Clinical Trial Protocol
Iranian Registry of Clinical Trials

16 Sep 2026

Effect of fatigue on neck joint position sense, pressure pain threshold and pain intensity in trigger point of upper trapezius muscle

Protocol summary

Summary

After assessment of UT muscle, the TrP has been merkered. The electrode will be positioned 2 cm lateral to the midpoint of the line between the C7 spinous process and the acromion. During sustained contractions of the trapezius, the subjects were asked to perform a shoulder elevation against the force transducers with the arms hanging passively alongside the body. A measurement started with a maximum voluntary contraction force (MVC) of the trapezius. In this case, the subjects were asked to perform a dominant shoulder elevation against the force transducer with as much force as possible for at least 10 sec. This procedure was repeated three times with in-between breaks of 20 s. If the highest force was measured in the last MVC contraction, an additional contraction was performed. The maximum number of MVC contractions was limited to three. The highest measured force level was assumed to be the MVC of the trapezius. Again the highest force value was considered to be the MVC. After a break of 5 min, a sustained submaximal contraction of the trapezius was performed. The subjects were asked to sustain a bilateral 80% MVC isometric shoulder elevation until the force gauge monitor showed 50% of MVC. The force level corresponding to 80% of the MVC was chosen because the protocol aimed to trigger muscle fatigue. This study will be done in only one session.

General information

Acronym

Trigger Point (TrP), Upper Trapezius (UT)

IRCT registration information

IRCT registration number: **IRCT2017011426346N2**
Registration date: **2017-05-02, 1396/02/12**
Registration timing: **retrospective**

Last update:
Update count: **0**

Registration date

2017-05-02, 1396/02/12

Registrant information

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Gholamreza Olyaei
Name of organization / entity
Tehran University Of Medical Science
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Recruitment status

Recruitment complete

Funding source

Tehran University of Medical Sciences

Expected recruitment start date

2016-10-22, 1395/08/01

Expected recruitment end date

2017-01-19, 1395/10/30

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Effect of fatigue on neck joint position sense, pressure pain threshold and pain intensity in trigger point of upper trapezius muscle

Public title

effect of fatigue on trigger point of upper trapezius muscle

Purpose

Treatment

Inclusion/Exclusion criteria
Individuals within an age range of 18 to 35 years will be accepted for both groups to minimize any confounding effects stemming from advanced degenerative alterations in the cervical spine. History of neck pain for a period of more than three months; restricted active or passive neck movement in at least one direction and score range of three to six points on an 11-point (range: 0 to 10) numerical rating scale for perceived pain intensity. The inclusion criteria for the control group (CG) will be no self-reported history of neck pain and no positive signs of cervical spine or scapular dysfunction during the physical examination.
Age
From **18 years** old to **35 years** old
Gender
Both

Phase
N/A
Groups that have been masked
No information
Sample size
Target sample size: **64**
Randomization (investigator's opinion)
Randomized
Randomization description
Blinding (investigator's opinion)
Single blinded
Blinding description
Placebo
Used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Ethic Committee of Tehran University of Medical Sciences
Street address
ehran University of Medical Sciences, Pour Sina St, Keshavarz blvd.
City
Tehran
Postal code
Approval date
2016-10-22, 1395/08/01
Ethics committee reference number
IR.TUMS.VCR.REC.1395.803

Health conditions studied

1

Description of health condition studied
Neck pain
ICD-10 code
M79.1
ICD-10 code description
Myalgia

Primary outcomes

1

Description
Pressure pain tresold
Timepoint
immediately before and after intervention
Method of measurement
algometer

2

Description
pain intensity
Timepoint
immediately before and after intervention
Method of measurement
Visual Analoge Scale

3

Description
RMS & median frequency
Timepoint
immediately before and after intervention
Method of measurement
surface electromyography

4

Description
position sence
Timepoint
immediately before and after intervention
Method of measurement
photography

Secondary outcomes

1

Description
pain
Timepoint
immediatly before and after fatigue
Method of measurement
algometer

2

Description
Muscle Spasm
Timepoint

immediatly before and after fatigue

Method of measurement

manual assessment

Intervention groups

1

Description

Fatigue in control group subjects were asked to perform a dominant shoulder elevation against the force transducer with as much force as possible for at least 10 sec. This procedure was repeated three times with in-between breaks of 20 s. If the highest force was measured in the last MVC contraction, an additional contraction was performed. The maximum number of MVC contractions was limited to three. The highest measured force level was assumed to be the MVC of the trapezius. Again the highest force value was considered to be the MVC. After a break of 5 min, a sustained submaximal contraction of the trapezius was performed. The subjects were asked to sustain a unilateral 80% MVC isometric shoulder elevation until the force gauge monitor showed 50% of MVC in least 3 minutes.

Category

Other

2

Description

Fatigue in Internationale group subjects were asked to perform a dominant shoulder elevation against the force transducer with as much force as possible for at least 10 sec. This procedure was repeated three times with in-between breaks of 20 s. If the highest force was measured in the last MVC contraction, an additional contraction was performed. The maximum number of MVC contractions was limited to three. The highest measured force level was assumed to be the MVC of the trapezius. Again the highest force value was considered to be the MVC. After a break of 5 min, a sustained submaximal contraction of the trapezius was performed. The subjects were asked to sustain a unilateral 80% MVC isometric shoulder elevation until the force gauge monitor showed 50% of MVC in least 3 minutes.

Category

Other

Recruitment centers

1

Recruitment center

Name of recruitment center

School Of Rehabilitation, Tehran University of Medical Sciences

Full name of responsible person

Roya Mehdikhani

Street address

School Of Rehabilitation, Piche Shemroon, Enghelab street, Tehran

City

Tehran

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Research Department of Tehran University of Medical Sciences

Full name of responsible person

Dr. Masoud Yunesian

Street address

Tehran University of Medical Sciences, Ghods Street, Keshavarz Blv

City

Tehran

Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?

Yes

Title of funding source

Research Department of Tehran University of Medical Sciences

Proportion provided by this source

100

Public or private sector

empty

Domestic or foreign origin

empty

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

empty

Person responsible for general inquiries

Contact

Name of organization / entity

Tehran University of Medical Sciences, School of Rehabilitation

Full name of responsible person

Dr Gholamreza Olyaei

Position

Professor

Other areas of specialty/work

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Sharing plan

Deidentified Individual Participant Data Set (IPD)
empty

Study Protocol
empty

Statistical Analysis Plan
empty

Informed Consent Form
empty

Clinical Study Report
empty

Analytic Code
empty

Data Dictionary
empty