Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

Comparison of the effects of TECAR on pain, functional disability, and extensor carpi radialis brevis muscle thickness in patients with lateral epicondylitis A randomized controlled trial

Protocol summary

Study aim

To compare the effects of "Transfer of Energy Capacitive and Resistive " therapy in addition to routine physiotherapy on pain intensity, functional performance, and extensor carpi radialis brevis muscle thickness in patients with lateral epicondylitis.

Design

A concealed, randomized, blinded, clinical trial with 22 patients

Settings and conduct

Patients refer to the physiotherapy clinic of Dr. Heshmat Hospital based on the diagnosis of an orthopedic surgeon. After obtaining informed consent, all samples participate in a pre-test to examine the research variables. Finally, patients are randomly divided into 2 groups: control and intervention using a block randomization method. Patients and the evaluator are unaware of the group assignment. Blinding will be done with a transparent envelope. Both groups receive physiotherapy 3 times a week for 10 sessions according to their treatment protocol. All groups receive general physiotherapy including an electrical stimulation device and exercise therapy. The study group receives real deep heat and control group receive sham deep heat. At the end, the research variables are re-evaluated.

Participants/Inclusion and exclusion criteria

Inclusion criteria: 1-Patients over 20 years with tennis elbow syndrome diagnosed by an orthopedic surgeon 2-Positive Cosen test Exclusion criteria: Injection in the affected area and cervical radiculopathy

Intervention groups

Control group: Routine physiotherapy and exercise therapy (exercise and stretching program based on impairment, manual therapy based on impairment using Mulligan technique, deep transverse friction massage) and deep heat (sham) Intervention group: In addition to routine physiotherapy, 900 kHz frequency and capacitance mode deep heat therapy will be used for ten sessions.

Main outcome variables

Pain intensity, functional disability, and extensor carpi radialis brevis muscle thickness.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20211030052912N6**
Registration date: **2026-06-16, 1405/03/26**
Registration timing: **prospective**

Last update: **2026-06-16, 1405/03/26**
Update count: **0**

Registration date

2026-06-16, 1405/03/26

Registrant information

Name

Somaye Azarnia

Name of organization / entity

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2026-08-01, 1405/05/10

Expected recruitment end date

2026-09-01, 1405/06/10

Actual recruitment start date
empty
Actual recruitment end date
empty
Trial completion date
empty

Scientific title
Comparison of the effects of TECAR on pain, functional disability, and extensor carpi radialis brevis muscle thickness in patients with lateral epicondylitis A randomized controlled trial

Public title
Effects of TECAR in Tennis elbow
Purpose
Treatment
Inclusion/Exclusion criteria
Inclusion criteria:
Patient over the age of 20 diagnosed with Tennis elbow Pain and Tenderness around the lateral epicondyle that gets worse with active exstension of the hand wrist Positive Kozen's test
Exclusion criteria:
Tumor or infectious cause of elbow pain Corticosteroid injection within the previous 3 months. Greater than 50% tear of the common extensor tendon, as assessed by ultrasonography. Previous autologous blood or platelet-rich plasma (PRP) injection Hemorrhagic diathesis or current anticoagulant therapy. Local infection. History of elbow surgery or fracture Inflammatory arthritis or osteoarthritis of the elbow Cervical radiculopathy Pregnancy or planning to become pregnant during the study period Inability to complete questionnaires Inability to provide informed consent due to a mental health disorder.
Age
From **20 years** old
Gender
Both

Phase
3
Groups that have been masked

- Participant
- Outcome assessor

Sample size
Target sample size: **22**
Randomization (investigator's opinion)
Randomized
Randomization description
After the initial evaluations, patients will be allocated to either the intervention or control group using block randomization. Randomization will be conducted via Randomization.com. Considering the two groups (intervention A and control B), six blocks of four participants each will be generated. Each allocation sequence will be documented on a card and placed in a sealed envelope. As participants are enrolled, the envelopes will be opened sequentially to reveal the group assignment. This study is double-blind: both the participants and the outcome assessor will remain unaware of group allocation. Randomization and outcome assessment will be performed by an individual who is not involved in the treatment of the patients, ensuring that the assessor is blinded to the intervention type.
Blinding (investigator's opinion)
Double blinded
Blinding description
In this double-blind study, patients and the evaluator are unaware of the type of group assigned. Randomization and intervention will be performed by a person who is not involved in the patient assessment process, and the evaluator is also unaware of the type of intervention. Patients in both groups receive the same treatment. The intervention group receives real treatment and the control group receives sham. The intervention is performed for all patients in the same location and in the morning shift.
Placebo
Not used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Research Ethics Committees of Guilan university of medical sciences
Street address
Heshmat Crossroads, Dr. Heshmat Hospital
City
Rasht
Province
Guilan
Postal code
4193955588
Approval date
2026-05-20, 1405/02/30
Ethics committee reference number
IR.GUMS.REC.1405.084

Health conditions studied

1

Description of health condition studied
tennis elbow
ICD-10 code
M77.1
ICD-10 code description
Lateral epicondylitis

Primary outcomes

1

Description
Pain intensity
Timepoint
Before the first session and after the final intervention session (session 10).
Method of measurement
In this study, pain intensity will be assessed using the Visual Analog Scal

2

Description
Functional disability
Timepoint
Before the first session and after the final intervention session (session 10).
Method of measurement
"Patient- Rated Tennis Elbow Evaluation" questionnaire

3

Description
Extensor carpi radialis brevis muscle thickness
Timepoint
Before the first session, and after the final intervention session (session 10).
Method of measurement
sonography

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: Routine physiotherapy and exercise therapy and impulse therapy will be used. Impedance mode impulse therapy, 900 kHz frequency will be used on the affected points with the aim of vascularization, three times a week for ten sessions. The training includes: a disorder-based exercise and stretching program and disorder-based manual therapy.
Category
Rehabilitation

2

Description
Control group: Routine physiotherapy and exercise therapy will be used three times a week for ten sessions. Exercise includes: a disorder-based exercise and stretching program and disorder-based manual therapy.
Category
Treatment - Devices

Recruitment centers

1

Recruitment center
Name of recruitment center
Dr. Heshmat hospital
Full name of responsible person
Somayye Azarnia
Street address
Heshmat Crossroads, Dr. Heshmat Hospital
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Rasht University of Medical Sciences
Full name of responsible person
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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
Rasht 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
Rasht University of Medical Sciences
Full name of responsible person
Somaye Azarnia
Position
Assisstant professor
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Sharing plan

Deidentified Individual Participant Data Set (IPD)
No - There is not a plan to make this available
Justification/reason for indecision/not sharing IPD
No further information available.
Study Protocol
No - There is not a plan to make this available
Statistical Analysis Plan
No - There is not a plan to make this available
Informed Consent Form
No - There is not 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
No - There is not a plan to make this available
Data Dictionary
No - There is not a plan to make this available