes - There is a plan to make this available

Data Dictionary

Yes - There is a plan to make this available

Title and more details about the data/document

Only part of the data, such as dependent variables, The average of all samples can be shared scientific article.

When the data will become available and for how

long

The data of access is April 2020

To whom data/document is available

personal information is confidential and general outcomes in paper form available to everyone.

Under which criteria data/document could be used

information is not available to anyone. General outcomes in paper form available to everyone.

From where data/document is obtainable

Moein Saghari, Phone: 00989364441226, Email:
std_moein.saghari@khu.ac.ir

What processes are involved for a request to access data/document

-

Comments