

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

10 Jun 2026

### Effects of adding core stability exercises to neck stability exercises and Mulligan's spinal mobilization technique on pain, range of motion and neck disability index in patients with chronic non-specific neck pain.

#### Protocol summary

##### Study aim

to determine the effect of adding core stability exercises to cervical stabilization exercises and Mulligan mobilization technique on pain intensity, range of motion, and neck disability index in patients with chronic non-specific neck pain.

##### Design

A randomized, double-blind, parallel controlled clinical trial will be conducted on 22 patients, using Random Allocation software for randomization.

##### Settings and conduct

both the assessor and the participants will be blinded to group allocation. Eligible participants will be evaluated at Iranmehr Hospital and the School of Rehabilitation, Tehran University of Medical Sciences, before the intervention, after 24 intervention sessions (post-intervention), and one month after the end of the study by the assessor. The control group will receive CS exercises & Mulligan mobilization, while the intervention group will receive CS exercises, Mulligan mobilization & core stability exercises.

##### Participants/Inclusion and exclusion criteria

Male and female aged 20 to 55 years with chronic neck pain, with or without radiation to the arms, lasting for at least 3 months, a pain intensity of 4 or higher on the Visual Analogue Scale and a Neck Disability Index score of 10 or higher will be included. Participants with specific causes of neck pain, infection, inflammatory disorders, tumor, osteoporosis, fracture, traumatic injury, cervical disc herniation requiring surgery, pregnancy, recent neck surgery and use of medications affecting pain or inflammation, history of lumbar spine surgery, dizziness or uncontrolled hypertension will be excluded.

##### Intervention groups

control group: cervical stability exercise (CS) & neck mulligan mobilization intervention group: CS exercise & neck mulligan mobilization & core stability exercise

##### Main outcome variables

pain intensity, neck range of motion, functional disability, dynamic balance, patient global impression of change.

#### General information

##### Reason for update

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20251027067790N1**

Registration date: **2025-11-28, 1404/09/07**

Registration timing: **registered\_while\_recruiting**

Last update: **2025-11-28, 1404/09/07**

Update count: **0**

##### Registration date

2025-11-28, 1404/09/07

##### Registrant information

##### Name

Fatemeh Razmkhah

##### Name of organization / entity

##### Country

Iran (Islamic Republic of)

##### Phone

+98 21 3305 3591

##### Email address

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##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2025-11-10, 1404/08/19

##### Expected recruitment end date

2026-01-19, 1404/10/29

##### Actual recruitment start date

empty

**Actual recruitment end date**

empty

**Trial completion date**

empty

**Scientific title**

Effects of adding core stability exercises to neck stability exercises and Mulligan's spinal mobilization technique on pain, range of motion and neck disability index in patients with chronic non-specific neck pain.

**Public title**

Effects of core stability exercises on neck pain.

**Purpose**

Treatment

**Inclusion/Exclusion criteria****Inclusion criteria:**

Pain intensity should be at least 4 out of 10 The Neck Disability Index score should be at least out of 50 Neck pain that has persisted for at least 3 months, either continuously or recurrently. Non-specific neck pain (pain in the neck region without a pathological cause, with or without radiation to the arm) The ratio of trunk flexor endurance Test to trunk extensor endurance Test is less than 0/5 or greater than 1/5 Men and women aged between 20 and 55 years

**Exclusion criteria:**

Having a specific cause for neck pain Signs of infection Inflammatory disorder Tumor Osteoporosis Fracture or traumatic injury Disk herniation medically diagnosed as requiring surgical intervention. Pregnancy People who had neck surgery within the last 6 months Use of medications affecting pain, inflammation, or musculoskeletal function—such as NSAIDs, analgesics, muscle relaxants, corticosteroids, or antidepressants—within the week prior to the study. History of lumbar spine surgery, such as discectomy or laminectomy. History of dizziness before enrollment and during the study period. Uncontrolled blood pressure before enrollment and during the study period.

**Age**

From **20 years** old to **55 years** old

**Gender**

Both

**Phase**

N/A

**Groups that have been masked**

- Participant
- Outcome assessor

**Sample size**

Target sample size: **22**

**Randomization (investigator's opinion)**

Randomized

**Randomization description**

Participants will be allocated to the intervention and control groups using a block randomization method with balanced blocks of four and a 1:1 allocation ratio. The random sequence will be generated using Random Allocation Software. The person responsible for generating the random sequence will not be involved in any stage of intervention delivery, participant

assessment, or data analysis. After confirming participants' eligibility based on inclusion and exclusion criteria, each set of four participants will form a block, and the software will randomly assign two participants to the intervention group and two to the control group, ensuring balance and randomness throughout the study. To maintain allocation concealment, each participant's random code will be placed in identical, sealed envelopes. These envelopes will be opened in order of participant enrollment by a person not involved in the intervention process, revealing each participant's group assignment.

**Blinding (investigator's opinion)**

Double blinded

**Blinding description**

This study will use a double-blind design, meaning that both the participants and the assessor will be unaware of the type of intervention each participant receives (treatment or control group). The intervention will be delivered by a therapist different from the assessor, who will measure the outcomes only before and after the intervention, without access to group allocation.

**Placebo**

Used

**Assignment**

Parallel

**Other design features****Secondary Ids**

empty

**Ethics committees****1****Ethics committee****Name of ethics committee**

ethics committee of tehran university of medical sciences

**Street address**

School of Rehabilitation, Tehran University of Medical Sciences, corner of Safialishah Street, Enqelab Street, Tehran, Iran

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Tehran

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**Postal code**

1148965111

**Approval date**

2025-10-14, 1404/07/22

**Ethics committee reference number**

IR.TUMS.FNM.REC.1404.135

**Health conditions studied****1****Description of health condition studied**

Chronic Non-Specific Neck Pain

**ICD-10 code**

## ICD-10 code description

## Primary outcomes

### 1

#### Description

Pain intensity: Chronic non-specific neck pain, with or without radiation to the arms, lasting at least three months, will be assessed.

#### Timepoint

Pain intensity will be measured at three time points: before the intervention, after the completion of the intervention (after 24 treatment sessions), and one month post-intervention.

#### Method of measurement

The Visual Analog Scale (VAS) will be used to evaluate the average pain experienced by participants during the past week. This tool consists of a 10-centimeter horizontal line, with one end representing no pain (score 0) and the other end representing the worst imaginable pain (score 10). Participants will be asked to indicate their pain over the past week by marking a point on the line. The distance from the beginning of the line to the mark will be measured in millimeters, and the final pain intensity score will be reported as a number between 0 and 10.

## Secondary outcomes

### 1

#### Description

Functional disability

#### Timepoint

Functional disability will be measured at three time points: before the intervention, after the completion of the intervention (after 24 treatment sessions), and one month post-intervention.

#### Method of measurement

In this study, the Persian version of the Neck Disability Index (NDI) questionnaire, scored from 0 (no disability) to 50 (severe disability) is used to assess the level of neck disability.

### 2

#### Description

Cervical range of motion

#### Timepoint

Cervical range of motion will be measured at three time points: before the intervention, after the completion of the intervention (after 24 treatment sessions), and one month post-intervention.

#### Method of measurement

In this study cervical range of motion is measured using a standard goniometer in the direction of flexion, extension, rotation and lateral bending.

### 3

#### Description

Dynamic balance (Y-Balance Test)

#### Timepoint

Dynamic Balance will be measured at three time points: before the intervention, after the completion of the intervention (after 24 treatment sessions), and one month post-intervention.

#### Method of measurement

In this study, dynamic balance is assessed using the Y-Balance Test in the anterior, posteromedial, and posterolateral directions. The distances reached by the participant's reaching leg in these directions are measured by the examiner using a measuring tape.

### 4

#### Description

Patient global impression of change (PGIC)

#### Timepoint

Patient global impression of change will be measured at two time points: after the completion of the intervention (after 24 treatment sessions), and one month post-intervention.

#### Method of measurement

In this study, the patient's global impression of change after treatment is evaluated using the Patient Global Impression of Change (PGIC) scale. This instrument is a 7-point scale that asks the patient to subjectively rate the overall changes in their condition compared to the beginning of treatment. The response options range from "very much worse" to "very much improved." Higher scores indicate greater patient satisfaction with the treatment outcome.

## Intervention groups

### 1

#### Description

Intervention group: This group receives cervical stabilization exercises, Mulligan mobilization (SNAGs) and core stabilization exercises. this intervention is performed 3 sessions per week for 8 weeks, totaling 24 sessions.

#### Category

Rehabilitation

### 2

#### Description

Control group: This group receives cervical stabilization exercises and Mulligan mobilization (SNAGs). this intervention is performed 3 sessions per week for 8 weeks, totaling 24 sessions.

#### Category

Rehabilitation

## Recruitment centers

### 1

#### Recruitment center

Name of recruitment center

Iranmehr hospital

**Full name of responsible person**

Fatemeh Razmkhah

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No.1379, Shariati Street., before Gholhak intersection,  
Tehran, Iran

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## Sponsors / Funding sources

### 1

**Sponsor**

**Name of organization / entity**

Tehran University of Medical Sciences

**Full name of responsible person**

Dr.Ramin Kordi

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Faculty of Rehabilitation, Enghelb Street., Pich-e  
Shemiran, corner of Safi Alishah Street., Tehran, Iran

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**Phone**

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**Fax**

**Email**

rehabilitation@tums.ac.ir

**Web page address**

<http://rehab.tums.ac.ir>

**Grant name**

**Grant code / Reference number**

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

Yes

**Title of funding source**

Tehran 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**

Tehran University of Medical Sciences

**Full name of responsible person**

Fatemeh Razmkhah

**Position**

Master's student

**Latest degree**

Master

**Other areas of specialty/work**

Physiotherapy

**Street address**

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## Person responsible for updating data

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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**

Some data, such as the mean age and study-related outcome information, can be shared.

**When the data will become available and for how long**

The access period begin 6 months after publication of the results.

**To whom data/document is available**

The data will be available to researchers affiliated with academic and scientific institutions.

**Under which criteria data/document could be used**

The data are only permitted for scientific research analyses, not for commercial or promotional purposes. Analyses must comply with research ethics and maintain data confidentiality. Requests must be submitted formally, along with a research proposal and ethics approval. Data will only be made available after review and approval by the principal research team.

**From where data/document is obtainable**

Fatemeh Razmkhah fatemeh.razmkhah76@gmail.com

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

Requestors must submit a formal research proposal along with their ethics approval to the principal research team. After review and approval of the proposal, the de-identified data will be provided in an appropriate format. The review and data delivery process typically takes approximately 4-6 weeks.

**Comments**