Clinical Trial Protocol
Iranian Registry of Clinical Trials

09 Nov 2026

The effect of jump-landing exercises and strength exercises on performance improvement, dynamic balance and selected kinetic and kinematic factors of taekwondo athletes (Poomsae) with dynamic knee valgus defect

Protocol summary

Study aim
The effect of jump-landing and strength training on performance, dynamic balance, and selected kinetic and kinematic factors of taekwondo athletes (Poomsae) with dynamic knee valgus

Design
A randomized, single-blind, parallel clinical trial study, 60 people were divided into two intervention groups and a control group, through web-based randomization.

Settings and conduct
After physician examination and review of inclusion/exclusion criteria, the patient's personal information was recorded and the consent form was signed. Participants were equally divided into three groups: jumping-landing exercises with strength exercises, without strength exercises, and a control group. This single-blinded study (outcome assessors blinded to interventions and grouping) was conducted at the Movement Analysis Laboratory, Faculty of Physical Education, Kharazmi University. Exercises were performed for 6 weeks, three sessions per week.

Participants/Inclusion and exclusion criteria
Inclusion Criteria: · Cardiovascular and respiratory health · Doctor's approval for research participation · Dynamic knee valgus >12° (women) or >9° (men) · Age 14–22 years with ≥3 years of Taekwondo experience Exclusion Criteria: · ACL rupture · Subject withdrawal · History of knee/lower limb injury or surgery in the past 6 months · Lower limb orthopedic injuries or fractures in the past 6 months · Participation in strength or jumping training programs in the past 6 months · Missing two consecutive training sessions

Intervention groups
Jump-landing exercise group Power jump-landing exercise group Control group

Main outcome variables
Prevention of ACL injury, jump-landing,dynamic knee valgus

General information

Reason for update
Edit profile

Acronym

IRCT registration information
IRCT registration number: **IRCT20240809062705N1**
Registration date: **2024-09-07, 1403/06/17**
Registration timing: **retrospective**

Last update: **2026-05-23, 1405/03/02**
Update count: **1**

Registration date
2024-09-07, 1403/06/17

Registrant information

Name
Mahdiyeh Mokhtari

Name of organization / entity
Kharazmi University of tehran

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2024-04-21, 1403/02/02

Expected recruitment end date

2024-05-19, 1403/02/30

Actual recruitment start date

2024-04-21, 1403/02/02

Actual recruitment end date

2024-05-19, 1403/02/30

Trial completion date

2024-07-16, 1403/04/26

Scientific title

The effect of jump-landing exercises and strength exercises on performance improvement, dynamic balance and selected kinetic and kinematic factors of taekwondo athletes (Poomsae) with dynamic knee valgus defect

Public title

The effect of exercises on anterior cruciate ligament injury in taekwondo athletes

Purpose

Prevention

Inclusion/Exclusion criteria

Inclusion criteria:

Dynamic knee valgus Taekwondo practitioners who have cardiovascular and respiratory health Taekwondo players aged 14-22 years with at least three years of sports experience.

Exclusion criteria:

Rupture of the anterior cruciate ligament Rupture of the anterior cruciate ligament Taekwondo practitioners who avoid participating in the class for two consecutive sessions will be excluded from this research. Orthopedic injuries and fractures in the lower limbs at least in the last 6 months Taekwondo athletes who have participated in a strength training program and jumping in the past 6 months will be excluded from this study.

Age

From **14 years** old to **22 years** old

Gender

Both

Phase

N/A

Groups that have been masked

- Outcome assessor

Sample size

Target sample size: **60**

Actual sample size reached: **57**

Randomization (investigator's opinion)

Randomized

Randomization description

Randomization will be done by simple randomization individually and the sequence of random allocation will be determined using a computer program with the help of a web-based program (randomizer.org), by a member of the research team not involved in the selection of samples from sealed opaque envelopes with a random sequence will be used to conceal allocation. They will be assigned to two intervention groups and a control group.

Blinding (investigator's opinion)

Single blinded

Blinding description

In this study, the outcome assessor is blinded, meaning that he or she is unaware of the allocation of subjects to groups and which treatment intervention each group of subjects receives. This way, they do not make errors in their judgments in favor of a particular treatment intervention during the assessment before and after the protocol period.

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

kharazmi university

Street address

Shahid Mofatteh Street

City

Tehran

Province

Tehran

Postal code

۱۴۹۱۱-۱۵۷۱۹

Approval date

2024-07-06, 1403/04/16

Ethics committee reference number

IR.KHU.REC.1403.057

Health conditions studied

1

Description of health condition studied

People prone to ACL injury

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

Performance

Timepoint

Immediately before the intervention begins - Immediately after the intervention ends

Method of measurement

Single leg triple jump test

Secondary outcomes

1

Description
Dynamic balance
Timepoint
Immediately before the intervention begins - Immediately after the intervention ends
Method of measurement
Y balance test

2

Description
Selected kinetic and kinematic factors
Timepoint
Immediately before the intervention begins - Immediately after the intervention ends
Method of measurement
Single-leg landing test with motion capture and force plate

Intervention groups

1

Description
Intervention group 1: The first intervention is performing jump-landing exercises and strength exercises for 6 weeks and 3 sessions every week for 20 to 40 minutes.
Category
Rehabilitation

2

Description
Intervention group 2: The second intervention is performing jump-landing exercises for 6 weeks and 3 sessions every week for 20 to 40 minutes.
Category
Rehabilitation

3

Description
Control group: The control group did not receive any training
Category
Rehabilitation

Recruitment centers

1

Recruitment center
Name of recruitment center
Clubs of Tehran province
Full name of responsible person
AAzam Ahmadi
Street address
Faculty of Physical Education and Sport Sciences, Kharazmi University, University Square, end of Shahid Beheshti Street, Karaj
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
kharazmi university
Full name of responsible person
Mohammad Delnavaz
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Phone
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Email
Delnavaz@khu.ac.ir
Web page address
https://research.khu.ac.ir/en
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
50
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
Kharazmi University of tehran
Full name of responsible person
Hassan Sadeghi
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)
Undecided - It is not yet known if there will be a plan to make this available

Study Protocol
Yes - There is 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

Title and more details about the data/document
After coding the participants, their data can be shared.

When the data will become available and for how long
It is not possible to access the data for anyone except the researcher

To whom data/document is available
Researcher & supervisor

Under which criteria data/document could be used
Only writing articles in line with the thesis

From where data/document is obtainable
Researcher & supervisor

What processes are involved for a request to access data/document
The applicant clearly states the purpose of using the research data. After review and consideration by the supervisor, the final decision is notified to the applicant.

Comments