Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

Effectiveness of Mulligan SNAG, Maitland Mobilization, and Kaltenborn Mobilization at 48 Hours on Pain, Stiffness, Disability, and Lumbar Range of Motion in Adults with Chronic Non-Specific Low Back Pain: A Randomized Clinical Trial

Protocol summary

Study aim

To compare the short-term effects of Mulligan SNAG, Maitland, and Kaltenborn mobilization on pain, stiffness, disability, and lumbar range of motion in adults with chronic non specific lower back pain.

Design

A concealed, randomized, double-blinded, three-arm parallel-group clinical trial involving 48 participants (16 per group). Participants will be randomized equally into three groups and receive one treatment session. Outcomes will be assessed at baseline and 48 hours, including pain (NPRS), stiffness, disability, and lumbar range of motion. Participants and outcome assessors will be blinded

Settings and conduct

The study will be conducted at Hijaz Hospital, Lahore, Pakistan, using a randomized, three-group parallel design with baseline assessment, one treatment session, and 48-hour follow-up.

Participants/Inclusion and exclusion criteria

Adults aged 18–45 years of either sex with chronic low back pain lasting more than 12 weeks, baseline NPRS score of ≥3/10, and ability to attend the 48-hour follow-up will be included. Individuals who are pregnant, have previous spinal surgery, progressive neurological deficits, radiculopathy, red flags, or suspected serious pathology such as spinal fracture or malignancy will be excluded.

Intervention groups

Group A (Mulligan): Sustained pain-free lumbar glides with active symptomatic movement, 3 sets of 6 repetitions, with 60-second rest between sets. Group B (Maitland): Central and unilateral PA lumbar mobilization, 3 cycles of 60 seconds, with 60-second rest between cycles. Group C (Kaltenborn): Sustained lumbar traction and translatory glides, 3 applications of 30 seconds, with 60-second rest between applications. Each group will include 16 participants.

Main outcome variables

Numeric Pain Rating Scale (NPRS), Oswestry Disability Index (ODI), inclinometer, visual analogue scale (VAS).

General information

Reason for update

Acronym

SNAGs ROMs NSLBP LBP NPRS RCT

IRCT registration information

IRCT registration number: **IRCT20261117071824N1**
Registration date: **2026-11-22, 1405/09/01**
Registration timing: **registered_while_recruiting**

Last update: **2026-11-22, 1405/09/01**
Update count: **0**

Registration date

2026-11-22, 1405/09/01

Registrant information

Name

Dr. Barjees Ahmed

Name of organization / entity

Hajvery University

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Recruitment status

recruiting

Funding source

Expected recruitment start date

2026-09-02, 1405/06/11

Expected recruitment end date

2027-03-02, 1405/12/11

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Effectiveness of Mulligan SNAG, Maitland Mobilization, and Kaltenborn Mobilization at 48 Hours on Pain, Stiffness, Disability, and Lumbar Range of Motion in Adults with Chronic Non-Specific Low Back Pain: A Randomized Clinical Trial

Public title

Effectiveness of Mulligan SNAG, Maitland Mobilization, and Kaltenborn Mobilization at 48 Hours on Pain, Stiffness, Disability, and Lumbar Range of Motion in Adults with Chronic Non-Specific Low Back Pain: A Randomized Clinical Trial

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Chronic non-specific low back pain for ≥12 weeks. Baseline pain score ≥3/10 on NPRS. Able to attend baseline and 48-hour assessment. Age 18–45 years; either sex Written informed consent

Exclusion criteria:

Red flags or suspected serious pathology, including fracture, malignancy, infection, inflammatory spinal disease, or cauda equina syndrome. Progressive neurological deficit or radiculopathy requiring specialist assessment Previous lumbar spinal surgery Pregnancy or contraindication to manual therapy Manual therapy or structured physiotherapy for low back pain during the previous 4 weeks; or any condition that prevents safe participation

Age

From **18 years** old to **45 years** old

Gender

Both

Phase

2

Groups that have been masked

- Participant
- Outcome assessor

Sample size

Target sample size: **48**

Randomization (investigator's opinion)

Randomized

Randomization description

This randomized clinical trial includes three parallel treatment groups: Mulligan SNAG, Maitland Mobilization, and Kaltenborn Mobilization, with participants assigned equally to each group (1:1:1). sample size of population is 48, this population will be randomly divided in groups, 16 individuals to each experimental group will be added

Blinding (investigator's opinion)

Double blinded

Blinding description

This study will be conducted using a double-blind design. Participants will be blinded to their group allocation, and the outcome assessors responsible for collecting and evaluating the study data will also remain blinded to the treatment allocation throughout the study. The interventions will be administered by a separate therapist who will not be involved in outcome assessment or data analysis. Group allocation will remain concealed from the outcome assessors until completion of data collection and analysis.

Placebo

Not used

Assignment

Parallel

Other design features

This is a three arm, parallel-group randomization clinical trial comparing short term effectiveness of mulligan SNAGs, Maitland mobilization and kaltenborn mobilization in adults with chronic non specific low back pain. Participants will be randomly allocated to one group os three intervention groups. Outcome will be assessed at baseline and 48 hours following intervention, allocation rate will be 1:1:1

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Allied Health Sciences faculty Hjvery University pakistan

Street address

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Postal code

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Approval date

2026-06-15, 1405/03/25

Ethics committee reference number

03328001459

2

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Approval date

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Name of ethics committee

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Ethics committee reference number

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Health conditions studied

1

Description of health condition studied

Chronic Non Specific Lower Back Pain

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

Pain intensity will be measured using the 11-point Numeric Pain Rating Scale (NPRS), ranging from 0 (no pain) to 10 (worst imaginable pain). Participants will rate their average low back pain intensity over the previous 24 hours at baseline and 48 hours after treatment. Higher scores indicate greater pain intensity.

Timepoint

Baseline Assessment before the application of treatment, At the completion of interventions (post experimental)

Method of measurement

Pain intensity will be measured by NPRS scale by scoring intensity between 0 to 10 at scale

2

Description

Subjective stiffness will be evaluated using a 100-mm Visual Analog Scale (VAS), consisting of an unmarked horizontal line anchored from "No stiffness" (0 mm) to "Worst imaginable stiffness" (100 mm). Participants will mark their perceived stiffness level along the line, and the distance from the zero anchor was measured in millimeters to yield a continuous score from 0 to 100.

Timepoint

Two time measurements will be taken one is at baseline before application of interventions and second one is After the application of treatment

Method of measurement

As patient will choose line on 100 mm visual analogue scale, no of line will be consider as score out of 100

3

Description

The Oswestry Disability Index (ODI), Version 2.1a, will be used to assess low back pain-related functional disability. It consists of 10 sections, each scored from 0–5, with higher scores indicating greater disability. Assessments will be performed at baseline and 48 hours after treatment.

Timepoint

Baseline and post intervention measurements will be taken

Method of measurement

This 10-item questionnaire will measure how much lower back limits a Individual's everyday physical function. It also produces a disability score from 0% with no disability to 100% with maximum disability.

4

Description

Double inclinometer

Timepoint

Baseline and post intervention measurements will be taken

Method of measurement

Lumbar flexion, extension, right lateral flexion, and left lateral flexion measured in degrees

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group A mulligan SNAGs: will get sustained, pain-free glide applied by the therapist while the participant actively moves the lumbar spine in the selected direction. The technique will be stopped if symptoms worsen

Category

Treatment - Other

2

Description

Intervention group B Maitland Mobilization: will get treatment of Passive central and unilateral posteroanterior oscillatory mobilization applied to the lumbar region at Grade III or IV, according to the standardized procedure and the participant’s tolerance.

Category

Treatment - Other

3

Description
Intervention group C Kaltenborn mobilization: Sustained, graded traction and translatory mobilization of the lumbar region using a Grade III stretch when clinically appropriate and tolerated.
Category
Treatment - Other

Recruitment centers

1

Recruitment center
Name of recruitment center
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Full name of responsible person
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Sponsors / Funding sources

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Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
No
Title of funding source
Myself
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
Other

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
No - There is not a plan to make this available

Title and more details about the data/document
Deidentified individual participant data and research documents related to the randomized controlled trial entitled “Short-Term Effectiveness of Mulligan SNAG, Maitland Mobilization and Kaltenberg Mobilization at 48 Hours on Pain, Stiffness, Disability and Lumbar Range of Motion in Adults with Chronic Nonspecific Low Back Pain” The shared materials may include the study protocol, statistical analysis plan, approved informed consent form, clinical study report, and deidentified participant-level data, including relevant demographic and clinical characteristics and pre- and post-intervention assessment results. No personally identifiable participant information will be shared.

When the data will become available and for how long
The data and research documents will become available after completion of the study and publication of the primary research results. They will remain available for five years after publication, subject to institutional policies, ethical approval, and applicable data protection requirements.

To whom data/document is available
The deidentified data and research documents will be available to qualified researchers, academic investigators, and research institutions for legitimate scientific and academic purposes.

Under which criteria data/document could be used
The data and documents may be used for legitimate scientific research, academic purposes, and systematic reviews or meta-analyses. Access will be granted only after review and approval of a reasonable research request. Researchers must ensure participant confidentiality, use the data only for the approved purpose, and comply with applicable ethical and data protection requirements.

From where data/document is obtainable
The data and research documents can be requested from the principal investigator of the study through the contact information provided in the IRCT trial registration record.

What processes are involved for a request to access data/document
Researchers must submit a written request to the principal investigator describing the research purpose and intended use of the requested data. Requests will be reviewed by the research team and, where required, the relevant ethics committee. Access will be provided only after approval and agreement to maintain confidentiality and comply with data protection requirements. Only deidentified data will be shared.

Comments
no additional comments