

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

18 Jun 2026

### The effect of postural control training using unstable sitting on knee joint pain and function in patients with patellofemoral pain syndrome

#### Protocol summary

##### Summary

The purpose of this study is to evaluate the effect of core postural control training using unstable sitting on pain and function in patients with patellofemoral pain syndrome. Patients with patellofemoral pain syndrome complaining gradual anterior knee pain during last 3 months and age between 18 to 45 years old are included. The patients with any previous knee trauma or other pathologies such as meniscus and ligament injuries are excluded. Minimal sample size for this study was determined as 15 patients in each group. Patients will randomly assigned either to control or intervention groups. Both groups will receive conventional physical therapy exercises for patellofemoral pain syndrome during 4 weeks (12 sessions), while the intervention group will receive core postural control training using unstable sitting device as well. Variables including pain intensity, function via Kujala questionnaire, functional step down test and postural control of trunk and core region will be measured for each patient in first and 12th sessions.

#### General information

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT2016120415932N12**

Registration date: **2017-01-07, 1395/10/18**

Registration timing: **prospective**

Last update:

Update count: **0**

##### Registration date

2017-01-07, 1395/10/18

##### 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 Faculty of Shiraz University of Medical Sciences

##### Expected recruitment start date

2017-01-20, 1395/11/01

##### Expected recruitment end date

2017-06-05, 1396/03/15

##### Actual recruitment start date

empty

##### Actual recruitment end date

empty

##### Trial completion date

empty

##### Scientific title

The effect of postural control training using unstable sitting on knee joint pain and function in patients with patellofemoral pain syndrome

##### Public title

The effect of core training using unstable sitting in patients with patellofemoral pain syndrome

##### Purpose

Treatment

##### Inclusion/Exclusion criteria

Inclusion criteria: Women aged 18 to 45 years old with unilateral or bilateral patellofemoral pain syndrome; anterior or retropatellar knee pain during at least 2 following activities: prolonged sitting, ascending or descending stair, squatting, kneeling, jumping and

running; pain on palpation of medial and lateral patellar facets and positive patellar grind test; an insidious onset of symptoms not related to trauma for the last 3 months; Kujula scores less than 85 out of 100; numeric rate scale scores ranging 3 to 10 during last week. Exclusion criteria: Other knee joint pathologies such as meniscus and ligament injuries, osteoarthritis and tendon impairments; patellar subluxations or dislocations; referral pain from other joints including lumbar spine, hip and sacroiliac joints and spinal fractures; previous knee surgery; neuromuscular, metabolic and rheumatology diseases; pregnancy.

**Age**

From **18 years** old to **45 years** old

**Gender**

Female

**Phase**

N/A

**Groups that have been masked**

*No information*

**Sample size**

Target sample size: **30**

**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 Sciences

**Street address**

Central Building of Shiraz University of Medical Sciences, Zand street, Shiraz

**City**

Shiraz

**Postal code****Approval date**

2016-07-17, 1395/04/27

**Ethics committee reference number**

IR.SUMS.REC.1395.69

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

Patellofemoral pain syndrome

**ICD-10 code**

M22.2

**ICD-10 code description**

Patellofemoral disorders

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

Postural control of trunk and core

**Timepoint**

First and 12th sessions

**Method of measurement**

Force plate

**2****Description**

Pain intensity

**Timepoint**

First and 12th sessions

**Method of measurement**

Numeric Rate Scale (NRS)

**Secondary outcomes****1****Description**

Functional stepping

**Timepoint**

First and 12th sessions

**Method of measurement**

Step down test

**2****Description**

Function

**Timepoint**

First and 12th sessions

**Method of measurement**

kujula questionnaire

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

Intervention group: The same as control group plus postural control training exercise using unstable sitting. Patients will be asked to control their balance on unstable sitting and hold it as long as possible (3 set, 6 minutes). In order to progress the training, 3 unstable sitting with 3 different diameters (24, 30 and 50 cm) are provided.

**Category**

Rehabilitation

## 2

### Description

Control group: Stretching exercises for quadriceps, hamstring, iliotibial band and calf muscles (3 repetition, 30 second hold); quadriceps setting, terminal knee extension, straight leg raise and hip abductor and external rotator strengthening exercise (3 set, 10 second hold).

### Category

Rehabilitation

## Recruitment centers

### 1

#### Recruitment center

##### Name of recruitment center

Physiotherapy clinic of Shiraz School of Rehabilitation

##### Full name of responsible person

Dr. Alireza Motealleh

##### Street address

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

##### City

Shiraz

## Sponsors / Funding sources

### 1

#### Sponsor

##### Name of organization / entity

Shiraz University of Medical Sciences

##### Full name of responsible person

Dr. Gholamreza Hatam

##### Street address

Shiraz University of Medical Sciences Building, Zand Street, Shiraz.

##### 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

#### 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, Rehabilitation Science Faculty

#### Full name of responsible person

Forouzan Foroughi

#### Position

Master science student of Physical Therapy

#### Other areas of specialty/work

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PhD of Physiotherapy

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## 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*