

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

10 Jun 2026

### Effects of manual therapy in addition to stretching and strengthening exercises to improve scapular range of motion, functional capacity and pain in patients with shoulder impingement syndrome

#### Protocol summary

##### Study aim

Purpose of this current research was to find out the effectiveness of manual therapy in addition to stretching and strengthening exercises in patients with shoulder impingement syndrome in order to improve pain, functional capacity and scapular range of motion.

##### Design

Parallel Single Blinded Randomized Controlled Trial

##### Settings and conduct

The Eligible patients for Exercises and Manual Therapy referring to The University of Lahore Teaching Hospital city Lahore during the study period was enrolled in the trial and was randomly allocated to the intervention and control group through block randomization. The trial was single blinded so that physician was not aware of the intervention.

##### Participants/Inclusion and exclusion criteria

Inclusion: Shoulder Impingement Syndrome from more than 3 months History of non-traumatic onset of shoulder pain, positive painful arc during active elevation of arm. positive (Hawkins-Kennedy, Neer's test). Exclusion: Fracture( clavicle, humerus, Scapula) Systemic Illness numbness or tingling of the upper limb a positive sulcus or apprehension test, positive drop arm test

##### Intervention groups

Group A was treated with exercises and 45 minutes of manual therapy with rest interval of 1 min . The grade III and IV mobilization were performed including arthrokinematic movements for different sub-joints at the shoulder: Group B was given only strengthening and stretching exercises for both involved and uninvolved sides and session longed for 25-30 minutes. For both Group A and B The participants were assessed pre-intervention and post-intervention(after 4 week).No Of sessions were 3 per week for 4 weeks.Total duration of intervention was 1 month.

##### Main outcome variables

Disability of arm, Shoulder and Hand Questionnaire:  
Functional Capacity. Numeric Pain Rating Scale :pain.  
Goniometry :scapular ranges

#### General information

##### Reason for update

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20230526058291N1**

Registration date: **2023-08-12, 1402/05/21**

Registration timing: **retrospective**

Last update: **2023-08-12, 1402/05/21**

Update count: **0**

##### Registration date

2023-08-12, 1402/05/21

##### Registrant information

##### Name

Sana Tauqeer

##### Name of organization / entity

The University of Lahore

##### Country

Pakistan

##### Phone

+92 324 4294807

##### Email address

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##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2022-03-09, 1400/12/18

##### Expected recruitment end date

2022-10-13, 1401/07/21

##### Actual recruitment start date

2022-03-15, 1400/12/24  
**Actual recruitment end date**  
2022-10-28, 1401/08/06  
**Trial completion date**  
2022-10-30, 1401/08/08

**Scientific title**

Effects of manual therapy in addition to stretching and strengthening exercises to improve scapular range of motion, functional capacity and pain in patients with shoulder impingement syndrome

**Public title**

Effects of manual therapy in addition to stretching and strengthening exercises in patients with shoulder impingement syndrome

**Purpose**

Treatment

**Inclusion/Exclusion criteria**

**Inclusion criteria:**

Shoulder Impingement Syndrome from more than 3 months Non Traumatic Onset of Shoulder Pain Painful Arc is Positive One or More Shoulder Impingement Test is positive Pain during passive or isometric resisted external rotation of the arm at 90 degree of abduction

**Exclusion criteria:**

Fracture (clavicle, humerus or scapular) Numbness and Tingling Sensation in Upper limb after Cervical Compression Test Sulcus test is positive Positive drop arm test is positive systematic illness

**Age**

From **25 years** old to **40 years** old

**Gender**

Both

**Phase**

N/A

**Groups that have been masked**

- Outcome assessor

**Sample size**

Target sample size: **36**

Actual sample size reached: **32**

**Randomization (investigator's opinion)**

Randomized

**Randomization description**

In this study, a total of 36 participants were enrolled, and they were assigned to two treatment groups using computer-generated randomization. Simple randomization process was performed using Microsoft Excel which is a computer-based random number generator . Each participant received a unique identifier, and a sequence of 36 random numbers was generated by the computer. These random numbers were then used to allocate participants to either Group A or Group B. Group A consisted of participants who received manual therapy along with stretching and strengthening exercises. On the other hand, Group B included participants who received only the stretching and strengthening exercises without manual therapy. Unit of randomization was individual. The utilization of computer-generated randomization ensured that the assignment of participants to treatment groups was unbiased and fair.

To further eliminate biasness, researchers also employed the concealed envelope method. For each participant, a sealed envelope was prepared, containing the information about which group (Group A or Group B) the participant would be assigned to.

**Blinding (investigator's opinion)**

Single blinded

**Blinding description**

This was a single blinded study in which It is difficult to blind patients and therapists so only the assessor who was also a health care provider was kept blinded due to treatment regime. It is believed that while measuring effectiveness of an intervention, it is difficult to blind patients and therapists, so, outcome assessor blinding is done.

**Placebo**

Not used

**Assignment**

Parallel

**Other design features**

**Secondary Ids**

empty

**Ethics committees**

1

**Ethics committee**

**Name of ethics committee**

Ethics Committee of The University of Lahore, Lahore  
Pakistan

**Street address**

1-Km Defence Road., near Bhuptian Chowk., Lahore,  
Punjab

**City**

Lahore

**Postal code**

5400

**Approval date**

2022-01-12, 1400/10/22

**Ethics committee reference number**

REC-UOL-102-01-2022

**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**

Pain

### **Timepoint**

Pain was measured with in the week before treatment and at the end of 4 week intervention

### **Method of measurement**

Numeric Pain Rating Scale(NPRS)

## **2**

### **Description**

Functional Capacity

### **Timepoint**

Functional Capacity was measured with in the week before treatment and at the end of 4 week intervention

### **Method of measurement**

DASH(Disability of Hand, Shoulder and Arm Questionnaire)

## **3**

### **Description**

Scapular Range of Motion (scapular protraction and upward rotation. )

### **Timepoint**

Scapular Ranges was measured with in the week before treatment and at the end of 4 week intervention

### **Method of measurement**

Goniometer was used to measure Scapular Ranges

## **Secondary outcomes**

empty

## **Intervention groups**

### **1**

#### **Description**

Group A (Intervention group): Group A was treated with exercises and 45 minutes of manual therapy session was given to each patient. The participants were assessed within a week before intervention (pre-intervention) and the end of the 4 week intervention (post-intervention). Patient got 3 sessions per week.The total duration of intervention was 1 month. Manual therapy was employed only at the involved side. The grade III and IV mobilization were performed including arthrokinematic movements for different sub-joints at the shoulder such as glenohumeral, scapulothoracic, sternoclavicular and acromioclavicular joints and cervical spine as well.The manual therapy was applied by a certified physical therapist according to each patient's need.

#### **Category**

Treatment - Other

### **2**

#### **Description**

Control group: Group B was given only strengthening and stretching exercises for both involved and uninvolved sides. The upper trapezius, the pectoralis minor and the posterior part of the shoulder were targeted for the stretching and strengthening. For strengthening of the muscles, exercises were performed with an external

rotation of the shoulder, initiating with elbow flexion at 90° in the scapular plane. Shoulder extension in prone position was performed for the lower trapezius muscle.For pectoralis minor, wall push-ups were instructed to the participants. The frequency of each exercise was 5x3 initially that was progressed later.Frequency of intervention : Number of sessions 3 per week for 4 weeks. Interval: session lasted for 25-30mins with rest interval of 1 minute. The total duration of intervention was 1 month

#### **Category**

Rehabilitation

## **Recruitment centers**

### **1**

#### **Recruitment center**

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

The University of Lahore Teaching Hospital Lahore

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

Dr. Asim Arif

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## **Sponsors / Funding sources**

### **1**

#### **Sponsor**

##### **Name of organization / entity**

The University of Lahore, Lahore Pakistan

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

Ashfaq Ahmad

##### **Street address**

1-Km Defence Road,, near Bhuptian Chowk,, Lahore, Punjab

##### **City**

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##### **Phone**

+92 300 9449192

##### **Email**

ashfaaqpt@gmail.com

#### **Grant name**

#### **Grant code / Reference number**

#### **Is the source of funding the same sponsor organization/entity?**

Yes

#### **Title of funding source**

The University of Lahore, Lahore Pakistan

#### **Proportion provided by this source**

100

**Public or private sector**

Private

**Domestic or foreign origin**

Domestic

**Category of foreign source of funding**

*empty*

**Country of origin**

**Type of organization providing the funding**

Academic

**City**

Lahore

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sana.tauqeer@uipt.uol.edu.pk

**Person responsible for general inquiries**

**Contact**

**Name of organization / entity**

The University of Lahore, Lahore Pakistan

**Full name of responsible person**

Sana Tauqeer

**Position**

Lecturer

**Latest degree**

Master

**Other areas of specialty/work**

Physiotherapy

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**Other areas of specialty/work**

Physiotherapy

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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**

No - There is not a plan to make this available

**Statistical Analysis Plan**

Not applicable

**Informed Consent Form**

No - There is not a plan to make this available

**Clinical Study Report**

Not applicable

**Analytic Code**

Not applicable

**Data Dictionary**

Not applicable