

# 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

##### 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,

neck muscular endurance, Neck Disability Index

#### 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

**Street address**

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

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**Postal code**

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**Phone**

+98 21 7753 3939

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**Email**

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 address**

https://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**

Tehran University of Medical Sciences

**Full name of responsible person**

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**Position**

Master's student

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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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**Email**

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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**