Clinical Trial Protocol
Iranian Registry of Clinical Trials

07 Nov 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
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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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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

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Email
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Web page address
https://rehab.tums.ac.ir/section23/page34/lang/Fa.aspx

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
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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
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