

Clinical Trial Protocol

Iranian Registry of Clinical Trials

27 Jul 2026

Comparison of specific hip strengthening exercises and conventional knee exercises on pain, muscle strength and function in sprinters with patello-femoral pain syndrome

Protocol summary

Study aim

The aim of the study is to Compare the effects of Hip Strengthening exercises and Conventional Knee exercise on relieve pain, Muscle strength and Improve functional status in sprinters with Patella-femoral pain syndrome.

Design

Single blinded randomized clinical trial, parallel group, Concealment of data will be done on group allocation

Settings and conduct

the study will be conducted in Pakistan Sports Board, Lahore. Outcome assessor will be blinded to treatment groups

Participants/Inclusion and exclusion criteria

The inclusion criteria: Age group between 15-30 years; Positive patellar compression test; Subjects having anterior knee pain for least 4 weeks; Muscle power for quadriceps, hamstring, gluteus medius and gluteus maximus should be grade 3; pain level of 3-cm or more on a 10-cm Numerical pain rating scale. Exclusion Criteria: Any neurological disorder, Injury to lumbosacral region, hip or ankle, Rheumatoid arthritis Patellar instability, dislocation/subluxation history of knee injury recent history (within 3 months) of knee surgery clinical evidence of meniscal lesion, ligamentous instability, patellar tendon pathology, chondral damage, osteoarthritis, or referred pain from the spine.

Intervention groups

Intervention Group: Traditional knee exercises and strengthening exercises of hip with resistance. All exercises were performed 3 times a week on alternate days for 6 weeks. Control Group: Conventional knee exercises and weight bearing hip strengthening exercises .All exercises were performed 3 times a week on alternate days for 6 weeks.

Main outcome variables

Pain, Muscle Strength, Function

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20210330050789N1**

Registration date: **2021-07-21, 1400/04/30**

Registration timing: **prospective**

Last update: **2021-07-21, 1400/04/30**

Update count: **0**

Registration date

2021-07-21, 1400/04/30

Registrant information

Name

Mahnoor Asif

Name of organization / entity

REX Clinic Model town, Lahore Pakistan

Country

Pakistan

Phone

+92 42 32184993

Email address

mahamasif96@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2021-08-01, 1400/05/10

Expected recruitment end date

2021-10-01, 1400/07/09

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty	
Scientific title	Comparison of specific hip strengthening exercises and conventional knee exercises on pain, muscle strength and function in sprinters with patello-femoral pain syndrome
Public title	Comparison of hip strengthening exercises and knee exercises on pain, muscle strength and function in runners with knee pain
Purpose	Treatment
Inclusion/Exclusion criteria	
Inclusion criteria:	Positive patellar compression test Subjects having anterior knee pain for least 4 weeks Muscle power for quadriceps, hamstring, gluteus medius and gluteus maximus should be grade 3 Pain aggravates during any of the following two activities like ascending & descending stairs, squatting, kneeling, jumping, running, jogging Average pain level of 3-cm or more on a 10-cm Numerical pain rating scale
Exclusion criteria:	neurological disorder Injury to lumbosacral region, hip or ankle Rheumatoid arthritis Pregnancy Patellar instability history of knee injury signs or symptoms of other pathology recent history (within 3 months) of knee surgery history of patellar dislocation/subluxation clinical evidence of meniscal lesion, ligamentous instability, patellar tendon pathology, chondral damage, osteoarthritis, or referred pain from the spine.
Age	From 15 years old to 30 years old
Gender	Both
Phase	N/A
Groups that have been masked	• Outcome assessor
Sample size	Target sample size: 28
Randomization (investigator's opinion)	Randomized
Randomization description	Non probability convenient sampling technique will be used for recruitment of data. At the time of group allocation Sample will be randomly allocated into groups through lottery method. Another person from outside will be called out for sample allocation to groups and that person will be unaware of treatment of groups
Blinding (investigator's opinion)	Single blinded
Blinding description	An outcome assessor who will be unaware of the treatment of groups will take baseline pre and post measurements
Placebo	Not used
Assignment	

Parallel	
Other design features	
Secondary Ids	empty
Ethics committees	
1	
Ethics committee	
Name of ethics committee	Research & Ethics Committee of Riphah International University Lahore, Pakistan
Street address	House No 494 Block 2 Sector C1 Township
City	Lahore
Postal code	54000
Approval date	2021-06-14, 1400/03/24
Ethics committee reference number	REC/RCR & AHS/21/0404
Health conditions studied	
1	
Description of health condition studied	Patello-Femoral pain syndrome (PFPS) or anterior knee pain can be defined as retropatellar pain during stairs, hopping/jogging, prolonged sitting, kneeling, squatting or pain on palpation of patellar facets, femoral condyles. Patello femoral pain syndrome is also called as "runner's knee" because it is common in people who participate in sports, PFPS is the most prevalent orthopedic condition seen in sports medicine and it is the primary diagnosis in about 25% of all running injuries.
ICD-10 code	M25.56
ICD-10 code description	Pain in knee
Primary outcomes	
1	
Description	Pain
Timepoint	Pain will be measured before intervention and 6 weeks after intervention
Method of measurement	Pain will be recorded through Numeric pain rating Scale(NPRS)
2	
Description	Muscle Strength

Timepoint

Muscle Strength will be measured before intervention and 6 weeks after intervention

Method of measurement

Muscle Strength will be measured by Dynamometer

3

Description

Knee Function

Timepoint

Function will be measured before intervention and 6 weeks after intervention

Method of measurement

Function will be measured by Anterior Knee Pain Scale Questionnaire

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group 1: conventional knee exercises and weight bearing hip strengthening exercise Conventional knee exercises are Squatting(0 to 45 degree/3 sets, 10 repetitions), Seated knee extension (90° - 45°/3 sets,10 repetitions) , Prone knee flexion (0° - 90° / 3 sets,10 repetition), Single leg calf raise (3 sets 10 repetition). Stretching for quadriceps, hamstring, Iliotibial band (3 repetitions with 15 sec hold). Weight bearing Hip strengthening exercises are Single leg Glute bridge (12 reps each side, 3 sets), hip extension with knee flexion in quadruped position on shoulders(12 reps each side, 3 sets), hip extension with knee extension in quadruped position on shoulder (12 reps on each side, 3 sets), side lying hip abduction (12 reps on each side, 3 sets) All exercises will be performed 3 times a week on alternate days for 6 weeks Pain will be recorded by NPRS, Muscle Strength will be measured by dynamometer and function will be measured by Anterior Knee Pain Scale Questionnaire(AKPS) All outcome measures will be recorded before intervention and 6 weeks after intervention

Category

Rehabilitation

2

Description

Intervention group 2: Conventional knee exercises and hip strengthening exercise with resistance. Conventional knee exercises are Squatting(0 to 45 degree/3 sets, 10 repetitions), Seated knee extension (90° - 45°/3 sets,10 repetitions) , Prone knee flexion (0° - 90° / 3 sets,10 repetition), Single leg calf raise (3 sets 10 repetition). Stretching for quadriceps, hamstring, Iliotibial band (3 repetitions with 15 sec hold). Hip strengthening exercises with resistance are Single leg Glute bridge with resistance(12 reps each side, 3 sets), hip extension with

knee flexion in quadruped position on shoulders with resistance(12 reps each side, 3 sets), hip extension with knee extension in quadruped position on shoulder with resistance(12 reps on each side, 3 sets), side lying hip abduction with resistance(12 reps on each side, 3 sets) For resistance, resistance band/loop band will be used All exercises will be performed 3 times a week on alternate days for 6 weeks Pain will be recorded by NPRS, Muscle Strength will be measured by dynamometer and function will be measured by Anterior Knee Pain Scale Questionnaire(AKPS) All outcome measures will be recorded before intervention and 6 weeks after intervention.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Pakistan Sports Board Lahore

Full name of responsible person

Nasrullah Rana

Street address

Block E 2 Gulberg III, Ferozepur Rd, Lahore, Punjab

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Lahore

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Riphah International University Lahore

Full name of responsible person

Mahnour Asif

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Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?

No

Title of funding source

Self funded

Proportion provided by this source

100

Public or private sector

Private

Domestic or foreign origin

Domestic

Category of foreign source of funding*empty***Country of origin****Type of organization providing the funding**

Persons

Person responsible for general inquiries**Contact****Name of organization / entity**

REX Clinic, Model town, Lahore Pakistan

Full name of responsible person

Mahnoor Asif

Position

Clinical Physiotherapist

Latest degree

Bachelor

Other areas of specialty/work

Physiotherapy

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Person responsible for scientific inquiries**Contact****Name of organization / entity**

REX Clinic, Model Town, Lahore

Full name of responsible person

Mahnoor Asif

Position

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Latest degree

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Other areas of specialty/work

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Person responsible for updating data**Contact****Name of organization / entity**

REX Clinic Model town, Lahore Pakistan

Full name of responsible person

Mahnoor Asif

Position

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Latest degree

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Other areas of specialty/work

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Fax**Email**

mahamasif96@gmail.com

Sharing plan**Deidentified Individual Participant Data Set (IPD)**

No - There is not a plan to make this available

Justification/reason for indecision/not sharing IPD

There is no further information

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