

Clinical Trial Protocol

Iranian Registry of Clinical Trials

07 Jul 2026

Comparison of unstable seated core postural control training with hip and knee strength training on pain, function and proprioception in patients with patellofemoral pain

Protocol summary

Study aim

Comparison of unstable seated core postural control training with hip and knee strength training on pain, function and proprioception in patients with patellofemoral pain

Design

This study is a randomized controlled clinical trial with parallel, single blind, randomized block design with Block Randomization. The sample size is 19 persons in each group.

Settings and conduct

The study will be conducted in Shiraz university of Rehabilitation Sciences and the study population (n = 57) will be randomly divided into control and intervention groups. The intervention groups will do exercises for 4 weeks. This is a single-blinded study. The assessor will be blinded to participants group.

Participants/Inclusion and exclusion criteria

Patients with patellofemoral pain 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 or spinal disorders such as Scoliosis; Spondylolysis or radicular pain are excluded.

Intervention groups

At first both intervention groups will perform stretching exercises then one group will receive hip and knee strengthening exercises for patellofemoral pain, while other intervention group will receive core postural control training using unstable sitting device. Control group will be received no intervention.

Main outcome variables

Pain, Function, Proprioception

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20131225015932N16**

Registration date: **2020-04-21, 1399/02/02**

Registration timing: **prospective**

Last update: **2020-04-21, 1399/02/02**

Update count: **0**

Registration date

2020-04-21, 1399/02/02

Registrant information

Name

Alireza Motealleh

Name of organization / entity

Shiraz University of Medical Sciences

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2020-11-21, 1399/09/01

Expected recruitment end date

2021-03-12, 1399/12/22

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparison of unstable seated core postural control training with hip and knee strength training on pain, function and proprioception in patients with patellofemoral pain

Public title

Comparison the effect of trunk training with hip and knee strength training on pain ,function and proprioception in patients with patellofemoral pain

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Women aged 18-40 years/old with unilateral patellofemoral pain Anterior knee pain provoked by at least 2 of the following activities:prolonged sitting, ascending or descending stairs, squatting,kneeling, jumping, running Pain on palpation of the medial and lateral patellar facets, and positive patellar grinding test An insidious onset of symptoms not related to trauma for the last 3 months Kujala scores 50-80 Average pain level of at least 3 out of 10 on an NRS during the previous week Active for at least 30 min daily, but not professional athletes

Exclusion criteria:

Other knee joint pathologies such as meniscus and ligament injuries, osteoarthritis and tendon impairments;Self-reported history of patellar subluxation or dislocations; plica syndrome and Osgood-Schlatter disease; trauma in hip; knee or ankle joint Knee surgery within the previous year Radicular pain from other joints including lumbar spine, hip and sacroiliac joints or any pain in sitting position Spinal problems such as fractures; discopathies; spondylolysthesis and previous abdomen surgeries ; vertebral column trauma or surgeries and spinal tumors Metabolic disorders such as Diabetes; neurological, and rheumatology diseases such as Stroke;MS;RA and balance disorders and peripheral Neuropathies Pregnancy Athlete women who participates in a specific sport at least 2 h /day and 3 times a week regularly Scoliosis

Age

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

Gender

Female

Phase

N/A

Groups that have been masked

- Outcome assessor

Sample size

Target sample size: **57**

Randomization (investigator's opinion)

Randomized

Randomization description

Samples via Block randomizer application and Block size=3 will be placed in one of the three control groups, the hip and knee strengthening exercises group, or the postural control training group.

Blinding (investigator's opinion)

Single blinded

Blinding description

The physiotherapist who will measure the outcome measures will be blinded to the patient's allocation group

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

Rehabilitation school of Shiraz University of Medical Sciences, Abivardi Ave., Chamran Boulevard

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Postal code

۳۳۶۶۹-۷۱۹۴۷

Approval date

2020-02-19, 1398/11/30

Ethics committee reference number

IR.SUMS.REHAB.REC.1399.001

Health conditions studied

1

Description of health condition studied

Patellofemoral pain

ICD-10 code

M22.2

ICD-10 code description

Patellofemoral disorders

Primary outcomes

1

Description

Pain intensity

Timepoint

first ;6th ;12th sessions and 1 month after intervention

Method of measurement

Numeric Rate Scale (NRS)

2

Description

Functional stepping

Timepoint

First;6th and 12th sessions and 1 month after intervention

Method of measurement

Step down test

3

Description

Function

Timepoint

First;6th;12th sessions and 1month after intervention

Method of measurement

Kujala questioner

Secondary outcomes

1

Description

Lumbar proprioception

Timepoint

First and 12th sessions

Method of measurement

Isokinetic

2

Description

Knee proprioception

Timepoint

First and 12th sessions

Method of measurement

Isokinetic

Intervention groups

1

Description

First intervention group, hip and knee strengthening group: participants will do 3 treatment sessions per week for a period of 1 month stretching exercises for quadriceps, hamstring, illiotibial band and calf muscles (3 repetition, 30 second hold) and quadriceps setting, terminal knee extention, straight leg raise and hip abductor and external rotator strengthening exercise.Each session almost will take time 47 minutes.

Category

Rehabilitation

2

Description

Second intervention group; postural control training exercise group: this group participants will do stretching exercises same as hip and knee strengthening group then patients will be received postural control training exercise using unstable sitting 3 treatment sessions per week for a period of 1 month. Patients will be asked to control their balance on unstable sitting and hold it as long as possible. In order to progress the training, 3

unstable sitting with 3 different diameters (24, 30 and 50 cm) will be provided. Each session will take time 47 min, and 7 sets of 5 min each with a 2-min rest interval between sets will used.

Category

Rehabilitation

3

Description

Control group: This group will be received no intervention.

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

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

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Full name of responsible person

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Grant name

Grant code / Reference number

دانشگاه علوم پزشکی شیراز

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

Elham Ahmadi Ashan

Position

Master science student of Physical Therapy

Latest degree

Bachelor

Other areas of specialty/work

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Other areas of specialty/work

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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