# Clinical Trial Protocol
# Iranian Registry of Clinical Trials

22 Nov 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, neurodyminamic 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 truma in carpal tunnel region

**Intervention groups**

group A: Neurodynamic teqnicue 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**

f_ghiasi_p@zaums.ac.ir

**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
**Street address**
Razi Hosp, Ghafari Blvd
**City**
Birjand
**Province**
South Khorasan
**Postal code**
97185555558
**Phone**
+98 56 3162 6098
**Email**
samane.khorashadizade@gmail.com

## Sponsors / Funding sources

**1**

**Sponsor**

**Name of organization / entity**
Zahedan University of Medical Sciences
**Full name of responsible person**
Dr.Noormohammad Bakhshani
**Street address**
Dr.Hessabi Blvd
**City**
Zahedan
**Province**
Sistan-va-Balouchestan
**Postal code**
9817643463
**Phone**
+98 54 3329 5796
**Email**
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
**Street address**
Khatam al anbia Hosp, Jame jam Blvd
**City**
Zahedan
**Province**
Sistan-va-Balouchestan
**Postal code**
9815733169
**Phone**
+98 54 3322 0501
**Email**
f_ghiasi_p@zamus.ac.ir

## Person responsible for scientific 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

**Street address**
Khatam al anbia Hosp, Jame jam Blvd

**City**
Zahedan

**Province**
Sistan-va-Balouchestan

**Postal code**
9815733169

**Phone**
+98 54 3322 0501

**Email**
f_ghiasi_p@zamus.ac.ir

## Person responsible for updating data

**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

**Street address**
Khatam al anbia Hosp, Jame jam Blvd Zahedan

**City**
Zahedan

**Province**
Sistan-va-Balouchestan

**Postal code**
9815733169

**Phone**
+98 54 3322 0501

**Email**
f_ghiasi_p@zamus.ac.ir

## 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