# Clinical Trial Protocol
# Iranian Registry of Clinical Trials

22 Nov 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 Criteria1 ؛. Age between18 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)

**Phone**
+98 23 3334 0867

**Email address**
mariptma62@gmail.com

**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**

Semnan

**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 exteremity 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
**Street address**
Tabatabaee Clinic,Ghods Blvd, Mashahir Square
**City**
Semnan
**Province**
Semnan
**Postal code**
35196-18375
**Phone**
+98 23 3332 8502
**Email**
samieimaede@gmail.com

## Sponsors / Funding sources

**1**

**Sponsor**
**Name of organization / entity**
Semnan University of Medical Sciences
**Full name of responsible person**
Dr. Kookhaee
**Street address**
Semnan University of Medical Sciences,Basij Blvd,Semnan
**City**
Semnan
**Province**
Semnan
**Postal code**
35198-99951
**Phone**
+98 23 3344 8998
**Fax**
+98 23 3344 8999
**Email**
info@semums.ac.ir
**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 Mortezanejad
**Position**
Research Expert
**Latest degree**
Master

**Other areas of specialty/work**
Physiotherapy
**Street address**
Tabatabaee Clinic,Ghods Blvd,Mashahir Square
**City**
Semnan
**Province**
Semnan
**Postal code**
3519618375
**Phone**
+98 23 3332 8502
**Email**
mmortezanejad98@yahoo.com

## Person responsible for scientific inquiries

**Contact**
**Name of organization / entity**
Semnan University of Medical Sciences
**Full name of responsible person**
Dr. Atefeh Aminianfar
**Position**
Member of Faculty
**Latest degree**
Ph.D.
**Other areas of specialty/work**
Physiotherapy
**Street address**
Tabatabaee Clinic,Ghods Blvd, Mashahir Square
**City**
Semnan
**Province**
Semnan
**Postal code**
3519618375
**Phone**
+98 23 3332 8502
**Email**
aminfar83@yahoo.com

## Person responsible for updating data

**Contact**
**Name of organization / entity**
Semnan University of Medical Sciences
**Full name of responsible person**
Marzieh Mortezanejad
**Position**
Research expert
**Latest degree**
Master
**Other areas of specialty/work**
Physiotherapy
**Street address**
Tabatabaee Clinic, Ghods Blvd,Mashahir Square
**City**
Semnan
**Province**
Semnan
**Postal code**
3519618375
**Phone**
+98 23 3332 8502
**Email**
mmortezanejad98@yahoo.com

## 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