Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

Comparison of muscle energy technique plus static stretching versus static stretching alone in office workers with upper trapezius trigger points

Protocol summary

Study aim

To determine the effect of Muscle Energy Technique plus static stretching, and static stretching alone, on neck pain, Range Of Motion, proprioception, and function in office workers with upper trapezius trigger points.

Design

A concealed, randomized, single-blinded, controlled clinical trial (third phase) with a parallel group design of 50 patients, enrolled between January to July 2026

Settings and conduct

A single blind clinical trial will be conducted on the office workers with neck pain associated with upper Trapezius trigger points in Physiotherapy clinic of Imam Hassan hospital of Karbala in Iraq. The patients randomly assigned in muscle energy technique plus static stretching or static stretching alone and will receive 6 sessions treatments. A blind assessor who is not aware to the patients group, will evaluate the patients before and after treatment and after one week follow-up.

Participants/Inclusion and exclusion criteria

The inclusion criteria for this study are: - Adults with Active, unilateral myofascial trigger point in the upper trapezius. - Neck pain more than 3 based on Numerical Pain Rating Scale. - Currently employed in office/desk-based work. The exclusion criteria for this study are: - History of diseases that cause pain without muscular origin. - History of infiltration at upper trapezius trigger point.

Intervention groups

The control group will include patients with neck pain associated with upper trapezius trigger points who will receive static stretching. The intervention group will include patients with neck pain associated with upper trapezius trigger points who will receive muscle energy technique plus static stretching.

Main outcome variables

Pain intensity; neck range of motion; Joint position sense; and functional disability.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20251222068409N1**
Registration date: **2026-01-14, 1404/10/24**
Registration timing: **prospective**

Last update: **2026-01-14, 1404/10/24**
Update count: **0**

Registration date

2026-01-14, 1404/10/24

Registrant information

Name

Kadhim Saud

Name of organization / entity

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Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2026-01-23, 1404/11/03

Expected recruitment end date

2026-07-23, 1405/05/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date
empty

Scientific title
Comparison of muscle energy technique plus static stretching versus static stretching alone in office workers with upper trapezius trigger points

Public title
Physiotherapy for upper trapezius trigger points

Purpose
Treatment

Inclusion/Exclusion criteria

Inclusion criteria:
- Adults 18–45 years, both sexes.- - Clinically confirmed active, unilateral myofascial trigger point in the upper trapezius (the most active and most tender point). - Currently employed in office/desk-based work (≥ 20 h/week for ≥ 6 months), typically ≥ 4–6 h/day of sitting or computer use. - Neck pain >3 based on Numerical Pain Rating Scale.

Exclusion criteria:
- Diagnosed fibromyalgia - Facial neuralgia - Coagulation alteration - Cancer - History of cervical or shoulder surgery - History of deep vein thrombosis - History of myopathy - History of infiltration at upper trapezius trigger point - Patients with simultaneous Trigger Points in other body regions.

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

Gender
Both

Phase
3

Groups that have been masked
- Outcome assessor

Sample size
Target sample size: **50**

Randomization (investigator's opinion)
Randomized

Randomization description
The patients will randomly assign into Muscle Energy Technique plus static stretching group and only static stretching group. Randomization will be performed using simple method with sealed, randomly filled envelopes describing the treatment groups. At first step, name of each intervention will be written on 25 papers(equal to sample size of each group) and these papers will be put in sealed envelops. Then, the envelops will be blended and at first treatment session, the therapist will take one of these envelops randomly and start the treatment according the group which has been determined in the envelop.

Blinding (investigator's opinion)
Single blinded

Blinding description
This study is a single-blinded randomized controlled trial. Due to the nature of the physiotherapy interventions, blinding of the therapist and participants is not possible. However, the outcome assessor is blinded to group allocation. All assessments are performed by an independent assessor who is not involved in treatment and is unaware of the intervention received by participants. Randomization and allocation concealment are performed to minimize assessment bias.

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
School of Nursing and Midwifery & Rehabilitation - Tehran University of Medical Sciences

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Mirkhani st.(East Nosrat), Tohid Sq. Tehran

City
Tehran

Province
Tehran

Postal code
1419733171

Approval date
2025-12-10, 1404/09/19

Ethics committee reference number
IR.TUMS.FNM.REC.1404.193

Health conditions studied

1

Description of health condition studied
Upper Trapezius Trigger Points

ICD-10 code
M95

ICD-10 code description
Other disorders of the musculoskeletal system and connective tissue

Primary outcomes

1

Description
Numeric pain rating scale

Timepoint
Primary outcome will be measured at baseline (before intervention), immediately after completion of the 2-week intervention period, and at one-week follow-up after the end of the intervention

Method of measurement
The Numeric Pain Rating Scale (NPRS) is a unidimensional tool used to assess pain intensity. Patients rate their pain on an 11-point scale ranging from

0 (“no pain”) to 10 (“worst imaginable pain”) by marking or drawing a tick on the number that best represents their current pain level. This scale is widely used in both clinical and research settings due to its simplicity, reliability, and validity. A change of 2 points or approximately 30% reduction is typically considered clinically significant.

2

Description

Neck Proprioception–Joint Position Sense (JPS)

Timepoint

Primary outcome will be measured at baseline (before intervention), immediately after completion of the 2-week intervention period, and at one-week follow-up after the end of the intervention

Method of measurement

Joint Position Sense was evaluated using the cervicocephalic relocation test. A laser pointer was securely attached to the center of the participant’s forehead, and the subject was seated exactly 90 cm away from a fixed target on the wall. With eyes closed, the participant actively moved the head into contralateral lateral flexion, then attempted to return to the neutral starting position. The discrepancy between the initial reference point and the returned point was measured in centimeters, representing the repositioning error and serving as an indicator of cervical proprioceptive accuracy (27, 36). Contralateral lateral flexion was selected because the upper trapezius is most involved in side-bending movements. Active trigger points in this muscle primarily impair proprioception when the muscle is placed under stretch. Thus, contralateral flexion provides the most sensitive and specific direction to detect joint position sense errors associated with upper trapezius trigger points.

Secondary outcomes

1

Description

Neck Active Range of Motion

Timepoint

Neck Active Range of Motion will be measured at baseline (before intervention), immediately after completion of the 2-week intervention period, and at one-week follow-up after the end of the intervention.

Method of measurement

Active cervical range of motion (AROM) will be assessed for contralateral lateral flexion, flexion, and extension using a Universal goniometer. All measurements will follow the standardized protocol described by Farooq et al. (2016) Participants will be seated upright in a standardized position, with the trunk stabilized against the backrest of a wooden chair, hips and knees at 90°, feet flat on the floor, and arms folded across the chest to minimize thoracic compensation. The head will be positioned in neutral alignment before each measurement For contralateral lateral flexion, the axis of the goniometer will be placed over the spinous process of C7, the stationary arm aligned vertically along the thoracic spine (perpendicular to the floor), and the moving arm aligned with the midline of the head toward the external occipital protuberance. Participants will actively bend the neck away from the symptomatic upper trapezius side until their end range of motion. For flexion and extension, the axis of the goniometer will be placed over the external auditory meatus, the stationary arm aligned vertically (perpendicular to the ground), and the moving arm aligned with the base of the nares. Participants will actively flex or extend the cervical spine to their comfortable end range. Each participant will perform three trials for each direction. A brief familiarization will be provided before taking measurements, consistent with PJMS protocol. Scapular elevation, thoracic movement, or trunk lean will be avoided through verbal cues and standardized positioning. A rest interval of 10–15 seconds will be provided between trials to minimize fatigue. The mean value (in degrees) of the three trials will be used as the final outcome. Universal goniometry was selected due to its excellent inter- and intra-rater reliability for measuring active cervical ROM in clinical setting.

2

Description

Functional rating scale

Timepoint

Secondary outcome will be measured at baseline (before intervention), immediately after completion of the 2-week intervention period, and at one-week follow-up after the end of the intervention

Method of measurement

The Functional Rating Index (FRI) is a self-reported questionnaire developed to evaluate the functional impact of spinal conditions, especially those involving the neck and lower back. It consists of 10 items addressing pain and functional activities such as work, sleep, and recreation. Each item is scored from 0 to 4, and the total score is converted into a percentage, with higher scores indicating greater disability. The Arabic FRI has shown strong validity, reliability, and responsiveness in musculoskeletal populations.

Intervention groups

1

Description

Intervention group: Participants receive muscle energy technique (MET) combined with static stretching for the upper trapezius muscle, delivered by a qualified physiotherapist according a standardized protocol. Patients will be positioned in supine lying with the head supported. The cervical spine will be passively positioned in lateral flexion to place the upper trapezius fibers on the involved side in a lengthened position. Then the muscle will be brought to a comfortable resistance barrier and the therapist will instruct the patient to perform an isometric contraction of the upper trapezius while the therapist provides a precisely matched

counterforce. At the end of the 5-second isometric contraction, the patient will be instructed to be relax completely. A relaxation phase of approximately 3 seconds will be allowed, coordinated with slow exhalation. This contraction–relaxation–repositioning cycle constitutes one MET repetition. The procedure will be repeated four times in each treatment session for the involved upper trapezius muscle. The technique will be applied unilaterally, only on the side where active myofascial trigger point(s) are clinically identified.

Category

Rehabilitation

2

Description

Control group: Participants receive static stretching exercises for the upper trapezius muscle only, delivered by a qualified physiotherapist. Stretching of the upper trapezius muscle will be carried out as a therapist-supervised exercise. Patients will be positioned in sitting on a chair with a backrest, without armrests. The subject will be instructed to slowly move the head and neck into contralateral side flexion (i.e., side-bending away from the involved shoulder) until a mild to moderate, non-painful stretching sensation is felt over the superior shoulder and lateral neck region. The ipsilateral shoulder will be encouraged to remain relaxed and depressed, either by verbal cueing or gentle manual contact, to enhance the stretch on the upper trapezius fibers. In accordance with the original intervention plan, active stretching will be performed slowly, with 5 repetitions per treatment session. Each repetition will be held at the point of a comfortable stretch (not pain) for 10 seconds, during which the patient will be encouraged to breathe slowly and avoid any compensatory trunk or shoulder movements. After each 10-second stretch, the head and neck will be returned to the neutral position and the muscle will be allowed to relax for 10 seconds before initiating the next repetition. This pattern—10-second stretch followed by 10-second relaxation—will be repeated for all 5 repetitions in each session.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

the Physical Therapy Departments of Imam Al Hassan Al Mujtaba Teaching Hospital

Full name of responsible person

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Recruitment center

Name of recruitment center

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

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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

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
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Full name of responsible person
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physiotherapist

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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
No - There is not a plan to make this available

Informed Consent Form
No - There is not a plan to make this available

Clinical Study Report
No - There is not 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