

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

10 Jun 2026

### The effect of resistive capacitive electric transfer method and flexibility exercises on pain, range of motion, disability and quality of life in patients with chronic nonspecific low back pain

#### Protocol summary

##### Study aim

Comparative effect of comparative heat transfer by capacitive-resistance method and flexibility exercises on pain, disability and range of patients with chronic nonspecific back pain. Capacitive-resistive heat transfer is one of the treatment methods using heat. Heat increases blood flow to the muscle and increases the expansion of soft tissue and helps to improve symptoms.

##### Design

Both groups first use a stationary bike for 5 minutes to prepare and warm up. Then both groups do stability exercises. Capacitive-resistance heat transfer (CRET therapy) is one of the treatment methods using heat. The CRET group is first treated with a capacitive method for 5 minutes, then with a resistance method for 10 minutes, and again with a capacitive electrode for 5 minutes. Give. The first group is treated with placebo and flexibility exercises. The second group is treated with flexibility training and placebo therapy with no energy therapy.

##### Settings and conduct

Clinical trial with control group, with parallel group, one-way blind, randomized, on about 50 patients. Random Number software was used for randomization.

##### Participants/Inclusion and exclusion criteria

Patient with non-specific chronic low back pain between the ages of 18 and 50 who have had pain for at least the past 3 months are included in the study. People who are not in this age group, have pain for less than 3 months, and have conditions such as deformity of the lower limbs and spine or pacemaker are not included in the study.

##### Intervention groups

- Patient aged 18 to 50 years
- Pain in the lower back for at least 3 months if the exact cause is not known
- Patient with moderate pain intensity (VAS between 3 and 6)
- The person has the ability to do exercises

##### Main outcome variables

Evaluation of pain and disability in people with non-specific chronic low back pain. Range of motion and quality of life are also measured as a secondary variable.

#### General information

##### Reason for update

##### Acronym

TECAR(of resistive capacitive electric transfer method)

##### IRCT registration information

IRCT registration number: **IRCT20220227054142N1**

Registration date: **2022-04-18, 1401/01/29**

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

Last update: **2022-04-18, 1401/01/29**

Update count: **0**

##### Registration date

2022-04-18, 1401/01/29

##### Registrant information

##### Name

Mehdi Jarghouei

##### Name of organization / entity

##### Country

Iran (Islamic Republic of)

##### Phone

+98 939 313 5153

##### Email address

ptmehdi.j1995@gmail.com

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2022-04-09, 1401/01/20

##### Expected recruitment end date

2022-09-23, 1401/07/01

##### Actual recruitment start date

empty  
**Actual recruitment end date**  
empty  
**Trial completion date**  
empty

**Scientific title**  
The effect of resistive capacitive electric transfer method and flexibility exercises on pain, range of motion, disability and quality of life in patients with chronic nonspecific low back pain

**Public title**  
Evaluation of the effect of TECAR and exercise therapy in patients with chronic nonspecific back pain

**Purpose**  
Supportive

**Inclusion/Exclusion criteria**

**Inclusion criteria:**

Pain in the lower back for at least 3 months if the exact cause is not known • The person has the ability to do exercises • The person is willing to do exercises and therapy sessions

**Exclusion criteria:**

No acute back pain (at least 3 months after pain)  
Infection in the lumbar region Fracture or tumor History of lumbar surgery Pace Maker or any electrical device in the body Severe deformity in the lower limbs or spine such as scoliosis Specific diseases of the spine such as severe osteoporosis or ankylosing spondylitis  
Neurological problems such as stroke or other problems that deprive a person of the ability to perform exercises and tests Lack of understanding and inability of the questionnaire

**Age**  
From **18 years** old to **50 years** old

**Gender**  
Both

**Phase**  
N/A

**Groups that have been masked**

- Participant
- Care provider
- Data analyser
- Data and Safety Monitoring Board

**Sample size**  
Target sample size: **50**

**Randomization (investigator's opinion)**  
Randomized

**Randomization description**  
Participants are initially divided into two groups 1 and 2 with the help of Random Number program The number one in the application indicates the addiction therapy group and the exercise therapy placebo, and the number 2 in the software indicates the addiction therapy and exercise therapy group.

**Blinding (investigator's opinion)**  
Single blinded

**Blinding description**  
The patient does not know how to group and study The data analyzer does not know how to group and study

**Placebo**  
Used  
**Assignment**  
Crossover  
**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**

No. 1, daneshgah Ave., shahed3 alley., khansarTown

**City**

khansar

**Province**

Isfahan

**Postal code**

8791816764

**Approval date**

2021-08-24, 1400/06/02

**Ethics committee reference number**

IR.IUMS.REC.1400.419

**Health conditions studied**

**1**

**Description of health condition studied**

chronic nonspecific low back pain

**ICD-10 code**

**ICD-10 code description**

**2**

**Description of health condition studied**

Chronic nonspecific back pain

**ICD-10 code**

**ICD-10 code description**

M54.5

**Primary outcomes**

**1**

**Description**

Pain: The effect of resistive capacitive electric transfer method and flexibility exercises in patients with chronic nonspecific low back pain

**Timepoint**

Before the start of the study - at the end of 10 treatment sessions - one month (30 days) days after the end of treatment - three months after the end of treatment (90 days)

**Method of measurement**

Visual-analog scale

## 2

### Description

Disability: Any limitation or inability to perform an activity in the normal range that is possible for a normal and healthy person to perform

### Timepoint

Before the start of the study - at the end of 10 treatment sessions - one month (30 days) days after the end of treatment - three months after the end of treatment (90 days)

### Method of measurement

Oswestry Disability Index (ODI)

## Secondary outcomes

## 1

### Description

Quality of life :: Quality of life is the perception of each person of their health status and the degree of satisfaction with this situation.

### Timepoint

Before the start of the study - at the end of 10 treatment sessions - one month (30 days) days after the end of treatment - three months after the end of treatment (90 days)

### Method of measurement

Persian version of the 12-item SF-12 questionnaire

## 2

### Description

Range of motion: The amount of movement in a joint that depends on the bone structure and physiological characteristics of the connective tissue around the joint.

### Timepoint

Before the start of the study - at the end of 10 treatment sessions - one month (30 days) days after the end of treatment - three months after the end of treatment (90 days)

### Method of measurement

در بررسی خم شدن طرفی فرد به دیوار تکیه داده و بدون این که شانه هایش از دیوار فاصله بگیرد به طرف خم می شود و فاصله ی نوک انگشتان تا زمین اندازه گرفته می شود.

## 3

### Description

Range of motion Bending forward: The amount of movement in a joint that depends on the bone structure and physiological characteristics of the connective tissue around the joint.

### Timepoint

Before the start of the study - at the end of 10 treatment sessions - one month (30 days) days after the end of treatment - three months after the end of treatment (90 days)

### Method of measurement

Modified Schober Index

## Intervention groups

## 1

### Description

Intervention group:

### Category

Rehabilitation

## 2

### Description

Control group:

### Category

Rehabilitation

## Recruitment centers

## 1

### Recruitment center

#### Name of recruitment center

دانشکده توانبخشی دانشگاه علوم پزشکی ایران

#### Full name of responsible person

مهدی جرقوئی

#### Street address

Mirdamad, Shah Nazari St., Maddakaran Alley

#### City

Tehran

#### Province

Tehran

#### Postal code

13487 - 15459

#### Phone

+98 21 2222 2059

#### Email

ptmehdi.j1995@gmail.com

## Sponsors / Funding sources

## 1

### Sponsor

#### Name of organization / entity

Iran University of Medical Sciences

#### Full name of responsible person

دکتر حسین کیوانی

#### Street address

بزرگراه همت جنب برج میلاد، دانشگاه علوم پزشکی ایران

#### City

تهران

#### Province

Tehran

#### Postal code

۱۴۴۹۶۱۴۵۳۵

#### Email

keyvani.h@iums.ac.ir

#### Grant name

#### Grant code / Reference number

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

Yes

**Title of funding source**

Iran 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**

Iran University of Medical Sciences

**Full name of responsible person**

Mehdi Jarghouei

**Position**

Msc Student

**Latest degree**

Bachelor

**Other areas of specialty/work**

Physiotherapy

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**Person responsible for scientific inquiries****Contact****Name of organization / entity**

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

Yes - There is a plan to make this available

**Study Protocol**

Yes - There is a plan to make this available

**Statistical Analysis Plan**

Yes - There is a plan to make this available

**Informed Consent Form**

Yes - There is a plan to make this available

**Clinical Study Report**

Yes - There is a plan to make this available

**Analytic Code**

Yes - There is a plan to make this available

**Data Dictionary**

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

**Title and more details about the data/document**

All primary and secondary variable data will be published

**When the data will become available and for how long**

About 6 months after printing the results.

**To whom data/document is available**

This information will be available to people working in academic institutions as well as graduate physiotherapists.

**Under which criteria data/document could be used**

The use of results and data for academic institutions and for the purpose of conducting research is available only by mentioning the source.

**From where data/document is obtainable**

Via email and contact Mehdi Jarghouei at  
ptmehdi.j1995@gmail.com

**What processes are involved for a request to access  
data/document**

After submitting the response request, finally up to 2  
weeks later

**Comments**