

Clinical Trial Protocol

Iranian Registry of Clinical Trials

06 Jul 2026

The Effect of Motor Control Training on Neck Disability Index, Proprioception and Craniovertebral Angle in Patients with Chronic Non-Specific Neck Pain: A Randomized Controlled Trial

Protocol summary

neck muscular endurance, Neck Disability Index

Study aim

Effect of motor control exercises on pain, range of motion, craniovertebral angle, proprioception, muscles endurance and neck disability index in patients

Design

Randomized double-blind randomized clinical trial on 30 patients

Settings and conduct

Patients with non-specific chronic neck pain are selected from the patients referred to the physiotherapy clinic of Tehran Rehabilitation School. In the first session, personal information and evaluation of the main consequences are recorded. There is a physiotherapist who is not aware of the results of the evaluations. Blinding is performed on patients, examiners, and therapists. Group assignments and interventions are performed by a physiotherapist who is not aware of the results of the evaluations.

Participants/Inclusion and exclusion criteria

Inclusion criteria: 1) pain in the posterior region of the neck between the upper neckline to the spinous process of the first thoracic vertebra 2) At least three months have passed since the first sign of pain 3) Age range 18 to 45 years. Exclusion Criteria : 1) History of spinal surgery and disc-related diseases 2) History of neck fracture or tumor 3) Cervical spine instability 4) Existence of any peripheral or central nervous system disorders 5) Neck vascular disorders Tension

Intervention groups

Intervention group 1: Electrotherapy + muscle energy techniques + stretching exercises Intervention group 2: Control group interventions + a combination of movement control exercises of flexor muscles and deep neck extensor

Main outcome variables

Pain, neck active range of motion of the in the six main directions, craniovertebral angle neck proprioception,

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20220122053793N1**

Registration date: **2022-02-01, 1400/11/12**

Registration timing: **registered_while_recruiting**

Last update: **2022-02-01, 1400/11/12**

Update count: **0**

Registration date

2022-02-01, 1400/11/12

Registrant information

Name

Atefe Najafi Visroudi

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 21 7753 3939

Email address

atefenajafi.a@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2022-01-25, 1400/11/05

Expected recruitment end date

2022-04-19, 1401/01/30

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The Effect of Motor Control Training on Neck Disability Index, Proprioception and Craniovertebral Angle in Patients with Chronic Non-Specific Neck Pain: A Randomized Controlled Trial

Public title

Effect of Motor Control Training in Patients with Chronic Non-Specific Neck Pain

Purpose

Treatment

Inclusion/Exclusion criteria**Inclusion criteria:**

)Occurrence of neck pain by touch, movement, or prolonged fixed positions of the neck in the posterior region of the neck between the upper neck line to the prickly appendage of the first thoracic vertebra At least three months have passed since the first sign of pain
2Pain intensity greater than 3 on the numerical pain rating scale A score greater than or equal to 10 in the Persian version of the Neck Disability Index
Questionnaire Age range 18 to 45 years

Exclusion criteria:

History of spinal surgery and disc-related diseases
History of neck fracture or tumor Cervical spine instability Presence of any peripheral or central nervous system disorders Neck vascular disorder History Accident or trauma to the neck Receiving physiotherapy treatment in the last three months

Age

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

Gender

Both

Phase

N/A

Groups that have been masked

- Participant
- Investigator
- Outcome assessor
- Data analyser
- Data and Safety Monitoring Board

Sample size

Target sample size: **30**

Randomization (investigator's opinion)

Randomized

Randomization description

According to the number of patients in each group, the type of treatment is written on a piece of paper as "control group treatment" or "intervention group treatment" and placed in opaque's sealed envelopes. Randomly removes one of the envelopes and treats the patient based on the type of treatment specified in it. And the envelopes are mixed again.

Blinding (investigator's opinion)

Double blinded

Blinding description

The study will be double-blinded . The participant will be blinded to the type of intervention in relation to their

treatment group as well as the researcher who must enter the data into the relevant checklist.

Placebo

Not 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

Faculty of Rehabilitation, Pich Shemiran, Enghelab St.

City

Tehran

Province

Tehran

Postal code

11489-65111

Approval date

2022-01-15, 1400/10/25

Ethics committee reference number

IR.TUMS.MEDICINE.REC.1400.1218

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

Chronic Non-Specific Neck Pain

ICD-10 code

R52.2

ICD-10 code description

Other chronic pain

Primary outcomes**1****Description**

Pain

Timepoint

Before the intervention the end of the tenth session and the end of the sixth week.

Method of measurement

NPRS (Numeric Pain Rating Scale) - VAS (Visual Analogue Scale)

2**Description**

Active Range Of Motion in 6 main directions

Timepoint

Before the intervention the end of the tenth session and the end of the sixth week.

Method of measurement

Manual Goniometer

3

Description

Craniovertebral Angle

Timepoint

Before the intervention the end of the tenth session and the end of the sixth week.

Method of measurement

Photogrammetry

4

Description

Neck Proprioception

Timepoint

Before the intervention the end of the tenth session and the end of the sixth week.

Method of measurement

Cervical Joint Position Error (JPE) test

5

Description

Neck Muscle Endurance

Timepoint

Before the intervention the end of the tenth session and the end of the sixth week.

Method of measurement

Cervical Extensor Endurance Test (CEET) Neck Flexor Endurance Test (NFET)

6

Description

Neck Disability Index

Timepoint

Before the intervention the end of the tenth session and the end of the sixth week.

Method of measurement

Persian Version of Neck Disability Index Questionnaire

Secondary outcomes

empty

Intervention groups

1

Description

Control group: In the first 10 sessions, for patients, first for 20 minutes hi-TENS (Conventional TENS) current and then for fifteen minutes the heat pack heat modality is used in the neck area. Muscle energy techniques for muscles Upper trapezius and Levator scapula, Suboccipital and sternocleidomastoid with post-contraction relaxation technique with 20% of maximum voluntary isometric contraction for seven seconds and 3

times per side in each session.

Category

Rehabilitation

2

Description

Intervention group: Control group interventions + a combination of deep neck flexor and extensor muscles motor control exercises With seven to ten repetitions of each exercise twice a day.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Physiotherapy Clinic of Tehran Rehabilitation School

Full name of responsible person

Atefe Najafi Visroudi

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Faculty of Rehabilitation, corner of Safi Alisha St., , Pich Shemiran, Enghelab St.

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rehabilitation@tums.ac.ir

Web page address

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

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Tehran University of Medical Sciences

Full name of responsible person

Dr. Hamid Dalvand

Street address

Faculty of Rehabilitation, Pich Shemiran, Enghelab St.

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Email

hdalvand@sina.tums.ac.ir

Web page addresshttps://rehab.tums.ac.ir/section23/page34/lang/Fa.asp
x**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

Atefe Najafi Visroudi

Position

Master's student

Latest degree

Bachelor

Other areas of specialty/work

Physiotherapy

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Person responsible for scientific inquiries**Contact****Name of organization / entity**

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Atefe Najafi Visroudi

Position

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Person responsible for updating data**Contact****Name of organization / entity**

Tehran University of Medical Sciences

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Position

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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

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

Title and more details about the data/document

Raw study data and analysis will be provided to researchers upon request.

When the data will become available and for how long

After the publication of articles resulting from the research

To whom data/document is available

Researchers working in academic institutions

Under which criteria data/document could be used

The data are only available to other researchers to study and evaluate treatment outcomes.

From where data/document is obtainable

By sending an email to the responsible author

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

By sending an email to the responsible author And documentary demand

Comments