

Clinical Trial Protocol

Iranian Registry of Clinical Trials

11 Sep 2026

Effect of lumbar mobilization, muscle energy technique, and slump stretching with exercise in patients with non-specific low back pain: A randomized clinical trial.

Protocol summary

Study aim

The aim of this study is to investigate the effect of postero-anterior mobilization, muscle energy technique, and slump stretching on pain, functional disability, and fear avoidance beliefs in patients with chronic non-specific low back pain

Design

Three-arm parallel group randomised trial with blinded outcome assessment

Settings and conduct

This study will be conducted in Baqiyatallah hospital (Tehran-Iran). A male physical therapist who is a PhD in physical therapy with more than 7 years of clinical experience will apply interventions (postero-anterior mobilization, muscle energy technique, and slump stretching). Moreover, another male physical therapist who is a PhD candidate in physical therapy will assess the participants. The outcome assessor will be blinded to group allocation, and the patients will be requested not to disclose this to him. All participants will also perform stabilization exercises as a form of exercise therapy to strengthen weakened core muscles.

Participants/Inclusion and exclusion criteria

In this study, 36 patients with chronic non-specific low back pain will be randomly assigned into three intervention groups. The inclusion criteria are low back pain persisting for more than 3 months in the absence of an underlying pathology, age between 18 and 40 years, and no serious lumbar and lower extremities pathologies. In addition, the exclusion criteria include smoking, any recent trauma to the musculoskeletal system, body mass index above 30 kg/m², and absence for 3 consecutive treatment sessions.

Intervention groups

The current study has three intervention groups: 1- Lumbar spine postero-anterior mobilization and stabilization exercises 2- Muscle energy technique and

and stabilization exercises 3- Slump stretching and stabilization exercises

Main outcome variables

Pain; Functional disability

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20130409012953N3**

Registration date: **2018-04-29, 1397/02/09**

Registration timing: **prospective**

Last update: **2018-04-29, 1397/02/09**

Update count: **0**

Registration date

2018-04-29, 1397/02/09

Registrant information

Name

Mohammadreza Pourahmadi

Name of organization / entity

Rehabilitation Research Center, Department of Physiotherapy

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2018-05-22, 1397/03/01

Expected recruitment end date

2018-08-22, 1397/05/31
Actual recruitment start date
empty
Actual recruitment end date
empty
Trial completion date
empty

Scientific title
Effect of lumbar mobilization, muscle energy technique, and slump stretching with exercise in patients with non-specific low back pain: A randomized clinical trial.

Public title
Effect of lumbar mobilization, muscle energy technique, and slump stretching with exercise on low back pain

Purpose
Treatment

Inclusion/Exclusion criteria
Inclusion criteria:
Low back pain persisting for more than 3 months in the absence of an underlying pathology Aged between 18 and 40 years No contraindication for exercise No history of surgery in the lumbar region No obvious scoliosis No sensory and motor deficits in the lower extremities No vertebral fracture No severe discopathy
Exclusion criteria:
Smoking Any recent trauma to the musculoskeletal system such as bony, muscular, ligamentous, and soft tissue structures in the lower extremities and trunk that might interfere with the treatment Body mass index above 30 kg/m² Absence for 3 consecutive treatment sessions

Age
From **18 years** old to **40 years** old

Gender
Both

Phase
N/A

Groups that have been masked

- Outcome assessor

Sample size
Target sample size: **36**

Randomization (investigator's opinion)
Randomized

Randomization description
All eligible chronic non-specific low back pain participants will be randomly assigned to a mobilization (group 1), muscle energy technique (group 2), or a slump stretching (group 3) group with a ratio of 1:1:1. Randomization will be performed using a block-balanced randomization technique with 6 character blocks containing letters A, B, and C. After randomizing, the randomization schedule will be transferred into written instructions and will be placed in sequentially numbered, opaque, and sealed envelopes. The procedure will be performed by an investigator who will not be involved with participants assessment and treatment.

Blinding (investigator's opinion)
Single blinded

Blinding description

In this study, outcomes assessor will not be informed about the intervention that chronic non-specific low back pain patients received during the treatment

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids
empty

Ethics committees

1

Ethics committee
Name of ethics committee
The Ethics committee at the Baqiyatallah University of Medical Sciences
Street address
Exercise Physiology Research Center, Life Style Institute, Baqiyatallah University of Medical Sciences, South Sheykh Bahayi Street, Molasadra blvd, Vanak Sq, Tehran, Iran
City
Tehran
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Postal code
19395- 5487

Approval date
2017-11-14, 1396/08/23

Ethics committee reference number
IR.BMSU.AC.IR.REC.1396.308

Health conditions studied

1

Description of health condition studied
Chronic non-specific low back pain is defined as pain persisting for a period of greater than 3 months, localized between the costal margin and the inferior gluteal folds, without referred leg pain and that is not caused by a known specific pathology.

ICD-10 code
M54.5

ICD-10 code description
Low back pain

Primary outcomes

1

Description
Pain

Timepoint
Before intervention and 3, 6 sessions after intervention

Method of measurement
Numeric Pain Rating Scale

2

Description

Lumbar spine flexion and extension range of motion

Timepoint

Before intervention and 3, 6 sessions after intervention

Method of measurement

Smartphone application (iHandy level)

3

Description

Functional disability

Timepoint

Before intervention and 3, 6 sessions after intervention

Method of measurement

Persian version of Roland-Morris Disability Questionnaire and Oswestry Disability Questionnaire

Secondary outcomes

1

Description

Fear avoidance beliefs

Timepoint

Before intervention and 3, 6 sessions after intervention

Method of measurement

Persian version of fear-avoidance beliefs questionnaire

Intervention groups

1

Description

Intervention group 1: Lumbar spine postero-anterior mobilization and stabilization exercises- In this group, each participant will receive approximately 10 minutes of lumbar spine mobilization to the hypomobile segments identified during the initial examination. Each participant will be positioned in prone on a treatment table with a small pillow will be placed under the abdomen to enhance his/her comfort. A graded posterior-anterior mobilization (grade II and III) will be provided to the most provocative vertebral segment for three sets of 40-second oscillations. All other hypomobile lumbar segments will be mobilized for two sets of 40-second oscillations. Following mobilization, the participants will perform lumber stabilization exercise. Each participant will perform two sets of 10 repetitions of wall squat, bridge, pelvic tilt, and quadruped arm and leg lifts.

Category

Rehabilitation

2

Description

Intervention group 2: Muscle energy technique and stabilization exercises- The participant will sit upright on a treatment table with the hands resting on the opposite shoulders. The physical therapist will stand close to the participant and will ask him/her to perform lumbar flexion movement to the maximum available range.

Then, the participant will be instructed to perform a submaximal isometric contraction (20-25% maximum voluntary isometric contraction) of the paraspinal muscles against the physical therapist resistive force and maintain this contraction for 5 seconds. Afterward, the participant will be asked to relax the contraction and the physical therapist will move the trunk into the new range. This technique will be repeated three time in each treatment session. Following muscle energy technique, the participants will perform lumber stabilization exercise. Each participant will perform two sets of 10 repetitions of wall squat, bridge, pelvic tilt, and quadruped arm and leg lifts.

Category

Rehabilitation

3

Description

Intervention group 3: Slump stretching and stabilization exercises- Slump stretching exercises will be provided by the physical therapist. The participant will be positioned in long sitting, feet against a wall to maintain neutral dorsiflexion angle, trunk will be flexed to enhance dural elongation, while the physical therapist will apply cervical overpressure to ensure a consistent pressure just at the onset of symptom provocation. Five repetitions of 30-second holds will be performed. Following slump stretching, the participants will perform lumber stabilization exercise. Each participant will perform two sets of 10 repetitions of wall squat, bridge, pelvic tilt, and quadruped arm and leg lifts.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Department of orthopedic- Baqiyatallah hospital

Full name of responsible person

Mohammad Reza Pourahmadi

Street address

School of Rehabilitation Sciences, Iran University of Medical Sciences, Madadkaran All., Shahnazari St., Madar Sq., Mirdamad Blvd., Tehran

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Baqiyatallah University of Medical Sciences

Full name of responsible person

Alireza Shamsoddini

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Exercise Physiology Research Center, Life Style Institute, Baqiyatallah University of Medical Sciences, South Sheykh Bahayi Street, Molasadra blvd, Vanak Sq, Tehran

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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

Baqiyatallah 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

Contact**Name of organization / entity**

Iran University of Medical Sciences

Full name of responsible person

Mohammad Reza Pourahmadi

Position

Physical Therapist

Latest degree

Ph.D.

Other areas of specialty/work

Physiotherapy

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Full name of responsible person

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Position

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Person responsible for updating data

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Position

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Latest degree

Ph.D.

Other areas of specialty/work

Physiotherapy

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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

Deidentified individual participant data collected for the primary and secondary outcome measures will be shared if necessary.

When the data will become available and for how long

Starting 6 months after publication

To whom data/document is available

The data will be available for physical therapists working in academic institutions and also clinicians working in the field of musculoskeletal disorders

Under which criteria data/document could be used

The raw data and results of this study can be used in future relevant systematic reviews. Thus, the raw data and results of this study will be available for researchers working in the field of low back pain.

From where data/document is obtainable

Applicants can contact Dr. Mohammad Reza Pourahmadi (PT, PhD) by email. Email address: pourahmadipt@gmail.com

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

Applicants should explain in detail about their project and how the data/documents of this study will be used in their project. Then, the data/documents files will be sent by email to applicants on request. This process may takes 10-12 working days.

Comments