Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

The Effect Of Adding Core Stability Exercises On Unstable Surfaces To Conventional Training On Selected Musculoskeletal Variables In Judokas With Non-Specific Chronic Low Back Pain.

Protocol summary

Study aim

The Effect Of Adding Core Stability Exercises On Unstable Surfaces To Conventional Training On Selected Musculoskeletal Variables In Judokas With Non-Specific Chronic Low Back Pain.

Design

This clinical trial will use a single-blind pretest–posttest design. After providing informed consent Participants will be randomly allocated to two groups: conventional judo training alone or conventional judo training supplemented with exercises on unstable surfaces.

Settings and conduct

This study will be conducted in Tehran, Eligible participants will be recruited through sports clubs The 8-week intervention will involve conventional judo training in both groups, with the experimental group additionally performing four types of core stability exercises. Pre- and post-intervention assessments will be conducted 48 hours after completion of the training period.

Participants/Inclusion and exclusion criteria

Women aged 18–30 years with non-specific chronic low back pain diagnosed more than 12 weeks previously and a pain score of 3–7 on the Visual Analogue Scale (VAS).Exclusion criteria:Irregular attendance at training sessions (missing two consecutive or three non-consecutive sessions).

Intervention groups

The intervention will last eight weeks. The experimental group will perform four types of core stability exercises in addition to conventional judo training. In week 1, each exercise will be performed for six repetitions. During weeks 2 and 3, the number of repetitions will increase by 50% relative to week 1. In week 4, repetitions will be further increased, and a five-second hold will be added to each repetition. Rest intervals between sets will be 2–3 minutes.

Main outcome variables

Pain intensity/Forward flexion range of motion /Quality of life/Trunk extensor muscle endurance/Core muscle strength/Agility /Physical fitness

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20260917071092N1**
Registration date: **2026-10-19, 1405/07/27**
Registration timing: **prospective**

Last update: **2026-10-19, 1405/07/27**
Update count: **0**

Registration date

2026-10-19, 1405/07/27

Registrant information

Name

Fatemeh Falahat

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 81 3256 7025

Email address

4567ftm.flht@gmail.com

Recruitment status

recruiting

Funding source

Expected recruitment start date

2026-10-26, 1405/08/04

Expected recruitment end date

2026-11-25, 1405/09/04

Actual recruitment start date

empty

Actual recruitment end date
empty
Trial completion date
empty

Scientific title
The Effect Of Adding Core Stability Exercises On Unstable Surfaces To Conventional Training On Selected Musculoskeletal Variables In Judokas With Non-Specific Chronic Low Back Pain.

Public title
Effects of Core Stability Exercises on Unstable Surfaces Physical Function and Well-Being in Judokas With Chronic Low Back Pain
Purpose
Prevention
Inclusion/Exclusion criteria
Inclusion criteria:
Participants must have a competitive playing level that qualifies them to participate in provincial league teams. Participants must have at least three years of experience competing in national championship competitions or national leagues. Participants must have had no injuries, or surgery involving the lower extremities or trunk during the previous six months. Participants must have no visibly observable postural or musculoskeletal abnormalities in the trunk or lower extremities, as determined by visual assessment. Participants must have medical clearance confirming their general health status. Participants must be aged 18–30 years.
Exclusion criteria:
Individuals whose low back pain is caused by trauma or a specific underlying condition. Individuals who have participated in back-related exercise programs during the previous three months. Individuals who have experienced low back pain for less than 12 weeks (acute or subacute low back pain).
Age
From **18 years** old to **30 years** old
Gender
Both

Phase
N/A
Groups that have been masked

- Outcome assessor

Sample size
Target sample size: **52**
Randomization (investigator's opinion)
Randomized
Randomization description
Randomization will be performed using a web-based randomization method via the Social Psychology Network, Connecticut, USA (www.randomizer.org). Eligible participants who meet the inclusion criteria will be randomly allocated to either the experimental group or the control group using simple randomization. A computer-generated randomization sequence will be used, with code 1 assigned to the experimental group (conventional judo training plus core stability exercises on unstable surfaces) and code 2 assigned to the control group (conventional judo training only). Allocation concealment will be maintained using sequentially numbered, opaque, sealed envelopes containing the group assignments. The researcher will implement the intervention according to the assigned group.
Blinding (investigator's opinion)
Single blinded
Blinding description
This study is designed as a single-blind trial in which the outcome assessor will be unaware of the participants' allocation to the intervention and control groups. This approach is intended to minimize detection bias and enhance the validity of the study findings. Due to the nature of the intervention, which involves performing core stability exercises on unstable surfaces, blinding the participants and the researcher delivering the intervention is not feasible, as participants will be aware of the exercises they perform and the researcher will know which intervention is being delivered. Therefore, the study is classified as a single-blind trial, with blinding applied to the outcome assessor.
Placebo
Not used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Ethics Committee of Islamic Azad University Karaj branch
Street address
Karaj Branch, Islamic Azad University, Mo'azen Boulevard, Rajai Shahr, Karaj City Alborz Province
City
Karaj
Province
Alborz
Postal code
3149968111
Approval date
2026-08-25, 1405/06/03
Ethics committee reference number
IR.IAU.K.REC.1405.090

Health conditions studied

1

Description of health condition studied
Non-specific chronic low back pain
ICD-10 code
M54.5
ICD-10 code description

Low back pain

Primary outcomes

1

Description

Visual Analog Scale for pain assessment

Timepoint

Before and after the intervention

Method of measurement

The visual analog scale is a 10 cm horizontal line with the words "pain-free" at its left end and "worst imaginable pain" at its right end. In other words, this scale is a 10 cm horizontal bar with zero at one end (no pain) and 10 at the other end (most severe pain). Patients were asked to mark a point on this 10 cm line according to the numbers at both ends, indicating their level of pain, so that zero represented no pain and a score of ten represented the most severe pain. Then, using a ruler, the distance from this point to the starting point of the zero side was measured, and the obtained number was considered as the patient's pain. On this scale, pain intensity was categorized into four levels: no pain (0-4 mm), mild pain (5-44 mm), moderate pain (45-74 mm), and severe pain (75-100 mm).

2

Description

Trunk Extensor muscle endurance

Timepoint

Before and after the intervention

Method of measurement

For assessing **trunk extensor muscle endurance**, the **Sorensen test** was used. Participants were positioned in the prone position on an examination table, with the superior border of the iliac crest aligned with the edge of the table. During the test, the hip, knee, and ankle joints were stabilized using three straps. Participants were instructed to place their arms across their chest and maintain their trunk in a horizontal isometric position. The duration for which the participant was able to maintain this position was recorded. The test was terminated when the trunk flexed more than 5–10 degrees. The **minimal detectable change (MDC)** reported for the Sorensen test was **10 seconds**.

3

Description

Core muscle strength

Timepoint

Before and after the intervention

Method of measurement

Two submaximal resistance-band-based tests, including the unilateral row and Pallof press (with a 5-second isometric contraction), will be used to assess trunk stabilizing muscle strength. The order of test administration and the dominant and non-dominant sides will be randomized and replicated during the retest session. After warm-up, progressive tests will be performed using 5-second isometric contractions, with gradually increasing distance from the wall and 30-second rest intervals. The test will be terminated if force decreases by more than 10 N during the final seconds or if compensatory trunk or pelvic movements occur.Unilateral Row: The participant will hold the resistance band with one hand and move backward away from the wall until the band is under tension. The participant will then pull the band, bringing the elbow in line with the hip. The leg on the pulling side will remain behind, while the opposite leg will be positioned forward to provide stability.Pallof Press: The participant will hold the resistance band with both hands at chest level and move laterally away from the band’s anchor point to increase tension. The participant will then extend the arms forward in the horizontal plane while preventing trunk rotation. In right-handed individuals, when the right hand is closer to the wall, it will be considered the dominant hand.

4

Description

Forward flexion range of motion

Timepoint

Before and after the intervention

Method of measurement

The Modified Modified Schober Test (MMST) will be used. In this test, skin marks are placed over the posterior superior iliac spines (PSIS) and at a point above them along the spine. The distance between these marks is measured in the standing position. Participants are then asked to bend forward (flexion) or slightly backward (extension). The change in distance between the marks indicates the extent of lumbar spinal movement during flexion and extension. Compared with older versions, this method uses more readily palpable landmarks (PSIS), which may improve measurement reproducibility. A non-elastic measuring tape will be used to record lumbar spine flexion and extension.

5

Description

Quality of Life

Timepoint

Before and after the intervention

Method of measurement

The EQ-5D-5L questionnaire will be used to assess quality of life. The EQ-5D is one of the most widely used and extensively evaluated patient-reported outcome measures (PROMs) worldwide. The EQ-5D-3L version comprises five key dimensions of health: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression, each with three levels (no problems, some problems, and extreme problems). This makes the instrument acceptable to patients and suitable for settings requiring a brief, generic measure of health status. To improve precision and sensitivity to change, the EuroQol Foundation developed the EQ-5D-5L, which includes five response levels: no problems, slight problems, moderate problems, severe problems, and extreme problems.

6

Description
Static Balance
Timepoint
Before and after the intervention
Method of measurement
Participants will perform the One-Leg Stance (OLS) test to assess static postural balance. During the test, participants will stand barefoot on one leg with their eyes closed. The test will be terminated when the non-supporting foot touches the ground or the supporting leg, and the duration will be recorded using a timer. The order of standing on the left leg (OLS-L) and right leg (OLS-R) will be randomized using a random number table to minimize order effects. Participants will complete three familiarization trials on each leg, followed by three test trials per leg. The mean values will be used for analysis. A 30-second rest interval will be provided between trials to prevent fatigue.

7

Description
Dynamic Balance
Timepoint
Before and after the intervention
Method of measurement
The Modified Star Excursion Balance Test (mSEBT) requires participants to maintain single-leg balance while reaching as far as possible with the contralateral limb along a designated line. While standing barefoot on one leg, participants will be instructed to keep their hands on their hips and extend the non-stance limb as far as possible along the anterior, posteromedial, and posterolateral directions, ensuring that the most distal part of the foot remains within three inches of the line without touching the ground. A trial will be completed when the participant returns to the starting position by placing the reaching foot within five inches of the stance foot. Trials will be rejected if: (1) the participant lifts the stance foot from the center of the grid; (2) the participant loses balance; or (3) the participant fails to position the reaching foot directly over the line while maintaining full weight-bearing on the stance leg. Reach distances will subsequently be normalized to the participant's leg length.

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: After baseline assessments, judokas in the control group will perform conventional judo training for 90 minutes per session, three sessions per week, for eight weeks. The experimental group will follow the same schedule, but 15–20 minutes of each session will be devoted to core stability exercises on unstable surfaces, with the remaining time allocated to conventional judo training, up to a total of 90 minutes per session.The experimental group will perform four types of core stability exercises. In week 1, each exercise will be performed for six repetitions. During weeks 2 and 3, the number of repetitions will increase by 50% relative to week 1. In week 4, the exercises will continue, with further increases in repetitions and an additional 5-second hold for each repetition. Rest intervals between sets will be 2–3 minutes, during which appropriate stretching exercises will be performed.
Category
N/A

2

Description
Control group: Participants in the control group will perform only conventional judo training for 90 minutes per session, three sessions per week, for eight weeks.
Category
N/A

Recruitment centers

1

Recruitment center
Name of recruitment center
Islamic Azad university Karaj Branch
Full name of responsible person
Vahid Mazloum
Street address
Moazeen Boulevard, Islamic Azad University, Karaj Branch
City
Karaj
Province
Alborz
Postal code
3149968111
Phone
+98 26 3425 9571
Email
Vahid.mazloum@yahoo.com

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Islamic Azad University
Full name of responsible person
Mohammad Maleki
Street address
Mouzan Boulevard, Islamic Azad University, Karaj Branch
City
Karaj
Province
Alborz

Postal code
3149968111
Phone
+98 26 3425 9571
Email
info@kiau.ac.ir

Grant name

Grant code / Reference number

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

Title of funding source
Islamic Azad University

Proportion provided by this source
100

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
Academic

Person responsible for general inquiries

Contact

Name of organization / entity
Islamic Azad University
Full name of responsible person
Vahid Mazloum
Position
Assistant Professor
Latest degree
Ph.D.
Other areas of specialty/work
Physiotherapy
Street address
Karaj Branch, Islamic Azad University, Mo'azen Boulevard, Rajai Shahr, Karaj City Alborz Province
City
Karaj
Province
Alborz
Postal code
3149968111
Phone
+98 26 3425 9571
Email
Vahid.mazloom@kiau.ir

Person responsible for scientific inquiries

Contact

Name of organization / entity
Islamic Azad University
Full name of responsible person
Vahid Mazloum
Position
assistant professor
Latest degree
Ph.D.
Other areas of specialty/work
Physiotherapy
Street address
Karaj Branch, Islamic Azad University, Mo'azen Boulevard, Rajai Shahr, Karaj City Alborz Province
City
Karaj
Province
Alborz
Postal code
3149968111
Phone
+98 26 3425 9571
Email
Vahid.mazloom@kiau.ir

Person responsible for updating data

Contact

Name of organization / entity
Islamic Azad University
Full name of responsible person
Vahid Mazloum
Position
assistant professor
Latest degree
Ph.D.
Other areas of specialty/work
Physiotherapy
Street address
Karaj Branch, Islamic Azad University, Mo'azen Boulevard, Rajai Shahr, Karaj City Alborz Province
City
Karaj
Province
Alborz
Postal code
3149968111
Phone
009826364529571
Email
Vahid.mazloom@kiau.ir

Sharing plan

Deidentified Individual Participant Data Set (IPD)
Yes - There is 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

Title and more details about the data/document

The data related to the subjects of the control and intervention groups in the pre-test and post-test are shared in an unidentifiable way.

When the data will become available and for how long

Six months after the publication of articles

To whom data/document is available

All researchers

Under which criteria data/document could be used

There is no obstacle to using data for citation, by mentioning the source.

From where data/document is obtainable

Vahid.mazloum@yahoo.com

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

The request will be made by email and the answer will be sent within 15 days.

Comments