

Clinical Trial Protocol

Iranian Registry of Clinical Trials

12 Sep 2026

Evaluation of the effect of whole body electrical muscle stimulation and common strengthening exercises on pain and improvement of function in women with patellofemoral pain syndrome

Protocol summary

Study aim

Comparison of the effectiveness of two treatment protocol of strengthening exercises and strengthening exercises with whole body electrical stimulation on improving pain and function in women with patellofemoral pain syndrome.

Design

Two arm parallel group randomised trial. 60 women with patellofemoral pain syndrome

Settings and conduct

This study, which will be performed in physiotherapy center of Ayatollah Taleghani Hospital in Ahvaz, 60 women with patellofemoral pain syndrome participate. Includes two groups: 1- Therapeutic exercises (doing 7 weeks of knee and hip strengthening exercises) 2- group of whole body electrical stimulation and strengthening exercises (7 weeks of electrical stimulation with exercises)

Participants/Inclusion and exclusion criteria

Inclusion criteria: Female(18-40) Pain in anterior of knee or posterior the patella in one or both knees that is exacerbated in at least 2 of the following activities: sitting too much, squatting, going up and down stairs, kneeling, jumping and running Exclusion criteria; History of previous surgery and injury on the knee joint. Having a pacemaker, implant . Pregnancy. Epilepsy

Intervention groups

The exercise group(control), include strengthening exercise hip and knee muscles, which will be based on the standard rehabilitation protocol in patients with patellofemoral pain, and the second group performs these exercises with the whole body electrical stimulation.

Main outcome variables

pain, physical performance

General information

Reason for update

Acronym

PFPS

IRCT registration information

IRCT registration number: **IRCT20220421054600N1**

Registration date: **2022-07-04, 1401/04/13**

Registration timing: **registered_while_recruiting**

Last update: **2022-07-04, 1401/04/13**

Update count: **0**

Registration date

2022-07-04, 1401/04/13

Registrant information

Name

Maryam Kiani haft lang

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 61 3554 0256

Email address

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2022-06-22, 1401/04/01

Expected recruitment end date

2023-02-20, 1401/12/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty		Secondary Ids
		empty
Scientific title	Evaluation of the effect of whole body electrical muscle stimulation and common strengthening exercises on pain and improvement of function in women with patellofemoral pain syndrome	Ethics committees
Public title	Whole body electrical muscle stimulation in patellofemoral pain syndrome	1
Purpose	Supportive	Ethics committee
Inclusion/Exclusion criteria		Name of ethics committee
Inclusion criteria:	Young women with a gradual onset of anterior knee pain without a history of trauma for at least 6 months.	Ethics Committee of Ahvaz Rehabilitation School
Exclusion criteria:	Any intra-articular symptoms such as ligament and meniscal injury. Existence of pain and tenderness in the patellar tendon, the internal hamstring tendon , ilio tibial band. Osgood Schlatter or Sinding Larsen-Johansson syndrome. Referral pain of hip and lumbar. History of patellar dislocation. History of previous surgery on the patellofemoral joint. Existence of signs of degeneration in radiographic finding. Taking corticosteroids and anti-inflammatory drugs. Having a pacemaker, implant . Pregnancy. Epilepsy.	Street address
Age	From 18 years old to 40 years old	Blv Golestan,Ahvaz Town
Gender	Female	City
Phase	N/A	Ahvaz
Groups that have been masked		Province
	Outcome assessor	Khouzestan
Sample size	Target sample size: 60	Postal code
Randomization (investigator's opinion)	Randomized	33133 -61357
Randomization description	People with patellofemoral pain syndrome are randomly divided into two groups include: strengthening exercises and strengthening exercises with electrical stimulation of the whole body by tossing coins.	Approval date
Blinding (investigator's opinion)	Single blinded	2022-02-08, 1400/11/19
Blinding description	Three specialist are involved in the study process. The first specialist is in charge of the evaluation, the second specialist is in charge of therapeutic interventions, and the third specialist is in charge of analyzing the results. In this study, the specialist who evaluations patient is blind	Ethics committee reference number
Placebo	Not used	IR.AJUMS.REC.1401.021
Assignment	Parallel	Health conditions studied
Other design features		1
		Description of health condition studied
		Patellofemoral pain syndrome
		ICD-10 code
		M22.2
		ICD-10 code description
		Patellofemoral disorders
		Primary outcomes
		1
		Description
		Pain score in the visual analogue scale
		Timepoint
		Measurement of pain at the beginning of the study, seven weeks and three months after starting interventions.
		Method of measurement
		Visual analogue scale
		2
		Description
		Function(strength)
		Timepoint
		Measurement of function (strength) at the beginning of the study, seven weeks and three months after starting interventions.
		Method of measurement
		Dynamometer
		3
		Description

Function (Step down test)
Timepoint
Measurement of function (step down test) at the beginning of the study, seven weeks and three months after starting interventions.
Method of measurement
The number of repetitions

4

Description
Function(muscle endurance)

Timepoint
Measurement of function (muscle endurance) at the beginning of the study, seven weeks and three months after starting interventions.

Method of measurement
time

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: Exercise therapy with whole body electrical stimulation .The treatment protocol in this group includes the knee and hip muscles strengthening : quadriceps isometric contraction, abductor and external-internal rotator muscles, single leg raising in all plane, weigth training , elastic band training in all plane, lower extremity balance training(static and movable surface with tilt board) (three times per week) and whole body electrical stimulation (1.5 sessions per week : 1 session per week and in the next week 2 session per week). This protocol is performed for seven weeks .frequency of current is 50 hz, puls duration 350 micoro sescend and treatment time-15 min

Category
Rehabilitation

2

Description
Control group: In this group, common strengthening exercises of knee and hip muscles are performed for 7 weeks and with a frequency of three times a week.

Category
Rehabilitation

Recruitment centers

1

Recruitment center
Name of recruitment center
Taleghani hospital
Full name of responsible person
Neda Oraki far

Street address
Taleghani hospital, Saadat Blvd, Padadshahr
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Ahvaz University of Medical Sciences
Full name of responsible person
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Street address
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Grant name
Grant faculty members
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Ahvaz 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
Ahvaz University of Medical Sciences
Full name of responsible person
Neda Oraki far
Position

Associate professor
Latest degree
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Other areas of specialty/work
Physiotherapy
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Person responsible for updating data

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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

the raw data of all participant will not be published.

Study Protocol

No - There is not a plan to make this available

Statistical Analysis Plan

Yes - There is a plan to make this available

Informed Consent Form

No - There is not a plan to make this available

Clinical Study Report

Yes - There is a plan to make this available

Analytic Code

Not applicable

Data Dictionary

No - There is not a plan to make this available

Title and more details about the data/document

the raw data of all participant will not be published.

When the data will become available and for how long

the raw data of all participant will not be published.

To whom data/document is available

the raw data of all participant will not be published.

Under which criteria data/document could be used

the raw data of all participant will not be published.

From where data/document is obtainable

the raw data of all participant will not be published.

What processes are involved for a request to access data/document

the raw data of all participant will not be published.

Comments

the raw data of all participant will not be published.