# Clinical Trial Protocol
# Iranian Registry of Clinical Trials

10 Jun 2026

## Evaluation of the Effects of Tecar therapy and High-power Laser on the management of the Trigger Points of Upper Trapezius

## Protocol summary

**Study aim**
Investigating the effect of high power laser and Tecar therapy on pain intensity, neck disability index, and neck range of motion in patients with a trigger point of the upper trapezius muscle.

**Design**
A clinical trial with two intervention groups and a control group, with parallel groups, one-blind, randomized, on 48 patients, block method was used for randomization.

**Settings and conduct**
This study will be conducted with the voluntary participation of people suffering from myofascial pain syndrome (trigger point) of the upper trapezius muscle in the physiotherapy clinic of the rehabilitation faculty of Hamedan University of Medical Sciences. The sampling method in this research is done in the form of convenient sampling. The samples are randomly divided into three groups. The first group is treated with Tecar therapy and routine physiotherapy treatment, the second group is treated with high-power laser and routine physiotherapy treatment, and the control group is also treated with routine physiotherapy treatment. None of the patients know about the groupings and the type of intervention.

**Participants/Inclusion and exclusion criteria**
Age 18 to 40 years old, the presence of a trigger point and a tight band in the upper trapezius muscle according to the opinion of Simon et al.

**Intervention groups**
Tecar therapy group: Tecar therapy will be used in both capacitive and resistance modes for 5 sessions a week and a total of 10 sessions in the pain area on the trapeze. High-power laser group: high-power laser with wavelengths of 810 and 980 nm and power of 15 watts will be used for 5 sessions a week and a total of 10 sessions in the pain area on the trapezius. Control group: routine physiotherapy will be used for 5 sessions a week and a total of 10 sessions in the pain area on the trapezius.

**Main outcome variables**
Pain intensity; neck disability index and neck range of motion

## General information

**Reason for update**

**Acronym**

**IRCT registration information**
IRCT registration number: **IRCT20190202042581N4**
Registration date: **2022-09-11, 1401/06/20**
Registration timing: **prospective**

Last update: **2022-09-11, 1401/06/20**
Update count: **0**

**Registration date**
2022-09-11, 1401/06/20

**Registrant information**

**Name**
Mohammad Reza Asadi

**Name of organization / entity**

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Iran (Islamic Republic of)

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**Recruitment status**
**Recruitment complete**

**Funding source**

**Expected recruitment start date**
2022-09-23, 1401/07/01

**Expected recruitment end date**
2024-03-19, 1402/12/29

**Actual recruitment start date**
empty

**Actual recruitment end date**
empty

**Trial completion date**
empty

**Scientific title**
Evaluation of the Effects of Tecar therapy and High-power Laser on the management of the Trigger Points of Upper Trapezius

**Public title**
Evaluation of the Effects of Tecar therapy and High-power Laser on the management of the Trigger Points

**Purpose**
Treatment

**Inclusion/Exclusion criteria**

**Inclusion criteria:**
Age 18 to 40 years old Presence of trigger point and tight band in the upper trapezius muscle according to Simon et al Diffuse pain in response to pressure on trigger points

**Exclusion criteria:**
Having a history of neck surgery Neck discopathy Pregnancy Whiplash injury The presence of metal in the body Pacemaker

**Age**
From **18 years** old to **40 years** old

**Gender**
Both

**Phase**
N/A

**Groups that have been masked**

- Participant

**Sample size**
Target sample size: **48**

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

**Randomization description**
Participants are placed in one of the three study groups by a simple randomization method with the help of a lottery. The researcher gives a special code or number to each participant. Then he writes down the number of each of them on a small piece of paper or cardboard; Then he pours them into a bag or container and stirs them. Then he takes out the beads one by one, writes down their number, and continues until he chooses a number equal to the sample size. Opaque envelopes are also used to conceal randomization allocation.

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

**Blinding description**
None of the participants will know about the type of intervention.

**Placebo**
Not used

**Assignment**
Parallel

**Other design features**

## Secondary Ids

empty

## Ethics committees

### 1

**Ethics committee**

**Name of ethics committee**
Ethics committee of Hamedan University of Medical Sciences

**Street address**
Hamedan University of Medical Sciences, Fahmideh Blvd

**City**
Hamedan

**Province**
Hamadan

**Postal code**
6517838736

**Approval date**
2022-08-20, 1401/05/29

**Ethics committee reference number**
IR.UMSHA.REC.1401.474

## Health conditions studied

### 1

**Description of health condition studied**
Myofascial pain syndrome

**ICD-10 code**
M99.01

**ICD-10 code description**
Segmental and somatic dysfunction of cervical region

## Primary outcomes

### 1

**Description**
Pain severity

**Timepoint**
First session (before intervention), and 10 day (after intervention)

**Method of measurement**
Visual Analogue Scale

## Secondary outcomes

### 1

**Description**
Neck disability index

**Timepoint**
First session (before intervention), and 10 day (after intervention)

**Method of measurement**
Neck Functional Disability Questionnaire

### 2

**Description**
Neck range of motion

**Timepoint**
First session (before intervention), and 10 day (after intervention)
**Method of measurement**
Goniometer

## Intervention groups

### 1

**Description**
Intervention group: Capacitive Tecar is used for 10 minutes with a frequency of 600 kHz and resistive Tecar is used for 10 minutes with a frequency of 450 kHz. Intensity in both types of massage is 10-12 watts for an area of 28.2 square centimeters, on the trigger point of the upper trapezius muscle, for 10 sessions.
**Category**
Rehabilitation

### 2

**Description**
Intervention group: A high-power laser with a wavelength of 810 and 980 nm, a power of 15 watts, a frequency of 20 to 100 kHz and a duty cycle of 20 to 50% is used on the trigger point of the upper trapezius muscle for 10 sessions.
**Category**
Rehabilitation

### 3

**Description**
Control group: Routine physiotherapy includes: 20 minutes of low-frequency TENS, 15 minutes of infrared on the trapezius muscle, and exercise therapy (including neck stabilization exercises and passive stretching of the trapezius muscle).
**Category**
Rehabilitation

## Recruitment centers

### 1

**Recruitment center**
**Name of recruitment center**
Mobasher clinic
**Full name of responsible person**
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## Sponsors / Funding sources

### 1

**Sponsor**
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**Grant name**
**Grant code / Reference number**
**Is the source of funding the same sponsor organization/entity?**
Yes
**Title of funding source**
Hamedan 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**
Hamedan University of Medical Sciences
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Mohammad Reza Asadi
**Position**
Assistant professor
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## Person responsible for updating data

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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**
Not applicable
**Data Dictionary**
Undecided - It is not yet known if there will be a plan to make this available