Clinical Trial Protocol
Iranian Registry of Clinical Trials

10 Jun 2026

Comparison of the effect of six weeks of open and closed shoulder kinetic chain exercises and core stability on pain, proprioception, strength and electrical activity of muscles in people with shoulder impingement syndrome.

Protocol summary

Study aim
Comparison of the effect of six weeks of open and closed shoulder kinetic chain exercises and core stability on pain, proprioception, strength and electrical activity of muscles in people with shoulder impingement syndrome

Design
A randomized clinical trial study, single-blind, parallel-group,45 randomized to 2 intervention groups and a control group through web-based randomization

Settings and conduct
After evaluation by a physician, and inclusion-exclusion criteria, the researcher records the personal information of patients with the signed consent form. Participants are divided into two groups intervention and control groups. This study was single-blind and the outcome assessor is blind to interventions and groups. This study will be conducted in the laboratory of movement analysis, at Kharazmi University. The protocols are 6 weeks and three 60-minute sessions per week

Participants/Inclusion and exclusion criteria
Entry requirements: Athletes aged 18-30, confirmation from the relevant physician for the diagnosis of shoulder impingement syndrome and having general health (physical and mental health), positive Hawkins-Candy test, and Empty can. Exclusion requirements: abnormalities or injuries affecting research, surgeries, shoulder girdle fractures during interventions, and participation in exercise therapy for shoulder impingement syndrome in the past year

Intervention groups
Intervention group 1: Closed chain exercises of the shoulder and the blind three sessions per week for 6 weeks. Intervention group 2: Open chain exercises of the shoulder and the blind three sessions per week for 6 weeks. The duration of each session is 60 minutes and a 10-minute warm-up and cool-down program is considered for each session. The control group does not do an exercise program and only does daily activity during this period.

Main outcome variables
Electromyography, Pain, Proprioception. Muscle Strength

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20180627040251N9**
Registration date: **2025-01-30, 1403/11/11**
Registration timing: **prospective**

Last update: **2025-01-30, 1403/11/11**
Update count: **0**

Registration date
2025-01-30, 1403/11/11

Registrant information

Name
Hassan Sadeghi

Name of organization / entity
Kharazmi University

Country
Iran (Islamic Republic of)

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date

2025-02-03, 1403/11/15

Expected recruitment end date
2025-03-19, 1403/12/29

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
Comparison of the effect of six weeks of open and closed shoulder kinetic chain exercises and core stability on pain, proprioception, strength and electrical activity of muscles in people with shoulder impingement syndrome.

Public title
The effect of open and closed chain exercises on shoulder pain and strength in individuals with impingement

Purpose
Treatment

Inclusion/Exclusion criteria

Inclusion criteria:
Athlete 18-30 years old Confirmation of the relevant doctor to identify shoulder impingement syndrome and having general health (physical and mental health)Pain 7-3 based on VAS scale Having a body mass index between 19 and 25The positivity of Empty can and Hawkins Kennedy tests

Exclusion criteria:
Having any abnormality or injury that could affect the research process, having a history of dislocation and fracture, having uncontrolled pain, having surgery and any fracture in the shoulder girdle, in case of injury during the interventions, not consenting to participate in the research, participating in jet therapy exercise courses, shoulder impingement syndrome in the past year.

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: **45**

Randomization (investigator's opinion)
Randomized

Randomization description
After the initial evaluation, randomization was done using randomization blocks of 4 methods. Patients are randomly assigned to one of two groups through four random blocks. A member of the research team who is not involved in the selection of samples will determine the randomization sequence using an online randomization system (randomizer.org). Participants will be notified of their group allocation with a sealed envelope

Blinding (investigator's opinion)
Single blinded

Blinding description
In this study, the outcome assessor is blind to the groups' randomization and interventions receiving by participants. in this way, during the evaluation before and after the intervention protocol, they do not make mistakes in their judgments in favor of a specific therapeutic intervention.

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
No. 43., Shahid Moftah St., Tehran

City
tehran

Province
Tehran

Postal code
1491115719

Approval date
2024-06-22, 1403/04/02

Ethics committee reference number
IR.KHU.REC.1403.036

Health conditions studied

1

Description of health condition studied
Shoulder impingement

ICD-10 code
M75.4

ICD-10 code description
Impingement syndrome of shoulder

Primary outcomes

1

Description
Electromyography

Timepoint
The beginning of the study and the end of the study

Method of measurement
Electromyography device

Secondary outcomes

1

Description
pain
Timepoint
The beginning of the study and the end of the study
Method of measurement
visual analog scale (VAS)

2

Description
Muscle strength
Timepoint
The beginning of the study and the end of the study
Method of measurement
Isokinetic device

3

Description
Proprioception
Timepoint
The beginning of the study and the end of the study
Method of measurement
Isokinetic device

Intervention groups

1

Description
Intervention group: In the group of combined shoulder and blind chain exercises, in this group, people perform four exercises of shoulder exercises in open chain and four exercises of blind exercises in 6 weeks.
Category
Rehabilitation

2

Description
Intervention group: Intervention group: In the group of closed shoulder and blind chain exercises, in this group, people perform four exercises of shoulder exercises in closed chain and four exercises of blind exercises in 6 weeks.
Category
Rehabilitation

3

Description
Control group: This group does not receive training or intervention during the study period.
Category
Rehabilitation

Recruitment centers

1

Recruitment center
Name of recruitment center
Khwarazmi University, Karaj branch
Full name of responsible person
Atefeh Hassanzadeh Imamqoli
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Sponsors / Funding sources

1

Sponsor
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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
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

Kharazmi University

Full name of responsible person

atefe hasanzade imamgholi

Position

student

Latest degree

Bachelor

Other areas of specialty/work

sport injuries and corrective exercises

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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

Not applicable

Informed Consent Form

Yes - There is a plan to make this available

Clinical Study Report

Not applicable

Analytic Code

Not applicable

Data Dictionary

Not applicable

Title and more details about the data/document

The personal data of people is a personal matter and if the people give permission, this data will be published, and if people do not give permission to publish this data, it will remain confidential.

When the data will become available and for how long

Access starts 6 months after results are published

To whom data/document is available

Academic researchers and those who are engaged in research in this field

Under which criteria data/document could be used

The data of this research is made available to

researchers for all review research and meta-analysis

From where data/document is obtainable

To the email address: atefe.hasanzade213@gmail.com

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

It will be available to the applicant after 10 to 15 days after sending an email to the said address

Comments