

Clinical Trial Protocol

Iranian Registry of Clinical Trials

28 Jun 2026

The evaluation of the effects of core stabilization exercise on balance, performance and pain in individuals with patellofemoral pain syndrome

Protocol summary

Summary

The goal of this research is to evaluate the effects of core neuromuscular training on pain, balance and functional performance in women with patellofemoral pain syndrome. Inclusion criteria for this study are: anterior knee pain in recent 2 months; positive patellar grind test; kujala score ranging from 50 to 80; visual analog score ranging from 3 to 10. Exclusion criteria for this study are: other knee joint pathologies such as meniscus and ligament injuries, osteoarthritis, tendon impairments and patellar dislocations; referral pain from other joints; lower extremity surgeries; neuromuscular and metabolic diseases. 28 females with PFPS are randomly assigned into intervention (14 people) and control group (14 people). Both groups receive the same conventional physical therapy for 4 weeks, while intervention group receive core stabilization exercise as well. Balance, performance and pain in both groups are assessed by Y balance test, kujala questionnaire, step down test and VAS before and after treatment.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2014021315932N2**

Registration date: **2014-08-16, 1393/05/25**

Registration timing: **retrospective**

Last update:

Update count: **0**

Registration date

2014-08-16, 1393/05/25

Registrant information

Name

Alireza Motealleh

Name of organization / entity

Shiraz University of Medical Sciences

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Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Rehabilitation school, Shiraz University of Medical Sciences

Expected recruitment start date

2013-02-22, 1391/12/04

Expected recruitment end date

2013-08-23, 1392/06/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The evaluation of the effects of core stabilization exercise on balance, performance and pain in individuals with patellofemoral pain syndrome

Public title

The effects of trunk stabilization exercise on anterior knee pain

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria: anterior knee pain in recent 2 months; gradual and non traumatic onset of symptoms; positive patellar grind test; kujala score ranging between 50 to

80; visual analog score ranging from 3 to 10 in last past month. Exclusion criteria: other knee joint pathologies such as meniscus and ligament injuries,osteoarthritis,tendon impairments and patellar dislocations; hip and lumbar referral pain; previous lower extremity surgeries; neuromuscular and methabolic diseases such as diabet; cardiac disorders impeding exercise

Age

From **18 years** old to **40 years** old

Gender

Female

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **28**

Randomization (investigator's opinion)

Randomized

Randomization description**Blinding (investigator's opinion)**

Single blinded

Blinding description**Placebo**

Not used

Assignment

Parallel

Other design features**Secondary Ids**

empty

Ethics committees**1****Ethics committee****Name of ethics committee**

Shiraz University of Medical Science

Street address

Shiraz University of Medical Sciences, Zand street,
Shiraz, Fars, Iran

City

Shiraz

Postal code**Approval date**

2013-10-06, 1392/07/14

Ethics committee reference number

CT-P-92-5724

Health conditions studied**1****Description of health condition studied**

patellofemoral pain syndrome

ICD-10 code

M22.2

ICD-10 code description

Patellofemoral disorders

2**Description of health condition studied**

Chondromalacia patellae

ICD-10 code

M22.4

ICD-10 code description

Chondromalacia patellae

Primary outcomes**1****Description**

Pain

Timepoint

Immediately before treatment -immediately after treatment (after 4 weeks)

Method of measurement

VAS

2**Description**

Balance

Timepoint

Immediately before treatment -immediately after treatment (after 4 weeks)

Method of measurement

Star excursion balance test

3**Description**

knee Function

Timepoint

Immediately before treatment -immediately after treatment (after 4 weeks)

Method of measurement

kujala questionnaire and Knee performance tests

Secondary outcomes

empty

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

control group: 1.Hamstring, ITB and gastrocnemius stretching 30 sec hold for 5 repetitions 2. Quadriceps setting: 10 repetition 10 sec hold 3. SLR: 3 set 10 seconds hold 4. Forward step up: 3 set of 10 repetitions 5. Squat with 30° knee flexion: 3 set 10 seconds hold 6. Lateral step up: 3 set 10 seconds hold

Category

Rehabilitation

2

Description

Intervention group: the same as control group plus following core neuromuscular training: 1-bridging while holding a small ball between knees (3 set 10 seconds hold) 2- sidelying hip abduction(Clam exercise)(6 repeat 10 seconds hold) 3-Lat SLR (3 set 10 seconds hold) 4-curl up while holding a small ball between bent knees (5 repeat 10 seconds hold) 5-Isometric hip abduction in standing position (15 repeat 5 seconds hold) 6- Intermittent shoulder flexion/extension while standing on afflicted limb (15 repeat 5 seconds hold) 7-Trunk rotation toward healthy side While maintaining hip internal rotation in standing position on the afflicted leg (15 repeat 5 seconds hold) 8- curl up while holding a small ball between straight knees (6 repetition 10 seconds hold) 9- Lat curl up while holding a small ball between straight knees(6 repetition 10 seconds hold)

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Rehabilitation school, Shiraz University of Medical Sciences

Full name of responsible person

Dr. Alireza Motealleh

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Shiraz University of Medical Sciences, Rehabilitation School

Full name of responsible person

Dr. Gholamreza Hatam

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Shiraz University of Medical Sciences, Zand street, Shiraz, Fars, Iran

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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

Shiraz University of Medical Sciences, Rehabilitation School

Proportion provided by this source

100

Public or private sector

empty

Domestic or foreign origin

empty

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

empty

Person responsible for general inquiries

Contact

Name of organization / entity

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Position

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Web page address**Sharing plan****Deidentified Individual Participant Data Set (IPD)**

empty

Study Protocol

empty

Statistical Analysis Plan

empty

Informed Consent Form

empty

Clinical Study Report

empty

Analytic Code

empty

Data Dictionary

empty