

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

10 Jun 2026

### The effect of muscle energy technique on thickness and echogenicity of capital rotator muscles and components of cervicogenic headache in cervicogenic headache subjects compared with control group: A Randomized Clinical Trial

#### Protocol summary

##### Summary

Cervicogenic headache is related to musculoskeletal structure disorders in cervical region. The aim of this study is to determine the effect of muscle energy techniques on capital rotator muscles thickness and echogenicity (measured by B mode Sonography) and other symptoms of cervicogenic headache (intensity, duration, frequency and disability of headache, which will be measured by questionnaires). This study is a randomized single blinded clinical trial that patients are not aware of grouping. Thirty Subjects with cervicogenic headache will be selected according to the criteria of International Headache Society (headache related with cervical musculoskeletal disorders, upper cervical rotation range of motion restriction and pain and hypomobility in upper cervical region movement and palpation). Selected patients will be divided into two groups with 15 subjects by simple randomization assignment (Flip the coin). In the experiment group treatment intervention will be done by infrared radiation in prone position and muscle energy techniques for extensor and capital rotator muscles in supine position. In the control group only infrared radiation will be used in prone position. Both groups will have six treatment sessions. Before and after of all treatment sessions in two groups thickness and echogenicity of capital rotator muscles in anterior and posterior sides of the upper cervical region will be measured by sonography and upper cervical rotation range of motion by Goniometer. Headache index and headache disability questionnaires will be completed in first and 6th sessions for all subjects.

#### General information

##### Acronym

#### IRCT registration information

IRCT registration number: **IRCT2015031421459N1**

Registration date: **2016-08-22, 1395/06/01**

Registration timing: **registered\_while\_recruiting**

Last update:

Update count: **0**

#### Registration date

2016-08-22, 1395/06/01

#### Registrant information

##### Name

Mohammad Akbari

##### Name of organization / entity

Dept. of Physical therapy, School of Rehabilitation, Iran University of Medical Sciences.

##### Country

Iran (Islamic Republic of)

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##### Email address

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#### Recruitment status

**Recruitment complete**

#### Funding source

Vice chancellor for research and Technology of Iran University of Medical Sciences

#### Expected recruitment start date

2016-07-22, 1395/05/01

#### Expected recruitment end date

2017-07-21, 1396/04/30

#### Actual recruitment start date

empty

#### Actual recruitment end date

empty

#### Trial completion date

empty

### Scientific title

The effect of muscle energy technique on thickness and echogenicity of capital rotator muscles and components of cervicogenic headache in cervicogenic headache subjects compared with control group: A Randomized Clinical Trial

### Public title

The effect of muscle energy technique on Cervicogenic Headache

### Purpose

Treatment

### Inclusion/Exclusion criteria

Inclusion criteria: subjects with cervicogenic headache due to at least 3 months, age between 18-55 years and BMI between 16-32 kg/m<sup>2</sup>. Exclusion criteria: Patients with other types of headache, uncorrected visual or auditory impairments, history of exercise therapy, physical therapy or manual therapy for neck and shoulder regions in previous 3 months, pregnancy, problems such as diabetes, cardiopulmonary diseases, myopathy, history of cancer, surgery within the last 3 months, Psychological disorders, Any condition necessitating bed rest for more than two weeks during past 12 months, alcohol consumption, consuming pain reducer medicine within 24 hours before testing.

### Age

From **18 years** old to **55 years** old

### Gender

Both

### Phase

2-3

### Groups that have been masked

*No information*

### Sample size

Target sample size: **30**

### 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

Ethics Committee of Iran University of Medical Sciences

### Street address

Hemmat Highway, between sheykh fazlollah and Chamran Highways, Iran University of Medical Sciences

### City

Tehran

### Postal code

### Approval date

2016-06-21, 1395/04/01

### Ethics committee reference number

IR.IUMS.REC 1395.9211342209

## Health conditions studied

### 1

#### Description of health condition studied

Cervicogenic Headache

#### ICD-10 code

M62.9

#### ICD-10 code description

Disorder of muscle, unspecified

## Primary outcomes

### 1

#### Description

Muscle thickness and echogenicity

#### Timepoint

After and before intervention session

#### Method of measurement

Anterior posterior muscle dimension (thickness) and tissue echogenicity that both will be measured by ultrasound machine SAMSUNG MEDISON - SONOACE R7 2014, made in Korea with a frequency of 7.5 and a linear probe in millimeters.

## Secondary outcomes

### 1

#### Description

Upper Cervical Range of Motion

#### Timepoint

After and before intervention session

#### Method of measurement

The rotational range of motion of the neck in the supine position will be measured with a Qoniometer (degree).

### 2

#### Description

Headache Index

#### Timepoint

First and 6th session

#### Method of measurement

Questionare (Niere,1997)

### 3

#### Description

Headache Disability

**Timepoint**

First and 6th session

**Method of measurement**

Iranian version of Headache Disability Inventory (HDI) questionnaire, Jacobson-1994)

**Intervention groups**

**1**

**Description**

Control group: Infrared Radiation in prone position for 15 minutes

**Category**

Rehabilitation

**2**

**Description**

Intervention group: infrared radiation in a prone position for 15 minutes and muscle energy techniques for head extensor and rotator muscles in the supine position, 3 times, each time 5-7 seconds with 30% of maximum contraction

**Category**

Rehabilitation

**Recruitment centers**

**1**

**Recruitment center**

**Name of recruitment center**

Neurology and Physiotherapy clinics in Tehran

**Full name of responsible person**

Omolbanin Abaspour

**Street address**

7 P, Madadkaran Al, Shahnazari St, Madar Sq, Mirdamad Blvd

**City**

Tehran

**Sponsors / Funding sources**

**1**

**Sponsor**

**Name of organization / entity**

Vice chancellor for research and Technology of Iran University of Medical Sciences

**Full name of responsible person**

Dr Morteza Naserbakht

**Street address**

Hemmat highway, between Chamran and Sheikh Fadlallah highways, Iran University of Medical Sciences, headquarters, 5th floor

**City**

Tehran

**Grant name**

**Grant code / Reference number**

**Is the source of funding the same sponsor**

**organization/entity?**

Yes

**Title of funding source**

Vice chancellor for research and Technology of Iran 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**

School of Rehabilitation, Iran University of Medical Sciences.

**Full name of responsible person**

Omolbanin Abaspour

**Position**

PhD of PT student

**Other areas of specialty/work**

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**Position**

Professor PhD of PT

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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*