

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

26 Jul 2026

### Comparison of the Effects of Sensorimotor Training versus Hip, Knee & Trunk Strengthening Exercise on Pain & Function of Patients with Patellofemoral Pain Syndrome - A Randomized Controlled Trial

#### Protocol summary

Registration timing: **prospective**

##### Study aim

Comparison of the Effects of Sensorimotor Training versus Hip, Knee & Trunk Strengthening Exercise on Pain & Function of Patients with Patello Femoral Pain Syndrome.

Last update: **2021-09-29, 1400/07/07**

Update count: **1**

##### Registration date

2019-08-01, 1398/05/10

##### Design

Design: Two arm parallel treatment group randomized trial. Blinding: The outcome assessor will be blind in this study. Randomization::40 participants will be randomly allocated to the 2 groups via permuted block randomization.

##### Registrant information

###### Name

Sobhan Sobhani

###### Name of organization / entity

Shiraz University of Medical Sciences

###### Country

Iran (Islamic Republic of)

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+98 71136271551

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sobhanis@sums.ac.ir

##### Settings and conduct

This study will be done in Clinic and Rehabilitation Sciences Research Center, Shiraz University of Medical Sciences, Shiraz ,Iran on individual with Patello Femoral Pain Syndrome.

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Participants/Inclusion and exclusion criteria

Inclusion criteria: People aged 18 to 40 years with unilateral knee anterior pain, Positive diagnostic tests of PFPS, Pain reports during specific activities Non-inclusion criteria: People with lower limbs have other problems, such as a stroke or a history of surgery.

##### Expected recruitment start date

2019-07-23, 1398/05/01

##### Expected recruitment end date

2019-10-23, 1398/08/01

##### Actual recruitment start date

2019-09-04, 1398/06/13

##### Actual recruitment end date

2020-05-05, 1399/02/16

##### Trial completion date

2020-06-05, 1399/03/16

##### Intervention groups

Intervention group 1: Sensorimotor exercise Intervention group 2: strengthening exercise(Hip, Knee & Trunk)

##### Main outcome variables

Pain, Function, Strength, Balance

##### Scientific title

Comparison of the Effects of Sensorimotor Training versus Hip, Knee & Trunk Strengthening Exercise on Pain & Function of Patients with Patellofemoral Pain Syndrome - A Randomized Controlled Trial

#### General information

##### Reason for update

The recording of the start and end time of sampling was performed

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20151118025105N5**

Registration date: **2019-08-01, 1398/05/10**

**Public title**

Comparison of the Effects of Sensorimotor Training versus Hip, Knee & Trunk Strengthening Exercise on patellofemoral pain syndrome

**Purpose**

Treatment

**Inclusion/Exclusion criteria****Inclusion criteria:**

Persons 18 to 40 years old with unilateral knee anterior pain Starting spontaneous pain without any reports of knee injury Knee pain report at least previous three months Pain reporting in two or more cases in activities such as climbing of stairs, scatt, kneeling, jumping and prolong sitting Moderate pain report between 3 to 7 in Numerical Pain Rating Scale at least one week Pain during pressure testing of the patella grind positive test or tenderness of medial and lateral facets

**Exclusion criteria:**

People with other knee injuries such as knee ligament injury, patellar instability, meniscal injuries, tendinopathy and osteoarthritis. Any injury of hip, ankle and spine Surgical history on the lower extremity The difference in the length of the lower limbs Peripheral and central nervous system disorders People who take topical, oral and injectable drugs during the course of treatment People who use medications that affect balance over the past 48 hours, as well as those who have any problems such as hearing impairments that affect balance History of drug and alcohol abuse

**Age**

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

**Gender**

Both

**Phase**

N/A

**Groups that have been masked**

- Investigator
- Outcome assessor
- Data analyser

**Sample size**

Target sample size: **40**

Actual sample size reached: **40**

**Randomization (investigator's opinion)**

Randomized

**Randomization description**

participants will be randomly allocated with random block method each block size is 4 to the 2 groups. A list of randomized 4-letter permutations of the letters A and B representing groups one and two Produced with Random Allocation Random Software and the criterion is the allocation of people in groups. For example, if the ABBA permutation is generated in the first block Shows the first person in group A, Second and third in group B and the fourth in the group A. There are 10 blocks in total.

**Blinding (investigator's opinion)**

Single blinded

**Blinding description**

In this study, the outcome assessor as well as data analyzer will be blinded to the group allocation.

**Placebo**

Not used

**Assignment**

Parallel

**Other design features****Secondary Ids**

empty

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

Ethics Committee of Shiraz Rehabilitation Sciences School

**Street address**

School of Rehabilitation Sciences, Abiverdi 1 Street, Chamran Blvd

**City**

Shiraz

**Province**

Fars

**Postal code**

33669-71947

**Approval date**

2019-03-18, 1397/12/27

**Ethics committee reference number**

IR.sums.rehab.rec.1397.026

**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**

Pain

**Timepoint**

Pre and post intervention (after 4 weeks) and during follow up (after 4 weeks)

**Method of measurement**

Anterior Knee Pain Scale

**2****Description**

Function

**Timepoint**

Pre and post intervention (after 4 weeks)

**Method of measurement**

Step Down Test

## Secondary outcomes

### 1

#### Description

Hip and Knee muscle strength(knee extensor+ hip abductor and external rotator)-Trunk flexor- Trunk extensor

#### Timepoint

Pre and post intervention (after 4 weeks)

#### Method of measurement

Hand Held Dynamometer

### 2

#### Description

Balance

#### Timepoint

Pre and post intervention (after 4 weeks)

#### Method of measurement

Modified Star Excursion Balance Test

## Intervention groups

### 1

#### Description

Intervention group: intervention group 1This group will receive the sensory motor exercise for 12 sessions during a period of 4 weeks(Three sessions per week) and each session will contain 3 exercises and duration of each exercise is 5 minutes. The exercises are performed in four situations, both using ball and balance board, and without using the device.

#### Category

Rehabilitation

### 2

#### Description

Intervention group 2: This group will receive the hip, knee and trunk strengthening exercise for 12 sessions during a period of 4 weeks(Three sessions per week). for progress strengthenin exercise Which are done with weightcuff We use the 70% 1 Repetitive Movement, which is re-evaluated weekly and For other exercises Which are done without weightcuff progress is By changing position and increase the number of exercises.

#### Category

Rehabilitation

## Recruitment centers

### 1

#### Recruitment center

##### Name of recruitment center

Physiotherapy Clinics in Shiraz city

##### Full name of responsible person

Sobhan Sobhani

#### Street address

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sobhanis@sums.ac.ir

#### Web page address

<http://rehab.sums.ac.ir/fa/>

## Sponsors / Funding sources

### 1

#### Sponsor

##### Name of organization / entity

Shiraz University of Medical Sciences

##### Full name of responsible person

Dr. Ghasemi Unes

##### Street address

Floor 7, Center Bilding of Shiraz Univercity of Medical Science, beside Helale Ahmar, Zand street

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vcrdep@sums.ac.ir

##### Web page address

<http://research.sums.ac.ir/fa/contact-information/index.html>

#### 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

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**

Shiraz University of Medical Sciences

**Full name of responsible person**

Sobhan Sobhani

**Position**

Assistant Professor, PT, PhD

**Latest degree**

Ph.D.

**Other areas of specialty/work**

Physiotherapy

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## Person responsible for scientific inquiries

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Assistant Professor, PT, PhD

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**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**

Farshid Farah-bakhsh

**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