Clinical Trial Protocol
Iranian Registry of Clinical Trials

10 Jun 2026

Acute Effects of Static Stretching and Dynamic Warm-up on Shoulder Performance in Male Athletes with Shoulder Impingement Syndrome

Protocol summary

Study aim
Acute effects of stretching and warm-up protocols on shoulder function in athletes with impingement syndrome.

Design
The present study will include 50 participants and will be conducted as a single-blind trial. Participants will be randomly allocated into three exercise groups through simple randomization using the RandBox.top website for random assignment.

Settings and conduct
Conducted in Shiraz under controlled conditions, this study randomly assigns healthy athletes and those with shoulder impingement to three intervention sessions. Assessors, blinded to intervention type, perform only functional evaluations.

Participants/Inclusion and exclusion criteria
Inclusion Criteria: - Male athlete aged between 20 and 30 years - Diagnosed with shoulder impingement syndrome (presenting at least two positive clinical signs, including pain during shoulder arc motion, positive Neer or Hawkins-Kennedy test, pain during resisted external rotation, or Apprehension-Relocation test without posterior pain) - Not participating in any shoulder range-of-motion exercise programs Exclusion Criteria: - History of shoulder surgery or dislocation - Currently undergoing physiotherapy or drug therapy - Performing heavy exercise within 48 hours before the test - Failure to attend any stage of the testing

Intervention groups
This study compares four protocols: 1) Static stretching (6 exercises, 3×30s with 15s rest, ~10 min total); 2) Dynamic warm-up (6 band exercises, 10 reps at 2s tempo); 3) Combined protocol (3 stretching + 3 warm-up exercises); 4) Control group (healthy athletes performing all protocols).

Main outcome variables
Internal and external shoulder rotation range of motion; shoulder joint stability; shoulder joint proprioception; shoulder muscle strength.

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20230612058457N6**
Registration date: **2025-06-04, 1404/03/14**
Registration timing: **prospective**

Last update: **2025-06-04, 1404/03/14**
Update count: **0**

Registration date
2025-06-04, 1404/03/14

Registrant information

Name
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Name of organization / entity
Shahid Bahonar University

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2025-06-09, 1404/03/19

Expected recruitment end date
2025-06-18, 1404/03/28

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
Acute Effects of Static Stretching and Dynamic Warm-up on Shoulder Performance in Male Athletes with Shoulder Impingement Syndrome

Public title
Comparison of the Effects of Static Stretching and Dynamic Warm-up on Shoulder Performance in Athletes with Shoulder Impingement Syndrome

Purpose
Supportive

Inclusion/Exclusion criteria

Inclusion criteria:
Sex: Male Age range: 20 to 30 years Pain in the arc of motion (between 60 and 120 degrees) during shoulder flexion or extension. Positive Neer or Hawkins-Kennedy test. Pain during resisted external rotation, shoulder abduction, or positive Jobe test. Positive Apprehension-Relocation test (without posterior pain).

Exclusion criteria:
History of shoulder surgery or dislocation. Currently receiving physiotherapy or medication treatment for the shoulder. Performed heavy exercises within 48 hours before the test. Lack of cooperation or withdrawal from continuing the study. Presence of other neuromuscular or musculoskeletal diseases affecting the shoulder (such as rheumatoid arthritis, rotator cuff tear).

Age
From **20 years** old to **30 years** old

Gender
Male

Phase
N/A

Groups that have been masked

- Outcome assessor

Sample size
Target sample size: **50**

Randomization (investigator's opinion)
Randomized

Randomization description
In this study, to allocate participants into three intervention groups (static stretching, dynamic warm-up, and combined), simple randomization with block randomization will be used. The unit of randomization will be the individual, and the allocation sequence to groups will be generated using the RandBox.top website with the method of balanced blocks. If controlling for confounding variables such as type of exercise or symptom severity is necessary, stratified randomization will be applied. To conceal the allocation (Allocation Concealment), sealed envelopes containing group codes will be used, which will be opened by an independent person after enrollment and pre-testing. These methods will ensure that the distribution of participants across groups is balanced and unpredictable.

Blinding (investigator's opinion)
Single blinded

Blinding description
In the present study, the researcher recording the research variables is unaware of the participants' allocation to the exercise protocols.

Placebo
Not used

Assignment
Parallel

Other design features
This study will be a randomized controlledl trial.

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Research Ethics Committees of University of Guilan

Street address
5th Kilometer of Persian Gulf Highway, Rasht, Guilan Province, Iran

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Rasht

Province
Guilan

Postal code
4199613776

Approval date
2025-05-19, 1404/02/29

Ethics committee reference number
IR.GUILAN.REC.1404.035

Health conditions studied

1

Description of health condition studied
Shoulder impingement syndrome

ICD-10 code
M75.4

ICD-10 code description
Impingement syndrome of shoulder

Primary outcomes

1

Description
In the present study, the range of motion of internal and external rotation of the shoulder joint will be examined.

Timepoint
At the beginning of the study (before the intervention), 5 minutes after the intervention, and one hour after the intervention.

Method of measurement
It is measured using a goniometer.

2

Description
The present study investigates the stability of the shoulder joint.

Timepoint
At the beginning of the study (before the intervention), 5 minutes after the intervention, and one hour after the intervention.

Method of measurement
It is assessed using the Y test.

3

Description
The present study investigates the proprioception of the shoulder joint.

Timepoint
At the beginning of the study (before the intervention), 5 minutes after the intervention, and one hour after the intervention.

Method of measurement
It is evaluated using target angle reconstruction and photography.

4

Description
The present study examines isokinetic and isometric strength of the shoulder joint during internal and external rotation, assessed through concentric and eccentric contractions.

Timepoint
At the beginning of the study (before the intervention), 5 minutes after the intervention, and one hour after the intervention.

Method of measurement
It is evaluated using an isokinetic dynamometer.

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: Athletes with shoulder impingement syndrome participating in a static stretching protocol. The protocol includes six targeted active soft-tissue stretches for the shoulder, with each stretch performed in 3 sets of 30 seconds, and 15 seconds of rest between sets. The total duration of the protocol is approximately 10 minutes.

Category
Rehabilitation

2

Description
Intervention group: Athletes with shoulder impingement syndrome participating in a dynamic warm-up protocol. The protocol includes six dynamic exercises using a yellow resistance band, with each exercise performed for 10 repetitions at a speed of 2 seconds per repetition.

Category
Rehabilitation

3

Description
Intervention group: Athletes with shoulder impingement syndrome who participate in the combined protocol. This protocol includes three exercises from the static stretching protocol and three exercises from the dynamic warm-up protocol, performed with the same timing and structure as the other groups. The exercises include: shoulder extension, deltoid stretch, scapular punch, pectoralis major stretch, throwing acceleration, and triceps stretch.

Category
Rehabilitation

4

Description
Control group: Healthy athletes without symptoms of shoulder impingement syndrome who participate in all three intervention protocols (static stretching, dynamic warm-up, and a combination of static stretching and dynamic warm-up). This group is included for comparison of responses with the intervention groups (athletes with the condition). The order of protocol implementation is randomized, with a 72-hour interval between sessions.

Category
Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center
Department of Physical Education and Sports Sciences, Faculty of Educational Sciences and Psychology

Full name of responsible person
Mohammad Alimoradi

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Sponsors / Funding sources

1

Sponsor
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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
University of Guilan
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
Shahid Bahonar University
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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
No - There is not 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
En All data will be shared after anonymizing individuals, ensuring their non-identifiability.
When the data will become available and for how long
The data access period will start immeduately after the results are printed.
To whom data/document is available
The data will be accessible to researchers and organizations related to sports disciplines where the shoulder joint is the main involved joint.
Under which criteria data/document could be used
In order to assist scientific research and promote the implementation of executive goals with a focus on reducing musculoskeletal injuries and enhancing the performance of athletes.
From where data/document is obtainable
Mohammad Alimoradi/malimoradi@sport.uk.ac.ir
What processes are involved for a request to access data/document
Requests for access to data will be answered within a week
Comments