

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

10 Jun 2026

### The Effect of Action Potential Simulation and Vibration in Reducing Neck and Shoulder Pain and Disability in Subjects with Trapezius and Levator Scapula Muscles Trigger Points

#### Protocol summary

##### Summary

This study aimed to compare the effects of action potential simulation with vibration in reducing neck and shoulder pain and disability in subjects with trapezius and levator scapula muscles trigger points. This randomized controlled trial was performed in Zahedan University of Medical Sciences, in 2009. Thirty patients with trigger points in upper trapezius and levator scapula were recruited through simple non probability sampling. Patients were selected based on following inclusion criteria: Participants aged between 18 till 25 years old, patients diagnosed with trigger point in trapezius and levator scapula muscles, patients who have been muscle pain without neurological sign as chief complaint, no history of respiratory diseases, surgery, and neck & thoracic spine structural disorders. Patients were excluded if they had insufficient treatment, using other therapeutic modalities during the study, trauma, and doing surgery during the study. Patients were randomly assigned to either a vibration group (N=15) or an action potential simulation group (N=15). Before and after treatment, we assessed neck disability with Neck Disability Index, neck pain with Visual Analogue Scale, shoulder pain and disability with Shoulder Pain and Disability Index and cervical range of motion with specific neck goniometer. In vibration group, we used vibrator with moderate pressure and low frequency, 2500 cycle per minute and for 30 minutes per session. In action potential simulation group, action potential simulation was applied with intensity of 1mA, 150 Hz frequency, for 16 minutes per session.

#### General information

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT201109221675N8**

Registration date: **2011-11-22, 1390/09/01**

Registration timing: **retrospective**

Last update:

Update count: **0**

##### Registration date

2011-11-22, 1390/09/01

##### Registrant information

###### Name

Asghar Akbari

###### Name of organization / entity

Zahedan University of Medical Sciences

###### Country

Iran (Islamic Republic of)

###### Phone

+98 54 1322 8445

###### Email address

akbaria@zdmu.ac.ir

##### Recruitment status

###### Recruitment complete

##### Funding source

Vice Chancellor for Research of Zahedan University of Medical Sciences

##### Expected recruitment start date

2009-05-31, 1388/03/10

##### Expected recruitment end date

2009-12-31, 1388/10/10

##### Actual recruitment start date

empty

##### Actual recruitment end date

empty

##### Trial completion date

empty

##### Scientific title

The Effect of Action Potential Simulation and Vibration in

Reducing Neck and Shoulder Pain and Disability in  
Subjects with Trapezius and Levator Scapula Muscles  
Trigger Points

#### Public title

The Effect of Action Potential Simulation and Vibration in  
Reducing Neck and Shoulder Pain and Disability in  
Subjects with Trapezius and Levator Scapula Muscles  
Trigger Points

#### Purpose

Treatment

#### Inclusion/Exclusion criteria

Inclusion criteria: Age between 18 and 25 years old;  
Patients diagnosed with trigger point in trapezius and  
levator scapula muscles; Patients who have been muscle  
pain without neurological sign as chief complaint; No  
history of respiratory diseases; Surgery, and neck &  
thoracic spine structural disorders. Exclusion criteria:  
Insufficient treatment; Using other therapeutic modalities  
during the study; Trauma; and doing surgery during the  
study.

#### Age

From **18 years** old to **25 years** old

#### Gender

Both

#### Phase

2

#### Groups that have been masked

*No information*

#### Sample size

Target sample size: **30**

#### Randomization (investigator's opinion)

Randomized

#### Randomization description

#### Blinding (investigator's opinion)

Not blinded

#### Blinding description

#### Placebo

Not used

#### Assignment

Parallel

#### Other design features

## Secondary Ids

### 1

#### Registry name

No registration

#### Secondary trial Id

No trial id

#### Registration date

empty

## Ethics committees

### 1

#### Ethics committee

##### Name of ethics committee

Ethics Committee of University of Sistan and

Baluchestan

#### Street address

Daneshgah Blvd., University of Sistan and  
Baluchestan

#### City

Zahedan

#### Postal code

987-98155

#### Approval date

2011-10-22, 1390/07/30

#### Ethics committee reference number

902.2.232

## Health conditions studied

### 1

#### Description of health condition studied

Subjects with Trigger Points in Upper Trapezius and  
Levator Scapula Muscles

#### ICD-10 code

M62

#### ICD-10 code description

Other soft tissue disorders

## Primary outcomes

### 1

#### Description

Neck pain

#### Timepoint

Before intervention, 4 weeks after intervention

#### Method of measurement

Visuale Analogue Scale

### 2

#### Description

Neck disability

#### Timepoint

Before intervention, 4 weeks after intervention

#### Method of measurement

Neck Disability Index

### 3

#### Description

Shoulder pain and disability

#### Timepoint

Before intervention, 4 weeks after intervention

#### Method of measurement

Shoulder Pain and Disability Index

### 4

#### Description

Cervical range of motion

#### Timepoint

Before intervention, 4 weeks after intervention

#### Method of measurement

Specific neck goniometer

## Secondary outcomes

empty

## Intervention groups

### 1

#### Description

Vibration Group: We used vibrator with moderate pressure and low frequency, 2500 cycle per minute and for 30 minutes per session. A 16 session's treatment program which lasted 4 weeks and 4 sessions per week was performed.

#### Category

Rehabilitation

### 2

#### Description

Action Potential Simulation Group: We applied action potential simulation with intensity of 1mA, 150 Hz frequency, for 16 minutes per session. A 16 session's treatment program which lasted 4 weeks and 4 sessions per week was performed.

#### Category

Rehabilitation

## Recruitment centers

### 1

#### Recruitment center

##### Name of recruitment center

Razmejo-Moghadam Physiotherapy Clinic

##### Full name of responsible person

Dr. Asghar Akbari

##### Street address

Dept. of Physiotherapy, School of Rehabilitation Sciences, Razmejo-Moghadam Laboratory, Ayatoallah Kafami St.

##### City

Zahedan

## Sponsors / Funding sources

### 1

#### Sponsor

##### Name of organization / entity

Vice Chancellor for Research of Zahedan University of Medical Sciences

##### Full name of responsible person

Dr. Hamidreza Mahmoudzadeh Sagheb

##### Street address

Deputy Of Research, Zahedan University of Medical Sciences, Jannat Blvd., Dr. Hesabi Sq., Zahedan.

##### City

Zahedan

#### 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 of Zahedan 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

Zahedan University of Medical Sciences

##### Full name of responsible person

Dr.Asghar Akbari

##### Position

Ph.D in Physiotherapy, Head of Dept. of Physiotherapy.

##### Other areas of specialty/work

##### Street address

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## Person responsible for scientific inquiries

#### Contact

##### Name of organization / entity

Zahedan University of Medical Sciences

##### Full name of responsible person

Dr. Asghar Akbari

##### Position

Head of Dept. of Physiotherapy, Ph.D in Physiotherapy

##### Other areas of specialty/work

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## Person responsible for updating data

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www.zaums.ac.ir

## 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*