

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

10 Jun 2026

### The Comparison Effectiveness and Durability of 8-week Motor Control Retraining (MCR) Program with and without Feedback on the Pain, Function and Shoulder Kinematic in Patient with Shoulder Impingement Syndrome (SIS) and Scapular Dyskinesia

#### Protocol summary

##### Study aim

The Comparison Effectiveness and Durability of 8-week Motor Control Retraining (MCR) Program with and without Feedback on the Pain, Function and Shoulder Kinematic in Patient with Shoulder Impingement Syndrome (SIS) and Scapular Dyskinesia

##### Design

The Present study has three intervention groups 1- Intervention group of motor control retraining 2- Intervention group of motor control retraining without feedback 3- Control intervention group with specific exercises of rotator cuff muscles randomised, superiority, parallel group trial

##### Settings and conduct

The first stage is the selection of students based on the entry criteria The second stage of grouping without blinding The third stage of the pre-test The fourth stage is two months of training The third stage of the post-test The place of testing was at sports medicine federation and Esteghlal South Sports Club.

##### Participants/Inclusion and exclusion criteria

Inclusion Criteria 1- People with shoulder impingement syndrome based on the clinical tests of Hawkins-Kennedy, Neer and dyskinesia based on the Kibbler test with the diagnosis of a specialist doctor 2- Painful arch in flexion and abduction movements 5- Pain intensity based on the VAS scale, whose minimum clinical difference (MCD) should be more than 2.5 (25 mm) points from a scale of 0 (no pain) to 10 (maximum pain). Exclusion Criteria 1-The history of neck and arm pain in the past or present 2- Having neck pain syndromes 3- Having thoracolumbar syndromes

##### Intervention groups

1- Intervention group of motor control retraining with feedback and with specific exercises of rotator cuff muscles 2- Intervention group of motor control retraining

without feedback along with specific exercises of rotator cuff muscles 3- Control intervention group only with specific exercises of rotator cuff muscles

##### Main outcome variables

Pain, Function, Strength, Proprioception and Shoulder Kinematic

#### General information

##### Reason for update

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20180414039299N1**

Registration date: **2023-04-14, 1402/01/25**

Registration timing: **retrospective**

Last update: **2023-04-14, 1402/01/25**

Update count: **0**

##### Registration date

2023-04-14, 1402/01/25

##### Registrant information

##### Name

Mohsen Moradi

##### Name of organization / entity

The University of Kharazmi

##### Country

Iran (Islamic Republic of)

##### Phone

+98 24 3352 2824

##### Email address

mohsenmoradi90@gmail.com

##### Recruitment status

**Recruitment complete**

##### Funding source

**Expected recruitment start date**

2022-10-22, 1401/07/30

**Expected recruitment end date**

2022-12-21, 1401/09/30

**Actual recruitment start date**

2022-10-22, 1401/07/30

**Actual recruitment end date**

2022-12-21, 1401/09/30

**Trial completion date**

2022-12-21, 1401/09/30

**Scientific title**

The Comparison Effectiveness and Durability of 8-week Motor Control Retraining (MCR) Program with and without Feedback on the Pain, Function and Shoulder Kinematic in Patient with Shoulder Impingement Syndrome (SIS) and Scapular Dyskinesia

**Public title**

The Comparison Effectiveness and Durability of 8-week Motor Control Retraining (MCR) Program with and without Feedback on the Pain, Function and Shoulder Kinematic in Patient with Shoulder Impingement Syndrome (SIS) and Scapular Dyskinesia

**Purpose**

Treatment

**Inclusion/Exclusion criteria****Inclusion criteria:**

Individuals with shoulder impingement syndrome based on the clinical tests of Hawkins-Kennedy, Neer and dyskinesia based on the Kibbler test with the diagnosis of a specialist doctor

**Exclusion criteria:**

The history of neck and arm pain in the past or present  
Having neck pain syndromes  
Having thoracolumbar syndromes

**Age**From **18 years** old to **28 years** old**Gender**

Male

**Phase**

N/A

**Groups that have been masked**

- Outcome assessor

**Sample size**Target sample size: **45**Actual sample size reached: **45****Randomization (investigator's opinion)**

Randomized

**Randomization description**

Using randomized permuted block randomization (6 blocks of size 8), the three treatment combinations are independently assigned to participants in a 1:1:1 ratio (after initial assessment). Randomized sequence listing is done by computer (Pocock SJ. Clinical Trials: A Practical Approach. Wiley; 1983) and also by website (<https://www.randomizer.org>). This step will be ensured by a blind evaluator.

**Blinding (investigator's opinion)**

Single blinded

**Blinding description**

Outcome assessors will be blinded to group allocation. Participants will not be blinded to study and grouping, but will be blinded to the intervention they are receiving (there is an unavoidable risk of bias in this study that the intervention cannot be blinded to interventionists, patients). Before the evaluation, the necessary training will be given to the outcome evaluator in relation to how to evaluate the variables in order to prevent any questions and answers between the evaluator and the subjects.

**Placebo**

Not used

**Assignment**

Parallel

**Other design features****Secondary Ids**

empty

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

Ministry of health and medical education

**Street address**

Iran St., No. 2

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**Postal code**

45191744555

**Approval date**

2022-11-08, 1401/08/17

**Ethics committee reference number**

IR.SSRC.REC.1401.075

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

shoulder impingement and scapular dyskinesia

**ICD-10 code**

M75.4

**ICD-10 code description**

Impingement syndrome of shoulder

**Primary outcomes****1****Description**

Pain

**Timepoint**

First, Measuring the parameters of pain in the post-test, and then after eight weeks, measuring the parameter of pain in the pre-test

**Method of measurement**

Pressure pain ergometer device to prepare a pain map.  
VAS Visual Scale to Measure pain intensity

## 2

### **Description**

Function

### **Timepoint**

First, measuring the parameter function in the post-test, and then after Eight weeks, Measuring the parameter of function in the pre-test

### **Method of measurement**

Shoulder functional test with DASH questionnaire

## 3

### **Description**

Strength

### **Timepoint**

First, measuring the parameter of strength in the post-test, and then after eight weeks, Measuring the parameter of strength in the pre-test

### **Method of measurement**

Biodex model 3 isokinetic device for measuring muscle strength

## 4

### **Description**

Proprioception

### **Timepoint**

First, Measuring the parameter proprioception in the post-test, and then after eight weeks, Measuring the parameter of proprioception in the pre-test

### **Method of measurement**

Biodex model 3 isokinetic device for measuring proprioception

## 5

### **Description**

Scapula Kinematics

### **Timepoint**

First, Measuring the parameters of scapular kinematics in the post-test, and Then after eight weeks, Measuring the parameter of scapular kinematics in the pre-test

### **Method of measurement**

Inclinometer to measure two-dimensional kinematics of the shoulder

## **Secondary outcomes**

empty

## **Intervention groups**

### 1

#### **Description**

Intervention group: motor control retraining to correct the alignment and coordination of the shoulder complex, Which Includes training for the proper orientation of the shoulder in the resting state, As well as controlling the

optimal orientation during active arm movements. 2- Stretching and flexibility exercises..3) Special rehabilitation exercises for the anterior trapezius and dentate muscles to strengthen the scapular muscles. at first, Changes are made by the therapist based on the following guidelines. 1. The upper inner corner of the scapula should be at the level of the second dorsal vertebra. 2. The lower angle of the scapula should be at the level of the seventh dorsal vertebra. 3. The acromion should be higher than the upper inner border of the scapula. 4. The scapular spine should rotate 15 to 30 degrees in the coronal plane. 5. The angles of the Coracoid should be symmetrical. 6. The inner edge of the scapula should be 5-6 cm away from the spines of the vertebrae. 7. The Clavicle should have a little posterior rotation in the coronal plane. The method of these orientations should be taught by the therapist by listening and also by touching the subjects. Once again the scapula is placed in the normal position, the subjects respond to the scapular orientation control during arm elevation up to 90 degrees in three planes of motion. The movements should be done slowly and calmly and the movements should be done for 2 minutes. After mastering the shoulder orientation control by the subject, movement control exercises will begin. these exercises were performed for eight weeks, Three sessions a week and one hour in each session

#### **Category**

Rehabilitation

### 2

#### **Description**

Control group: the exercises used include rotator cuff exercises, these exercises as basic exercises. For all groups considered, In the desired protocol, The person performs exercises according to the provided program every week. Rest time between sets is 1:3 and between repetitions is 1:1.

#### **Category**

Rehabilitation

## **Recruitment centers**

### 1

#### **Recruitment center**

##### **Name of recruitment center**

Kharazmi University

##### **Full name of responsible person**

Mohsen Moradi

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## Sponsors / Funding sources

### 1

#### Sponsor

**Name of organization / entity**

Kharazmi University

**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**

Kharazmi University

**Proportion provided by this source**

50

**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**

Mohsen Moradi

**Position**

Student

**Latest degree**

Ph.D.

**Other areas of specialty/work**

Corrective Exercise

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## Person responsible for scientific inquiries

#### Contact

**Name of organization / entity**

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**Full name of responsible person**

Malihe Hadadnezhad

**Position**

Associate Professor

**Latest degree**

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**Other areas of specialty/work**

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## Person responsible for updating data

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**Name of organization / entity**

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**Full name of responsible person**

Mohsen Moradi

**Position**

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**Latest degree**

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**Other areas of specialty/work**

Corrective Exercise

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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**

Information related to the variables of pain, kinematics, performance, strength and proprioception will be recorded in the pre-test and after eight weeks of training, The information of the variables mentioned in the post-test will be recorded and the results of the changes.

**When the data will become available and for how long**

After publishing the article/articles extracted from the

study

**To whom data/document is available**

The data can be displayed and shared upon the reasonable request of Iran's Clinical Trial Registration Center, journals and academic people/researchers who are conducting research and scientific activities in this field.

**Under which criteria data/document could be used**

Data analysis and the use of documentation can only be done under the condition that their results are reported in scientific articles by academic researchers and authors. The necessary conditions for sending data and documents include: 1. Sending an email (preferably with valid university addresses) to one of the researchers of the study. 2. A brief and logical explanation related to the use of data or documents.

**From where data/document is obtainable**

Through request from researcher Amir Letafatkaramir letafatkaramir@yahoo.com

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

The applicant can request details from the researchers using the message sent by email within 7 to 10 days

**Comments**