

Clinical Trial Protocol

Iranian Registry of Clinical Trials

11 Sep 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

Country

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

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Hamedan University of Medical Sciences, Fahmideh Blvd

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Hamadan

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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****Name of organization / entity**

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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

Full name of responsible person

Mohammad Reza Asadi

Position

Assistant professor

Latest degree

Ph.D.

Other areas of specialty/work

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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