Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

A comparison effect of traditional and total body resistance exercise(TRX) exercises on scapular kinematics, range of motion, ratio of external rotation to internal rotation strength, proprioception and shoulder muscles activation in overhead athletes with shoulder impingement syndrome

Protocol summary

Study aim

The survey effect of traditional and TRX exercises on scapular kinematics, range of motion, ratio of external rotation to internal rotation strength, proprioception and shoulder muscles activation in overhead athletes with shoulder impingement syndrome

Design

in this study, 33 athletes with shoulder impingement syndrome were selected by physiotherapist. Then they were randomly divided into three groups

Settings and conduct

This research is conducted in Kerman School of Sport Sciences for 8 weeks in three groups.

Participants/Inclusion and exclusion criteria

Inclusion criteria:Unilateral pain for more than one week in the Acromion process; Pain during flexion and abduction versus resistance; Positive test for Neer, Hawkins and supraspinatus empty can; Pain when touched in Humerus tuberosity; Physical examination by the physiotherapist and confirmation of shoulder impingement syndrome Exclusion criteria:Systemic illnesses;neck pain at rest or neck pain during active cervical movements; History of neck pain or treatment to neck over the past 12 months; History of spinal or upper limb surgery, History of spinal or upper limb fractures,Presence of a positive sulcus sign; Presence of a positive load and shift test

Intervention groups

The first intervention group that received traditional exercises The second intervention group received the trx training The control group received their usual daily activities

Main outcome variables

scapular kinematics, range of motion, ratio of external rotation to internal rotation strength, proprioception and shoulder muscles activation levels

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20171222037994N1**
Registration date: **2018-05-18, 1397/02/28**
Registration timing: **retrospective**

Last update: **2018-05-18, 1397/02/28**
Update count: **0**

Registration date

2018-05-18, 1397/02/28

Registrant information

Name

aboozar saadatian

Name of organization / entity

SHahid Bahonar University of kerman

Country

Iran (Islamic Republic of)

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+98 34 3281 2777

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aboozar.saadat67@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2017-12-01, 1396/09/10

Expected recruitment end date

2017-12-21, 1396/09/30

Actual recruitment start date

2017-12-01, 1396/09/10

Actual recruitment end date

2018-01-20, 1396/10/30

Trial completion date

empty

Scientific title

A comparison effect of traditional and total body resistance exercise(TRX) exercises on scapular kinematics, range of motion, ratio of external rotation to internal rotation strength, proprioception and shoulder muscles activation in overhead athletes with shoulder impingement syndrome

Public title

effect exercise on impingement syndrome

Purpose

Supportive

Inclusion/Exclusion criteria

Inclusion criteria:

Unilateral pain for more than one week in the acromion ; Pain during flexion and abduction versus resistance; Positive test for Neer,Hawkins and supraspinatus empty can; Pain when touched in Humerus tuberosity; Physical examination by the physiotherapist and confirmation of shoulder impingement syndrome

Exclusion criteria:

Systemic illnesses neck pain at rest, or neck pain during active cervical movements History of cervical pain or treatment to this region over the past 12 months History of spinal or upper limb surgery History of spinal or upper limb fractures Presence of a positive sulcus sign and load and shift test

Age

From **18 years** old to **43 years** old

Gender

Male

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **36**

Actual sample size reached: **33**

Randomization (investigator's opinion)

Randomized

Randomization description

The randomization of this study is Restricted. Method of implementation randomization is the block randomization, which to randomize subjects into groups that result in equal sample sizes. This method is used to ensure a balance in sample size across groups over time.At first, the sample size will be evaluated by the physiotherapist in terms of Inclusion and Exclusion criteria.The block size will be determined by the researcher and should be a multiple of the number of groups (with three treatment groups, block size of either 33). than For each person in the sample, a code is determined which is placed in the envelope . Envelopes will be shuffled together and the envelope will be exited and re-shuffled.The first envelope in the first group is the second envelope in the second group and etc. for Allocation concealment will be used of method Sequentially numbered, sealed, opaque envelopes. After a random sequence created based on the sample size of the research, a number of envelopes are prepared and each random sequence created on the card is recorded and the cards are inserted into the envelopes respectively. In order to maintain a random sequence on the outer surface of the envelope, the numbering is done in the same order and will be pasted in the envelopes. At the time of the start of the registration of the participants, one of the envelopes will be opened based on entry of the participants, and the participant's group will be revealed

Blinding (investigator's opinion)

Not blinded

Blinding description

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics committee of Kerman University of Medical Sciences

Street address

Kerman Neuroscience Research Center, Somayeh Cross, In Front of Besat Clinic, Kerman, Iran

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Province

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Postal code

7619813159

Approval date

2017-11-14, 1396/08/23

Ethics committee reference number

IR.Kmu.REC.1396.16

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
scapular kinematics
Timepoint
Before the intervention and 8 weeks after the intervention
Method of measurement
motion analyzer

2

Description
range of motion
Timepoint
Before the intervention and 8 weeks after the intervention
Method of measurement
motion analyzer

3

Description
ratio of external rotation to internal rotation strength
Timepoint
Before the intervention and 8 weeks after the intervention
Method of measurement
Handheld Dynamometer

4

Description
proprioception
Timepoint
Before the intervention and 8 weeks after the intervention
Method of measurement
leighton flexometer

5

Description
shoulder muscles activation
Timepoint
Before the intervention and 8 weeks after the intervention
Method of measurement
motion analyzer

Secondary outcomes

empty

Intervention groups

1

Description
traditional exercises:These exercises are customary and based on previous studies that were used to rehabilitate the shoulder impingement syndrome. These exercises will be performed in 8 weeks and 3Session in each week and each Session 45 minutes . This 45 minutes includes 10 minutes of warming up to 30 minutes of main exercises and 5 minutes of cooing.The tool is used in these exercises thraband and free weights
Category
Rehabilitation

2

Description
TRX exercises:These exercises are also based on the latest available resources for shoulder joint rehabilitation. these exercises will be performed in 8 weeks and 3Session in each week and each Session 45 minutes . This 45 minutes includes 10 minutes of warming up to 30 minutes of main exercises and 5 minutes of cooing.The tool used in these exercises is suspension strap TRX
Category
Rehabilitation

3

Description
Control group: This group performs its usual daily and sporting activities
Category
N/A

Recruitment centers

1

Recruitment center
Name of recruitment center
Sanat Mes Kerman F.C
Full name of responsible person
Aboozar Saadatian
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Recruitment center
Name of recruitment center
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Sponsors / Funding sources

1

Sponsor

Name of organization / entity
SHahid Bahonar University of Kerman

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
SHahid Bahonar University of Kerman

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 of Kerman

Full name of responsible person
Aboozar Saadatian

Position
PHD student

Latest degree
Master

Other areas of specialty/work
sport injury and corrective exercise

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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

Yes - There is a plan to make this available

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

With the permission of the supervisor All information is being shared after non-identifiable

When the data will become available and for how long

Start access 6 months after printing results in article and By obtaining permission from the relevant university

To whom data/document is available

There is no limit

Under which criteria data/document could be used

Except for personal data, there are no restrictions on the rest

From where data/document is obtainable

Contact Mr. Aboozar Saadatian

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

Contact with Mr. Abuoozar Saadatian and coordination with the Department of Sports injury at Shahid Bahonar University of Kerman. Information is available.

Comments