Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

The Effect of Eight Weeks of Core Stability and Short-Foot Exercises on Balance and Dynamic Foot Function in Taekwondo Athletes with Flexible Flat Feet

Protocol summary

Study aim

The effect of eight weeks of core stability training on single-leg balance in taekwondo athletes with flexible flat feet. The effect of eight weeks of short-leg training on single-leg balance in taekwondo athletes with flexible flat feet. The effect of eight weeks of core stability training on the dynamic leg performance of taekwondo practitioners with flexible flat soles. The effect of eight weeks of short leg training on the dynamic leg performance of taekwondo practitioners with flexible flat soles.

Design

The clinical trial has a control group with parallel groups and double-blind randomized phase 2 on 36 patients. This study will be experimental and will include three experimental groups, one group will be assigned to core stability exercises, another group will be assigned to core stability exercises with short legs and one group will be assigned to control.

Settings and conduct

Pre-test and post-test tests were conducted in the university's sports science laboratory and exercises were conducted inside the club's training facility.

Participants/Inclusion and exclusion criteria

People with flexible flat feet, or surgery on the lower limbs, spine, or pelvis in the past year were excluded from the study.For flat feet, after meeting the study entry criteria and being between 14 and 25 years old, the patient is examined with a navicular test and having a navicular drop of more than 10 mm.

Intervention groups

After dividing the subjects into 3 groups,In addition to the arch examination test, central stability exercises such as bridge with leg raises, abdominal exercises, lower body rotation, planks, bicycles, crunches, and weighted trunk rotations were performed for 8 weeks, three sessions per week.

Main outcome variables

Eight weeks of core stability and short leg training have an effect on single-leg balance and dynamic foot function in taekwondo athletes with flexible soles.

General information

Reason for update

Acronym

the effects of CS and SFE on SLB and DFF in TKD with FFF

IRCT registration information

IRCT registration number: **IRCT20251018067670N1**
Registration date: **2026-06-22, 1405/04/01**
Registration timing: **retrospective**

Last update: **2026-06-22, 1405/04/01**
Update count: **0**

Registration date

2026-06-22, 1405/04/01

Registrant information

Name

Mohammad amin Emadian

Name of organization / entity

The University

Country

Iran (Islamic Republic of)

Phone

+98 86 3277 1471

Email address

mohammadaminemadian@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2026-01-15, 1404/10/25

Expected recruitment end date

2026-01-23, 1404/11/03

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The Effect of Eight Weeks of Core Stability and Short-Foot Exercises on Balance and Dynamic Foot Function in Taekwondo Athletes with Flexible Flat Feet

Public title

The Effect of Eight Weeks of Core Stability and Short-Foot Exercises on Balance and Dynamic Foot Function in Taekwondo Athletes with Flexible Flat Feet

Purpose

Supportive

Inclusion/Exclusion criteria

Inclusion criteria:

flexible flatfoot

Exclusion criteria:

History of fractures and dislocation of foot hiatory of orthopedic surgury in the recent of three months infections of foot

Age

From **13 years** old to **23 years** old

Gender

Male

Phase

N/A

Groups that have been masked

- Participant
- Investigator

Sample size

Target sample size: **36**

Randomization (investigator's opinion)

Randomized

Randomization description

One group was assigned to core stability exercises, another group to core stability exercises with short foot, and a control group.

Blinding (investigator's opinion)

Double blinded

Blinding description

The researcher and the people in the training group do not know which group they are in.

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics committee Arak University

Street address

Arak university , karbal Blvd , Sardasht , Arak city , Iran

City

Arak

Province

Markazi

Postal code

3848177584

Approval date

2025-03-18, 1403/12/28

Ethics committee reference number

IR.ARAKU.REC.1403.093

Health conditions studied

1

Description of health condition studied

Flexible flat foot

ICD-10 code

ICD-10 code description

Diseases of the musculoskeletal system and connective tissue

Primary outcomes

1

Description

Navicular bone loss of more than 10 mm

Timepoint

Start studying

Method of measurement

Balance measurement using the Y balance control device, dynamic performance measurement using the padoscan, and navicular drop measurement using a ruler's millimeter scale.

Secondary outcomes

empty

Intervention groups

1

Description

This study will include three experimental groups. The sample size was determined using G*Power software, and a total of 24 taekwondo athletes with flexible flat feet will be recruited. The study will be designed as a randomized controlled clinical trial with a pre-test–post-test design and a control group.The intervention program will last for eight weeks. Participants will be divided into three groups: a core stability training group, a combined core stability and short-foot exercise group, and a control

group.

Category

Rehabilitation

2

Description

Core stability training will consist of trunk-specific exercises such as various types of plank exercises. Balance will be assessed using the Y-Balance Test, while dynamic foot function and plantar pressure distribution will be evaluated using Footscan and Podoscan systems.Participants in the experimental groups will undergo an eight-week corrective exercise intervention, whereas the control group will not receive any specific intervention. After completing all assessments, the testing procedures will be repeated at the end of the eight-week period, and the post-test results will be recorded and analyzed as outcome data for comparison with the pre-test measurements.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center
Fateh Taekwondo club

Full name of responsible person
Mohammad Amin Emadian

Street address
Daneshgah Ave , Sport complex 5 mordad

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3816676559

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Email
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Sponsors / Funding sources

1

Sponsor

Name of organization / entity
Fateh Taekwondo Club

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

Fateh Taekwondo Club

Proportion provided by this source

50

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

Persons

Person responsible for general inquiries

Contact

Name of organization / entity
Arak Univercity

Full name of responsible person
Mohammad Amin Emadian

Position
Stiudent

Latest degree
Bachelor

Other areas of specialty/work
Sport scince

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Person responsible for updating data

Contact

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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 information related to the main outcome of the research topic, will be shared.

When the data will become available and for how long

Access begins from 1405 onwards.

To whom data/document is available

For people who will work in academic and sports institutions

Under which criteria data/document could be used

They can only use information from the data we mentioned in the research itself.

From where data/document is obtainable

By sending and receiving messages from the researcher's email

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

After sending an email regarding the request, it will be received by the individuals after a month of review.

Comments