

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 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 patients 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

Name of organization / entity

Country

Iran (Islamic Republic of)

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+98 54 3348 2018

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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**

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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**

Chronic 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

Name of recruitment center

School of Rehabilitation Sciences

Full name of responsible person

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Sponsors / Funding sources

1

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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**Contact****Name of organization / entity**

Shiraz University of Medical Sciences

Full name of responsible person

Nastaran Mollazehi

Position

Student

Latest degree

Bachelor

Other areas of specialty/work

Physiotherapy

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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