

# 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

##### Country

Iran (Islamic Republic of)

##### Phone

+98 71 1626 5108

##### Email address

motealleh@sums.ac.ir

##### 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

##### Street address

NO.32, Abiverdi 1 Avenue, Chamran Blvd, Shiraz, Fars, Iran

##### City

Shiraz

## Sponsors / Funding sources

### 1

#### Sponsor

##### Name of organization / entity

Shiraz University of Medical Sciences, Rehabilitation School

##### Full name of responsible person

Dr. Gholamreza Hatam

##### Street address

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

##### City

Shiraz

##### 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

Shiraz University of Medical Sciences

#### Full name of responsible person

Nazanin Nejati

#### Position

Student

#### Other areas of specialty/work

#### Street address

Abrishami Street, Gaz Square, Shiraz,Fars, Iran

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+98 71 1227 5139

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## Person responsible for scientific inquiries

### Contact

#### Name of organization / entity

Shiraz University of Medical Sciences

#### Full name of responsible person

Dr. Alireza Motealleh

#### Position

Assistant professor of physiotherapy

#### Other areas of specialty/work

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## Person responsible for updating data

### Contact

#### Name of organization / entity

Shiraz University of Medical sciences

**Full name of responsible person**

Dr. Alireza Motealleh

**Position**

Assistant professor

**Other areas of specialty/work****Street address**

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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*