Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

COMPARISON OF THE EFFECTS OF MULLIGAN SUSTAINED NATURAL APOPHYSEAL GLIDES VERSUS MUSCLE ENERGY TECHNIQUE ON PAIN, DISABILITY AND FUNCTION IN PATIENTS WITH CHRONIC CERVICAL SPONDYLOSIS.

Protocol summary

Study aim

The present study is aimed to compare the effects of the Mulligan technique (SNAGS) versus the muscle energy technique (MET) in chronic cervical spondylosis patients in terms of pain, range of motion, hand grip strength, craniovertebral angle, cervical proprioception, and Neck Disability Index.

Design

A double-blinded Randomized controlled trial with 2 groups. A total of 52 patient will be recruited from a single center. The sample size was calculated using Gpower version 3.1.9.7. Random Allocation Software Version 1.0 (as per the description of Randomization).

Settings and conduct

Data will be collected from Dubai Center for Physiotherapy and Medical Rehabilitation, Nasiriyah Iraq.

Participants/Inclusion and exclusion criteria

Inclusion criteria • Both genders. • Patients diagnosed with cervical spondylosis. • Age between 45 to 65 years. • Cervical spondylosis ≥ 6 months. • Degenerative spondylosis on X-rays. • Positive Spurling test. • Positive cervical distraction test. • Pain intensity ≥ 3 on the Numeric pain rating scale. • Patient without cervicogenic headache. • No cervical myelopathy. • No whiplash-associated disorders. • No previous cervical spine surgeries. • No cervical arterial dysfunction patients. • No deformity (e.g. Torticollis, springe's deformity, scoliosis). Exclusion criteria • Patients who are not carrying out the study for any reason. • The patient will complain of difficulty or signs and symptoms.

Intervention groups

Group (A), conventional physical therapy plus mulligan SNAGs. Group (B), conventional physical therapy plus Muscle Energy Technique (MET).

Main outcome variables

Numeric Pain Rating Scale for Pain Bubble Inclinometer for Cervical Range of Motion Digital Handheld Dynamometer for Hand Grip Strength Kinovea for Craniovertebral Angle Laser Tracker for Cervical Proprioception Neck Disability Index for Cervical Disability.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20090301001722N28**
Registration date: **2023-06-14, 1402/03/24**
Registration timing: **prospective**

Last update: **2023-06-14, 1402/03/24**
Update count: **0**

Registration date

2023-06-14, 1402/03/24

Registrant information

Name

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Name of organization / entity

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2023-06-20, 1402/03/30

Expected recruitment end date
2023-09-05, 1402/06/14
Actual recruitment start date
empty
Actual recruitment end date
empty
Trial completion date
empty

Scientific title
COMPARISON OF THE EFFECTS OF MULLIGAN SUSTAINED NATURAL APOPHYSEAL GLIDES VERSUS MUSCLE ENERGY TECHNIQUE ON PAIN, DISABILITY AND FUNCTION IN PATIENTS WITH CHRONIC CERVICAL SPONDYLOSIS.

Public title
Comparison of Mulligan SNAGS versus Muscle Energy Techniques in Chronic Cervical Spondylosis
Purpose
Treatment
Inclusion/Exclusion criteria
Inclusion criteria:
Both genders. Patients diagnosed with cervical spondylosis. Age between 45 to 65 years. Cervical spondylosis ≥ 6 months. Degenerative spondylosis on X-rays. Positive Spurling test. Positive cervical distraction test. Pain intensity ≥ 3 on the Numeric pain rating scale. Patient without cervicogenic headache. No cervical myelopathy. No whiplash-associated disorders. No previous cervical spine surgeries. No cervical arterial dysfunction patients. No deformity (e.g. Torticollis, springe's deformity, scoliosis).
Exclusion criteria:
Patients who are not carrying out the study for any reason. The patient will complain of difficulty or signs and symptoms.
Age
From **45 years** old to **65 years** old
Gender
Both

Phase
N/A
Groups that have been masked

- Care provider
- Outcome assessor

Sample size
Target sample size: **52**
Randomization (investigator's opinion)
Randomized
Randomization description
Before the process of randomization, we will screen all the participants and assign them a unique number from 1 to 60. Then the process of randomization will be carried out using Random Allocation software version 1.0 (developed by the Department of Anaesthesia, Isfahan University of Medical Sciences, Isfahan, Iran). It is a randomization software for parallel group trials. It requires the total sample size and the total number of groups. We will add a total sample size of 52 participants and 2 groups into the software with only one block. The software generates an output file that can be opened with internet explorer. The output file contains a list of numbers along with assigned groups. In our case, the groups will be A and G with 26 participants in each group. Then this sequence will be used for participant allocation in the study groups.
Blinding (investigator's opinion)
Double blinded
Blinding description
The care provider will be blinded to the groups of the study which means they will not know which group is the treatment group and which group is the control group. While the outcome assessors will be blinded to the treatment protocols and study hypothesis. They will not be aware of the treatment protocols used for each group and what are the study hypothesis.
Placebo
Not used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Faculty of Nursing and Midwifery and the Faculty of Rehabilitation - Tehran University of Medical Sc
Street address
School of Rehabilitation of Tehran University of Medical Sciences, Piche Shemiran, Enghelab Ave, Tehran, Iran
City
Tehran
Province
Tehran
Postal code
1417614411
Approval date
2023-06-07, 1402/03/17
Ethics committee reference number
IR.TUMS.FNM.REC.1402.052

Health conditions studied

1

Description of health condition studied
CERVICAL SPONDYLOSIS
ICD-10 code
M47.812
ICD-10 code description
Spondylosis without myelopathy or radiculopathy, cervical region

Primary outcomes

1

Description
Numeric Pain Rating Scale
Timepoint
Before the first session and at the end of the last (12th) session.
Method of measurement
Numeric Pain Rating Scale

2

Description
Bubble Inclniometry
Timepoint
Before the first session and at the end of the last (12th) session.
Method of measurement
Bubble Inclinometer

3

Description
Hand Grip Strength
Timepoint
Before the first session and at the end of the last (12th) session.
Method of measurement
Digital Hand Held Dynamometer

4

Description
Craniovertebral Angle (Forward Head Posture)
Timepoint
Before the first session and at the end of the last (12th) session.
Method of measurement
Kinovea Software

5

Description
Cervical Proprioception
Timepoint
Before the first session and at the end of the last (12th) session.
Method of measurement
Laser Tracker

6

Description
Neck Disability
Timepoint
Before the first session and at the end of the last (12th) session.
Method of measurement
Neck Disability Index

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: (Group A) will receive conventional physical therapy with Mulligan Sustained Natural Apophyseal Glides. The patient will take the sitting position, this position is sustained for 8 –10 seconds, while maintaining that position as the subject inhales a breath deeply and when the subject exhaled his breath, the therapist moves to the next barrier after sustaining 8 to 10 seconds then took 2 to 3 seconds of relaxation, then repeated the same regime for 3 to7 times 3 sessions per week and single session per day for 4 weeks. Sustained natural apophyseal glides (SNAGs) were repeated 7 to 10 times in a session with a hold of 10 seconds and repeated 3 times a week for four consecutive weeks.
Category
Rehabilitation

2

Description
Intervention group: (Group B) will receive conventional physical therapy with Muscle Energy Techniques. For example, in C3-C4, the patient was taken in a supine position with the neck slightly flexed passively by the therapist The right middle finger will be placed over the right pillars of C3-C4 and the neck will be taken to the maximum position of side-bending rotation to the right, engaging the barrier. The left hand was placed over the patient's left parietal and temporal areas. With this hand offering counterforce, the patient will be invited to side-bend and rotated to the left, for 5 seconds. Post-isometric relaxation of these muscles following the 5-7-second mild contraction, after which the neck will be taken to its new barrier, and the same procedure will be repeated 2 or 3 times in one session, the patients will be treated 3 days per week for 4 consecutive weeks.
Category
Rehabilitation

Recruitment centers

1

Recruitment center
Name of recruitment center
Dubai Center for Physiotherapy and Medical Rehabilitation
Full name of responsible person
Noor Mohammed Najeeb
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
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Full name of responsible person
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Web page address
https://en.tums.ac.ir/en
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
Mohammadreza Hadian Rassanani
Position
Professor
Latest degree
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Person responsible for updating data

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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
Undecided - It is not yet known if there will be a plan to make this available
Statistical Analysis Plan
Undecided - It is not yet known if there will be a plan to make this available
Informed Consent Form
Undecided - It is not yet known if there will be a plan to make this available
Clinical Study Report
Undecided - It is not yet known if there will be a plan to make this available
Analytic Code
Undecided - It is not yet known if there will be a plan to make this available
Data Dictionary
Undecided - It is not yet known if there will be a plan to make this available