

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 2026

Study on the effect of extensor muscles dry needling of the wrist with Mulligan mobilization technique on the thickness of extensor carpi radialis brevis tendon, pain and upper extremity function in patients with lateral elbow epicondylitis

Protocol summary

Study aim

The effect of Mulligan mobilization as an adjuvant therapy to extensor muscle dry needling of the wrist on the thickness of extensor carpi radialis brevis tendon, pain and upper extremity function in patients with lateral epicondylitis of the elbow

Design

The clinical trial with control and parallel-group, simple randomized, with 34 participants

Settings and conduct

Patients with tennis elbow affiliated to Semnan University of Medical Sciences will randomly be assigned to two groups: dry needling, dry needling with Mulligan. Upper extremity functional index by DASH questionnaire, grip strength with a Pneumatic squeeze bulb dynamometer, pain with VAS, and tendon thickness of extensor Carpi Radialis Brevis with ultra-sonography will be assessed. All evaluations will be done, before, after three treatment sessions and 10 days after

Participants/Inclusion and exclusion criteria

Inclusion Criteria 1. Age between 18 to 35 years 2. Confirmation of Tennis elbow Involvement by performing specialized tests 3. VAS greater than 4 Exclusion criteria 1. Past epicondyle surgery 2. Cervical radiculopathy 3. Past injections (such as corticosteroid, self-blood, PRP, mesotherapy) 4. Acute complication

Intervention groups

First intervention group: mulligan+ dry needling that, In addition to dry needling, the Mulligan technique will be done in the extension of elbow and pronation of forearm with 5-10 sec gentle glide in 3 sets of 10 repetitions. simultaneously taping of the extensor muscle group will be done to maintain normal radius alignment. The control group: dry needling that the patient in supine or sitting, forearm in mid-position, the sterile needle at 0.25 * 0.25 mm inserted in lateral epicondyle trigger points of

the elbow with 3 to 4 times rotation for 10 minutes.

Main outcome variables

Upper extremity function: The power of grip: pain :The thickness of extensor Carpi Radialis Brevis tendon

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20190416043289N1**

Registration date: **2020-01-11, 1398/10/21**

Registration timing: **prospective**

Last update: **2020-01-11, 1398/10/21**

Update count: **0**

Registration date

2020-01-11, 1398/10/21

Registrant information

Name

MARZIEH MORTEZANEJAD

Name of organization / entity

Country

Iran (Islamic Republic of)

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+98 23 3334 0867

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2020-01-21, 1398/11/01

Expected recruitment end date

2020-04-20, 1399/02/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Study on the effect of extensor muscles dry needling of the wrist with Mulligan mobilization technique on the thickness of extensor carpi radialis brevis tendon, pain and upper extremity function in patients with lateral elbow epicondylitis

Public title

Study on the effect of dry needling and Mobilization on the Pain of the lateral part of the elbow

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Both sexes: male and female, ages 18 to 35 years old
Confirmation of tennis elbow by specialized tests VAS greater than 4

Exclusion criteria:

Surgery of the external epicondyle area Cervical Radiculopathy Past injections (eg, corticosteroid, self-blood, PRP, mesotherapy) Acute phase

Age

From **18 years** old to **35 years** old

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **34**

Randomization (investigator's opinion)

Randomized

Randomization description

simple and single randomization, The random numbers table such that each person is given a code. The numbers will written in a table, and we select one place from the table in a blinded manner, then we select 17 numbers smaller than the selected number in the same row. The same would be true for the control group

Blinding (investigator's opinion)

Not blinded

Blinding description

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics committee of Semnan University of Medical sciences

Street address

Headquarters of the University of Medical Sciences,Basij Blvd,Semnan

City

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Province

Semnan

Postal code

35198-99951

Approval date

2019-11-26, 1398/09/05

Ethics committee reference number

IR.SEMUMS.REC.1398.207

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

The thickness of extensor carpi radialis brevis tendon

Timepoint

The before of intervention, immediately and 10 days after the end intervention

Method of measurement

Ultrasonigraphy setting

2

Description

Upper exeteremity function

Timepoint

Before of intervention, immediately and 10 days after the end intervention

Method of measurement

DASH questionnaire

3

Description

Grip power

Timepoint

Before of intervention, immediately and 10 days after the end intervention

Method of measurement

Pneumatic bulb dynamometer

4**Description**

Pain

Timepoint

Before of intervention, immediately and 10 days after the end intervention

Method of measurement

Visual analogue scale

Secondary outcomes

empty

Intervention groups**1****Description**

Intervention group: Dry needling with Mulligan Mobilization that the patient in the supine or sitting position, forearm in mid-position, and the 25 * 0.25 mm sterile needle inserted in the trigger points of lateral epicondyle of the elbow with 3 to 4 rotations for 10 minutes. in addition to dry needling, the mulligan technique will be performed with a 5-10-sec gentle glide in extension of elbow and pronation of the forearm. simultaneously taping will apply to maintain normal radius alignment at the extensor muscle group. This technique will be done in 3 sets of 10 repetitions.

Category

Treatment - Devices

2**Description**

Control group: Dry needling that the patient in the supine or sitting position, forearm in mid-position, and the 25 * 0.25 mm sterile needle inserted in the trigger points of lateral epicondyle of the elbow with 3 to 4 rotations for 10 minutes.

Category

Treatment - Devices

Recruitment centers**1****Recruitment center****Name of recruitment center**

Neuromuscular Rehabilitation Research Center of Semnan University of Medical Sciences

Full name of responsible person

Maedeh Sameae

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Tabatabaee Clinic, Ghods Blvd, Mashahir Square

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Sponsors / Funding sources**1****Sponsor****Name of organization / entity**

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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

Semnan 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**

Semnan University of Medical Sciences

Full name of responsible person

Marzieh Mortezaejad

Position

Research Expert

Latest degree

Master

Other areas of specialty/work

Physiotherapy

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

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Full name of responsible person

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Position

Member of Faculty

Latest degree

Ph.D.

Other areas of specialty/work

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Person responsible for updating data**Contact****Name of organization / entity**

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Full name of responsible person

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Latest degree

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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

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