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 lll and lV 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

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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 lll and lV 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 trapezious, 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 trapezious 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
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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
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

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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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