# Clinical Trial Protocol
# Iranian Registry of Clinical Trials

22 Nov 2026

## The effect of proprioception training on pain, grip force and proprioception in patients with tennis elbow

## Protocol summary


**Study aim**
The effect of proprioception training on pain, grip force, dexterity and proprioception of elbow joint in patients with chronic tennis elbow

**Design**
This study is a randomized controlled clinical trial with parallel, double blind, randomized block design with Block Randomization. The sample size is 22 persons in each group

**Settings and conduct**
The study will be conducted in Shiraz University of Rehabilitation Sciences and the study population (n = 44) will be randomly divided in 2 groups . Groups will do exercises for 6 weeks.This is a double-blinded study.The assessor and paitens will be blinded to participants group.

**Participants/Inclusion and exclusion criteria**
Inclusion criteria is: presence of symptoms exist at least for 3 months and up to 36 months; Feeling of pain and burning in the lateral elbow; at least 2 positive tests from 4 tennis elbow tests: A) Thomson test B) Maudsely test C) Mills tset D) Dynamometer test.The exclusion criteria is: History of any fracture or Surgery in the upper limb; History of Rheumatoid diseases and Osteoarthritis in the upper extremity joints; any disease or disorder of the central or peripheral nervous system.

**Intervention groups**
The first group patients receives routine physical therapy treatment protocol include ultrasound (puls mode, 1 MHz frequency, 1 W/Cm2) at origin of extensor muscles of forearm and fingers, friction massage for 5 minutes and strengthening with stretching exercises. The second group receives proprioception training beside routine physiotherapy. The duration of treatment is six week, three sessions per week.

**Main outcome variables**
Proprioception ; Pain and Function ; Dexterity ; Grip strength


## General information

**Reason for update**

**Acronym**

**IRCT registration information**
IRCT registration number: **IRCT20211010052722N1**
Registration date: **2021-10-26, 1400/08/04**
Registration timing: **prospective**

Last update: **2021-10-26, 1400/08/04**
Update count: **0**

**Registration date**
2021-10-26, 1400/08/04

**Registrant information**


**Name**
Nastaran Mollazehi
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Iran (Islamic Republic of)
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**Recruitment status**
**Recruitment complete**

**Funding source**

**Expected recruitment start date**
2021-11-22, 1400/09/01

**Expected recruitment end date**
2022-04-21, 1401/02/01

**Actual recruitment start date**
empty

**Actual recruitment end date**
empty

**Trial completion date**
empty

**Scientific title**

The effect of proprioception training on pain, grip force and proprioception in patients with tennis elbow

**Public title**

The effect of muscles strengthening on treatment of patients with tennis elbow

**Purpose**

Treatment

**Inclusion/Exclusion criteria**

**Inclusion criteria:**

Presence of symptoms exist at least for 3 months and up to 36 months; Feeling of pain and burning in the lateral elbow Feeling pain greater than 3 and less than 8 on the VAS criteria when touched lateral epicondyle by physiotherapist At least 2 positive tests from 4 tennis elbow tests: A) Thomson test B) Maudsely test C) Mills tset D) Dynamometer test.

**Exclusion criteria:**

History of fracture or dislocation at shoulder or elbow The history of surgery at shoulder or elbow for reasons other than fracture or dislocation Degenerative changes at elbow or shoulder Untreated infection or tumors at elbow or shoulder Pressure on the cervical nerve roots Person with radial tunnel syndrome or carpal tunnel syndrome Impingement nerves at arm and forearm History or symptoms of rheumatoid diseases History of getting Gout History of Diabetic neuropathy Any disease or disorder of the central nervous system including: stroke, head injury, MS and ..... Any injury at elbow that interferes with use physiotherapy modalities

**Age**

From **25 years** old to **50 years** old

**Gender**

Both

**Phase**

N/A

**Groups that have been masked**

- Participant
- Outcome assessor

**Sample size**

Target sample size: **44**

**Randomization (investigator's opinion)**

Randomized

**Randomization description**

Samples via Block randomizer application and Block size=4 will be placed in one of the two groups of routine physical therapy and routine physical therapy plus proprioception training.

**Blinding (investigator's opinion)**

Double blinded

**Blinding description**

Patients are blind to group therapy assessments and treatment will be performed by two independent individuals, and the assessor is blind.

**Placebo**

Not used

**Assignment**

Parallel

**Other design features**

## Secondary Ids

empty

## Ethics committees

### 1

**Ethics committee**

**Name of ethics committee**

Shiraz Univercity of Medical Siences

**Street address**

Central building of Shiraz University of Medical Sciences, Zand avenue, Shiraz

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۷۱۳۴۸۱۴۳۳۶

**Approval date**

2021-10-09, 1400/07/17

**Ethics committee reference number**

IR.SUMS.REHAB.REC.1400.029

## Health conditions studied

### 1

**Description of health condition studied**

Choronic Tennis elbow

**ICD-10 code**

M77.1

**ICD-10 code description**

Lateral epicondylitis

## Primary outcomes

### 1

**Description**

Proprioception

**Timepoint**

Before and after intervention; one month after the end intervention

**Method of measurement**

Biodex system isokinetic dynamometer

## Secondary outcomes

### 1

**Description**

Pain and function

**Timepoint**

Before and after intervention; one month after the end intervention

**Method of measurement**

Patient rate elbow evaluation questionnaire

**2**

**Description**
Dexterity
**Timepoint**
Before and after intervention; one month after the end intervention
**Method of measurement**
Purduepeg Bord test

**3**

**Description**
Grip strength
**Timepoint**
Before and after intervention; one month after the end intervention
**Method of measurement**
Hand dynamometer

## Intervention groups

**1**

**Description**
Intervention group:The first group patients receive routine physical therapy treatment protocol include ultrasound (puls mode, 1 MHz frequency, 1 W/Cm2) use for 5 min over the origin of common wrist extensor muscles, friction massage for 5 min applied on the origin of common wrist extensor muscles and strengthening (concentric and eccentric) and stretching exercises 3 sessions per week for 6 weeks.
**Category**
Rehabilitation

**2**

**Description**
Intervention group: The second group receive proprioception training exercises in addition to the routine physical therapy treatment in each session for 3 sessions per week for 6 weeks. proprioception training include: week 1: 30 seconds hold Rhythmic stabilization plus 30 seconds hold Quadruped position; week 2 : 1 min hold Rhythmic stabilization plus 1 min hold Quadruped position plus 30 seconds hold kneel push up position plus 30 seconds hold prone on elbows position; week 3: 2 min hold Rhythmic stabilization plus 2 min hold Quadruped position plus 1 min hold kneel push up position plus 1min hold prone on elbows plus 30 seconds hold push up position plus 30 seconds hold Full push up feet elevated position; week 4: 2 min hold kneel push up position plus 2 min hold prone on elbows plus 1 min hold push up position plus 1min hold Full push up feet elevated position plus 30 seconds hold Hands on wobble board plus 30 seconds hold Hands on bosu ball position; week 5: 2 min hold push up position plus 2 min hold Full push up feet elevated position plus 1 min hold Hands on wobble board plus 1 min hold Hands on bosu ball position plus 1 min hold elbows on gym ball; week 6: 2 min hold Hands on wobble board plus 2 min hold Hands on bosu ball position plus 2 min hold elbows on gym ball plus 1 min hold Hands on gym ball
**Category**
Rehabilitation

## Recruitment centers

**1**

**Recruitment center**
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## Sponsors / Funding sources

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**Grant name**
**Grant code / Reference number**
دانشگاه علوم پزشکی شیراز
**Is the source of funding the same sponsor organization/entity?**
Yes
**Title of funding source**
Shiraz University of Medical Sciences
**Proportion provided by this source**
100
**Public or private sector**
Private

**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

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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