Clinical Trial Protocol
Iranian Registry of Clinical Trials

10 Jun 2026

Effect of Neuromobilization on Pain in Subacromial Pain Syndrome: a randomized clinical trial

Protocol summary

Study aim
The purpose of this study is to determine the effectiveness of the Neuromobilization technique on pain intensity, functional disability, pain-free range of motion and grip strength in patients with Subacromial Pain Syndrome.

Design
A randomized, controlled, single blinded, parallel group clinical trial with 44 patients, using Random Allocation Software.

Settings and conduct
The patients referred to the physiotherapy clinic of Beheshti Hospital by the orthopedic specialist. For blinding, the assessor will be completely unaware of the group allocation of the patients. Variables are measured pre-treatment, then the patients will be randomly assigned to either the intervention or control groups and will be treated for 12 sessions. Post-treatment re-evaluation will be used to determine the effectiveness of treatments.

Participants/Inclusion and exclusion criteria
Patients aged between 20 and 60 years who have experienced shoulder pain for at least four weeks and present with three out of five positive clinical tests (Hawkins–Kennedy, Neer test, Painful Arc test, Empty Can, Resisted External Rotation) will be included in the study. Exclusion criteria consist of a history of surgery, dislocation, or fracture in the shoulder; cervical radicular pain; clinical signs of a complete tear of the Rotator cuff or Biceps tendon; other shoulder disorders such as Frozen shoulder; clear range-of-motion limitations in the wrist or elbow of the affected limb; a history of corticosteroid injection or any physiotherapy intervention for shoulder pain within the past six months; acute pain with VAS ≥ 7.5; and the presence of rheumatic disorders.

Intervention groups
Patients in both groups will receive electrotherapy and exercise therapy, while the intervention group will additionally receive Median nerve mobilization.

Main outcome variables
Shoulder pain intensity during Abduction

General information

Reason for update
Acronym
IRCT registration information
IRCT registration number: **IRCT20091214002851N9**
Registration date: **2025-11-30, 1404/09/09**
Registration timing: **prospective**

Last update: **2025-11-30, 1404/09/09**
Update count: **0**
Registration date
2025-11-30, 1404/09/09

Registrant information
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Recruitment status
Recruitment complete
Funding source

Expected recruitment start date
2025-12-01, 1404/09/10
Expected recruitment end date
2026-03-11, 1404/12/20
Actual recruitment start date
empty
Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Effect of Neuromobilization on Pain in Subacromial Pain Syndrome: a randomized clinical trial

Public title

Effect of Neuromobilization in Subacromial Pain Syndrome

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Age between 20 and 60 years Shoulder pain for at least four weeks Positive results from at least three out of five clinical diagnostic tests: Neer test, Hawkins-Kennedy test, Painful Arc, Jobe or Empty Can test, Resisted External Rotation

Exclusion criteria:

History of Shoulder surgery, dislocation, or fracture Cervical radicular pain exacerbated by active neck movement Clinical signs of complete Rotator cuff tear and Biceps tendon rupture with the Drop arm test and observation of Popeye deformity Other shoulder disorders (such as Frozen shoulder or Degenerative joint changes) Rheumatic disorders Clear limitation of range of motion in the wrist and elbow joint of the affected hand History of receiving Corticosteroid injections or any physiotherapy interventions for shoulder pain in the past 6 months. Acute pain with VAS ≥ 7.5

Age

From **20 years** old to **60 years** old

Gender

Both

Phase

N/A

Groups that have been masked

- Outcome assessor

Sample size

Target sample size: **44**

Randomization (investigator's opinion)

Randomized

Randomization description

Randomization: In this parallel randomized clinical trial study, taking into account that not all patients are included in the study at the same time, and the researchers cannot predict which group each patient will belong to, in order to assign each patient to one of the two groups, the block randomization method will be used. In order to hide the random assignment, the codes created by the software will be placed in opaque envelopes so that it is not clear which group the next person will be assigned to. In this study, the eligible participating patients, after receiving informed consent, according to the block randomization protocol (produced by Random Allocation Software) were allocated to one of the two control and intervention groups with a ratio of 1:1 and in blocks of 6 in such a way that the researcher cannot predict which group the next person will be placed in. The codes will be placed in the opaque envelopes, and with the entry of each new person, the envelope will be opened and the person's belonging to the relevant group will be determined. Allocation Concealment: In order to hide the random allocation, the codes created by the software will be placed in opaque envelopes so that the next person to be assigned to each group is not known. Based on the sample size of this study, a number of opaque envelopes (to avoid clarity of the contents of the envelopes) are prepared and each of the random sequences created is recorded on a card and the cards are placed inside the envelopes in order. In order to maintain random order, the outer surface of the envelopes is numbered in the same order. Finally, the lids of the envelopes are glued and placed in a box. At the beginning of registration, based on the order of entry of eligible participants into the study, one of the letter envelopes will be opened in order and the allocated group of that participant will be revealed.

Blinding (investigator's opinion)

Single blinded

Blinding description

This study will be conducted in a single-blind manner. In this way, the evaluator will be completely unaware of which group the patients belong to in order to measure the results.

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics Committee of Babol University of Medical Sciences

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Babol University of Medical Sciences, Ganj Afrooz Ave

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Postal code

4717647745

Approval date

2025-10-13, 1404/07/21

Ethics committee reference number

IR.MUBABOL.REC.1404.143

Health conditions studied

1

Description of health condition studied

Subacromial pain syndrome

ICD-10 code

M75.1

ICD-10 code description

Rotator cuff tear or rupture, not specified as traumatic

Primary outcomes

1

Description

Pain in Shoulder Abduction

Timepoint

Before the intervention and after 4 weeks of the intervention.

Method of measurement

Visual Analogue Scale

Secondary outcomes

1

Description

Functional Disability

Timepoint

Before the intervention and after 4 weeks of the intervention.

Method of measurement

Persian version of Shoulder Pain And Disability Index(SPADI) questionnaire

2

Description

Grip Strength

Timepoint

Before the intervention and after 4 weeks of the intervention.

Method of measurement

Hand-Held Dynamometer(HHD)

3

Description

Pain free range of motion of 1)Abduction 2)Flexion 3)Internal and External Rotation

Timepoint

Before the intervention and after 4 weeks of the intervention.

Method of measurement

Android mobile application Clinometer + Bubble Level

Intervention groups

1

Description

Control group: Patients in both groups will undergo treatment for 4 weeks with a frequency of three sessions per week (every other day). In the control group, patients will receive 20 minutes of infrared lamp therapy on the shoulder and arm area simultaneously with HIGH TENS, with a pulse duration of 50-80 microseconds and a frequency of 100-150 Hz. Additionally, in the first session, exercises will be taught to patients in both groups, and they will be asked to perform the exercises during the same treatment session under the supervision of a physiotherapist. The exercises include strengthening of the Rotator cuff muscles, Scapular muscles, and Pendulum exercises. Patients will be instructed to perform each exercise in three sets of ten repetitions with one minute rest between sets. If the patient experiences no pain while performing the exercises, resistance can be progressed by increasing the resistance of Pilates resistance bands as follows: orange band in the first week, purple band in the second week, and pink band in the third and fourth weeks. If the patient has difficulty with a specific exercise, modifications will be made to the exercise, or it will be removed from the individual’s exercise program. Exercises include : Towel exercise - Scapular protraction - Row exercise - Full can- External rotation in side-lying - Pendular exercise

Category

Rehabilitation

2

Description

Intervention group: In this group, in addition to the control group interventions, Median nerve mobilization is performed. The technique is first applied as sliding, followed by progression to tension technique. The modified Median nerve tension position is used, where the patient lies supine with the shoulder and forearm in a neutral position and the elbow flexed at 90 degrees. The therapist places one hand on the patient's upper shoulder to prevent shoulder elevation and with the other hand sequentially positions the shoulder at 45 degrees abduction and slight external rotation, the forearm in supination, then extends the elbow while maintaining the wrist and fingers in a neutral position. For the sliding technique, the patient is asked to laterally flex the head toward the affected side while the therapist simultaneously extends the wrist and fingers. Next, the patient flexes the head toward the opposite side while the therapist flexes the wrist and fingers simultaneously. The sliding technique is performed in three sets of ten repetitions, with one minute rest between sets .The tension technique is performed at level 2 standard. The patient maintains a neutral head position while the therapist extends the wrist and fingers, holding this position for 10 seconds. This is repeated five times.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Physiotherapy clinic of Shahid Beheshti hospital

Full name of responsible person

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Sponsors / Funding sources

1

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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
Babol University of Medical Sciences
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

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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

No - There is not 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

All data can potentially be shared after unidentified individuals

When the data will become available and for how long

Access period starts 2 months after the results are published

To whom data/document is available

Researchers working in academic, scientific and medical institutions

Under which criteria data/document could be used

To cite other researchers from the results of our research

From where data/document is obtainable

Dr. Mohammad Taghipour, Babol University of Medical sciences, college of rehabilitation 00989126899352, taghipour@mubabol.ac.ir Omid shirzad, Babol University of Medical sciences, college of rehabilitation, 009117867750, omid.shirzad7899@gmail.com

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

2-4 weeks after request by email

Comments