

Clinical Trial Protocol

Iranian Registry of Clinical Trials

11 Sep 2026

Effect of scapular stabilization exercises with strengthening of infraspinatus muscle isolation on electromyography, pain and function of badminton players with impingement syndrome subsequent upper extremity fatigue

Protocol summary

Study aim

Evaluation of the effect of shoulder stabilization exercises on electromyography, pain and performance of badminton players with impingement syndrome following upper limb fatigue

Design

The statistical population of the present study consists of female overhead athletes aged 18 to 22 years with scapular dyskinesia and impingement syndrome, from which 48 people were purposefully selected based on the inclusion criteria and randomly divided into two intervention groups and a control group. (16 people in each group).

Settings and conduct

The samples are then examined by a sports medicine specialist and clinical tests are taken from them. Then, the pre-test includes scheduling the muscles of the upper and lower trapezius and the ceratus enteriver, infraspinatus, and supraspinatus during the over-elution task. Then, 6 weeks of scapular stabilization exercises and stabilization exercises begin with strengthening the infraspinatus muscle isolate. 48 hours after the end of the last session of the training protocol, like the pre-test, the post-test is taken.

Participants/Inclusion and exclusion criteria

Inclusion criteria: Age 18 to 22 years, overhead athletes with scapular dyskinesia and impingement syndrome, positive Hawkins and Near test Exclusion criteria: history of shoulder surgery Neuromuscular dysfunction Glenohumeral and acromioclavicular joint dislocations Pathological symptoms associated with change in the appearance of the upper limb, shoulder injuries in the last 6 months

Intervention groups

1: Scapula stabilization exercises without strengthening the infraspinatus muscle isolate 2: Scapular stabilization

exercises with strengthening the infraspinatus muscle isolate 3: control group

Main outcome variables

Independent variable: Scapular stabilization exercises
Dependent variables: electromyography of selected muscles, pain and performance of athletes

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20200913048703N1**

Registration date: **2020-12-19, 1399/09/29**

Registration timing: **retrospective**

Last update: **2020-12-19, 1399/09/29**

Update count: **0**

Registration date

2020-12-19, 1399/09/29

Registrant information

Name

Zahra Sadeghi amroabadi

Name of organization / entity

Kharazmi university

Country

Iran (Islamic Republic of)

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+98 71 4252 9009

Email address

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2019-05-22, 1398/03/01

Expected recruitment end date

2019-08-23, 1398/06/01

Actual recruitment start date

2019-05-22, 1398/03/01

Actual recruitment end date

2019-08-23, 1398/06/01

Trial completion date

2019-08-23, 1398/06/01

Scientific title

Effect of scapular stabilization exercises with strengthening of infraspinatus muscle isolation on electromyography, pain and function of badminton players with impingement syndrome subsequent upper extremity fatigue

Public title

Effect of scapular stabilization exercises with strengthening of infraspinatus muscle isolation on electromyography, pain and function of badminton players with impingement syndrome subsequent upper extremity fatigue

Purpose

Treatment

Inclusion/Exclusion criteria**Inclusion criteria:**

Overhead athlete With scapular dyskinesia With impingement syndrome Painful arch when raising the hand Hawkins test positive Neer test Positive

Exclusion criteria:

History of shoulder surgery History of systemic disorders Neuromuscular dysfunction Glenohumeral and acromioclavicular joint dislocations Pathological symptoms associated with a history of fractures, dislocations, surgery, changes in the appearance of the upper limb Shoulder and shoulder injuries in the last 6 months

Age

From **18 years** old to **22 years** old

Gender

Female

Phase

N/A

Groups that have been masked

- Investigator
- Outcome assessor
- Data analyser

Sample size

Target sample size: **48**

Actual sample size reached: **48**

Randomization (investigator's opinion)

Randomized

Randomization description

For the randomization method, a list of numbers from each will be randomly assigned to a type of training method, then grouped according to the instructions will be assigned to each participant. Randomization will be done one by one by random block method

Blinding (investigator's opinion)

Single blinded

Blinding description

They evaluate data related to variables related to outcome variables and analyze laboratory data blindly and are unaware of the assignment of study groups.

Placebo

Not used

Assignment

Parallel

Other design features

Present study consists of female overhead athletes aged 18 to 22 years with scapular dyskinesia and impingement syndrome, from which 48 people were purposefully selected based on the inclusion criteria and randomly divided into two intervention groups and a control group. (16 people in each group).

Secondary Ids

empty

Ethics committees**1****Ethics committee****Name of ethics committee**

Kharazmi University Research Ethics Committee

Street address

No. 18, 1 St Alley, Sarafraz St., Motahhari St.

City

Tehran

Province

Tehran

Postal code

1587614411

Approval date

2019-12-30, 1398/10/09

Ethics committee reference number

IR.KHU.REC.1398.036

Health conditions studied**1****Description of health condition studied**

Evaluation of the effect of shoulder stabilization exercises on electromyography, pain and performance of badminton players with impingement syndrome following upper limb fatigue

ICD-10 code**ICD-10 code description****Primary outcomes****1****Description**

Electromyography of selected muscles

Timepoint

Pre-test and post-test

Method of measurement

Noraxon EMG device

2

Description

pain

Timepoint

Pre-test and post-test

Method of measurement

VAS

3

Description

Function

Timepoint

Pre-test and post-test

Method of measurement

Upper limb function evaluation test in closed chain

Secondary outcomes

empty

Intervention groups

1

Description

Samples are examined and clinically tested by a sports medicine specialist. Also, the scapular dyskinesia test is taken from the subjects and if the tests are positive and approved by the doctor, the samples will be approved. Then, the pre-test includes scheduling of upper and lower trapezius muscles and Ceratus enteriver, infraspinatus and supraspinatus during the over-arm elution task. Participants then perform a pre-test, immediately follow the fatigue protocol, and re-perform the pre-test: then 6 weeks of scapular stabilization and stabilization exercises begin with strengthening the infraspinatus muscle isolate. 48 hours after the end of the last session of the training protocol, participants are asked to come to the laboratory for the post-test, and similar to the pre-test, the post-test is taken.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Research Institute of Physical Education and Sports Sciences

Full name of responsible person

Zahra Sadeghi Amroubadi

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Kharazmi University

Full name of responsible person

Malihe Haddadnejad

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Shahid Keshvari complex, Faculty of Physical Education and Sports Sciences, End of South Razan street, End of Mirdamad, Tehran

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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

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

Zahra Sadeghi Amroubadi

Position

MSc

Latest degree

Master

Other areas of specialty/work

Others

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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 dependent variables in the form of a scientific article can be shared as the average of all samples

When the data will become available and for how long

Six months after the results were published

To whom data/document is available

Personal information is confidential and the overall results are available to everyone in the form of an article.

Under which criteria data/document could be used

The information is not shared with anyone. The overall results are made available to everyone in the form of an article

From where data/document is obtainable

Zahra Sadeghi

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

imail

Comments