

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

10 Jun 2026

### Comparison of neurodynamic technique and the air compression massage therapy on sensory and motor parameters of median nerve in patients with mild to moderate carpal tunnel syndrome

#### Protocol summary

##### Study aim

Determination of effect of neurodynamic technique and the air compression massage therapy on sensory and motor parameters of median nerve in patients with mild to moderate carpal tunnel syndrome

##### Design

A randomized not blinded clinical trial with a parallel groups, on 30 patients

##### Settings and conduct

Patients who will be referred to rehabilitation unit of Razi Hospital in Birjand by inclusion criteria. First, Boston questionnaire will be completed by patients to evaluate subjective symptoms. Then, the initial evaluation of sensory and motor parameters of the Median nerve will be performed by a skilled neurologist by NEMUS 2EBM. Then, patients will be randomly divided into two groups of routine therapy group (tens, ultrasound, neurodynamic techniques) and air pressure massage therapy group (tens, ultrasound, pressure device model WIC2008). At the end of the treatment, the evaluation will be performed again by NEMUS 2EBM and the Boston questionnaire will be completed again by the patient.

##### Participants/Inclusion and exclusion criteria

Inclusion criteria: Years: Range: 18-60, males and females  
Sensory peak latency more than 3.5 msec  
Persons with parasthesia, pain in distribution of median nerve  
People with a desire to enter the study  
Exclusion criteria: Thenar atrophy  
Systemic peripheral neuropathy  
History of carpal tunnel release  
Metabolic and vascular disorders  
Pregnancy  
Previous history of injection steroid  
carpal tunnel  
Previous history of trauma in carpal tunnel region

##### Intervention groups

group A: Neurodynamic technique group B: Air compression massage

##### Main outcome variables

Motor latency, Sensory peak latency, Sensory velocity, subjective symptoms (pain and function)

#### General information

##### Reason for update

##### Acronym

سندروم تونل کارپال cts

##### IRCT registration information

IRCT registration number: **IRCT20180714040466N4**

Registration date: **2021-10-23, 1400/08/01**

Registration timing: **retrospective**

Last update: **2021-10-23, 1400/08/01**

Update count: **0**

##### Registration date

2021-10-23, 1400/08/01

##### Registrant information

##### Name

Fateme Ghiasi

##### Name of organization / entity

##### Country

Iran (Islamic Republic of)

##### Phone

+98 54 3341 6708

##### Email address

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##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2021-06-22, 1400/04/01

##### Expected recruitment end date

2021-09-11, 1400/06/20

##### Actual recruitment start date

empty

##### Actual recruitment end date

empty

##### Trial completion date

empty

### Scientific title

Comparison of neurodynamic technique and the air compression massage therapy on sensory and motor parameters of median nerve in patients with mild to moderate carpal tunnel syndrome

### Public title

Comparison of neurodynamic technique and the air compression massage therapy on parameters of median nerve in patients with carpal tunnel syndrome

### Purpose

Treatment

### Inclusion/Exclusion criteria

#### Inclusion criteria:

Years: Range:18-60, males and females Sensory peak latency more than 3.5 msec Persons with parasthesia in distribution of median nerve Persons with pain in distribution of median nerve People with a desire to enter the study

#### Exclusion criteria:

Thenar atrophy Systemic peripheral neuropathy History of carpal tunnel release Metabolic disorders Vascular disorders Previous history of trauma in carpal tunnel region Previous history of injection steroid in carpal tunnel Pregnancy

### Age

From **18 years** old to **60 years** old

### Gender

Both

### Phase

3

### Groups that have been masked

*No information*

### Sample size

Target sample size: **30**

### Randomization (investigator's opinion)

Randomized

### Randomization description

Based on the number of patients in each group, the particular sort of treatment ( Neurodynamic Techniques group or Air compression massage group) is written on a piece of paper. Each paper is placed in a sealed envelope. One envelope will be chosen randomly by the therapist at the first session of the patient treatment and the patient's treatment technique is selected based on that. If any of the patients is omitted from the study, one envelope related to the excluded patient treatment group will be replaced and they will mixed again.

### Blinding (investigator's opinion)

Not blinded

### Blinding description

#### Placebo

Not used

#### Assignment

Single

### Other design features

## Secondary Ids

empty

## Ethics committees

### 1

#### Ethics committee

##### Name of ethics committee

Ethics Committee of Zahedan University of Medical Sciences

##### Street address

Dr. Hesabi Blvd

##### City

Zahedan

##### Province

Sistan-va-Balouchestan

##### Postal code

9816743463

#### Approval date

2021-07-17, 1400/04/26

#### Ethics committee reference number

IR.ZAUMS.REC.1400.123

## Health conditions studied

### 1

#### Description of health condition studied

Carpal Tunnel Syndrome

#### ICD-10 code

G56.0

#### ICD-10 code description

Carpal tunnel syndrome

## Primary outcomes

### 1

#### Description

Symptom of carpal tunnel syndrome

#### Timepoint

Before and after treatment

#### Method of measurement

Bostone examiner

### 2

#### Description

Sensory and motor parameters of median nerve

#### Timepoint

Before and after of treatment

#### Method of measurement

Electrodyagnostic

## Secondary outcomes

empty

## Intervention groups

### 1

#### Description

Control group: Neurodynamic technique. ULTT2a

neurodynamic technique will be performed for 3 weeks. ULTT2a steps include: (1) shoulder girdle depression (2) shoulder abduction (3) external shoulder rotation and forearm supination (4) finger and wrist extension (5) elbow extension . The technique is in 5 separate sets and each set contains 10 repetitions that will be done every other day.

**Category**

Rehabilitation

**2****Description**

Intervention group: Air compression massage. In this group, the WIC2008 compression device will be used for treatment. While the person is sitting, the person's arm will be fully supported on the armrest in a completely relaxed position, the affected limb will be completely inside the device pad, adjusted alternately with a maximum pressure of 120 mm Hg and a minimum pressure of 0 mm Hg. The filling time of the device is 3 seconds and its discharge time is 12 seconds and the treatment lasts for ten minutes. The treatment will be done for three weeks and one day in between.

**Category**

Rehabilitation

**Recruitment centers****1****Recruitment center****Name of recruitment center**

Razi hospital

**Full name of responsible person**

Samane Khorashadizade

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Razi Hosp, Ghafari Blvd

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**Sponsors / Funding sources****1****Sponsor****Name of organization / entity**

Zahedan University of Medical Sciences

**Full name of responsible person**

Dr.Noormohammad Bakhshani

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public@zamus.ac.ir

**Grant name****Grant code / Reference number****Is the source of funding the same sponsor organization/entity?**

Yes

**Title of funding source**

Zahedan 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**

Zahedan University of Medical Sciences

**Full name of responsible person**

Dr.Fateme Ghiasi

**Position**

Asistance professor

**Latest degree**

Ph.D.

**Other areas of specialty/work**

Physiotherapy

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**Person responsible for updating data**

**Contact**

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**Sharing plan**

**Deidentified Individual Participant Data Set (IPD)**

Undecided - It is not yet known if there will be a plan to make this available

**Study Protocol**

Undecided - It is not yet known if there will be a plan to make this available

**Statistical Analysis Plan**

Undecided - It is not yet known if there will be a plan to make this available

**Informed Consent Form**

Undecided - It is not yet known if there will be a plan to make this available

**Clinical Study Report**

Undecided - It is not yet known if there will be 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