

Clinical Trial Protocol

Iranian Registry of Clinical Trials

07 Jul 2026

EFFECTS OF KNEE STRENGTHENING EXERCISES WITH AND WITHOUT HIP STRENGTHENING EXERCISES IN WOMEN WITH KNEE OSTEOARTHRITIS: RANDOMIZED CONTROLLED TRIAL

Protocol summary

Study aim

The aim of study was to determine combine effects of hip strengthening exercises with knee strengthening exercises on knee pain, function and activities of daily livings and quality of life in women with knee osteoarthritis

Design

A single-blind, randomized controlled trial

Settings and conduct

Physical therapy department of WAPDA Teaching Hospital Complex Lahore, Lahore

Participants/Inclusion and exclusion criteria

The inclusion criteria; Age 40-70 year, Female only, Unilateral knee OA, Diagnosed patients of knee OA by orthopedic, Grade II to III by Kellgren- Lawrence scale and No pervious surgical/ steroid injection history with in last 6month. The following were the exclusion criteria; Bony abnormalities that affected knee, Plan of surgical procedure with in the time frame of study, Have history of injury that may cause OA, Systemic inflammatory and medical disease that have prevent physical activity

Intervention groups

A resistance exercises program included Hip exercise with Hnee exercise (Hip flexors, Hip extensor, Hip abductor/adductor, Hip external and Internal rotators) and Knee strengthening (Knee flexors, Knee extensor). The subjects in CG were underwent a resistance exercises program included only Knee exercises (Knee flexors, Knee extensor, Leg press, Heel press and Calf hold

Main outcome variables

Pain, Function and Quality of life

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20230124057196N1**

Registration date: **2023-05-23, 1402/03/02**

Registration timing: **retrospective**

Last update: **2023-05-23, 1402/03/02**

Update count: **0**

Registration date

2023-05-23, 1402/03/02

Registrant information

Name

mariam umer hayat

Name of organization / entity

The University of Lahore

Country

Pakistan

Phone

+92 321 4437350

Email address

mariamumerhayat@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2023-01-25, 1401/11/05

Expected recruitment end date

2023-02-02, 1401/11/13

Actual recruitment start date

2023-01-25, 1401/11/05

Actual recruitment end date

2023-01-25, 1401/11/05

Trial completion date

empty

Scientific title

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AND WITHOUT HIP STRENGTHENING EXERCISES IN WOMEN WITH KNEE OSTEOARTHRITIS: RANDOMIZED CONTROLLED TRIAL

Public title

EFFECTS OF KNEE STRENGTHENING EXERCISES WITH AND WITHOUT HIP STRENGTHENING EXERCISES IN WOMEN WITH KNEE OSTEOARTHRITIS: RANDOMIZED CONTROLLED TRIAL

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Age 40-70 year, , and Female only, Unilateral knee OA, Diagnosed patients of knee OA by orthopedic Drade II to III by Kellgren- Lawrence scale No previous surgical/steroid injection history with in last 6month.

Exclusion criteria:

Bony abnormalities that affected knee, , , Plan of surgical procedure with in the time frame of study Have history of injury that may cause OA Systemic inflammatory and medical disease that have prevent physical activity

Age

From **40 years** old to **70 years** old

Gender

Female

Phase

N/A

Groups that have been masked

- Participant
- Data analyser

Sample size

Target sample size: **70**

Actual sample size reached: **61**

Randomization (investigator's opinion)

Randomized

Randomization description

Randomization was done as Lottery Method

Blinding (investigator's opinion)

Single blinded

Blinding description

Participants and Data analyzer was blind did not know belong to which group

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Institutional Review Board the University of Lahore

Street address

L 103 DHA rahber Phase 2 Lahore Pakistan

City

Lahore

Postal code

54000

Approval date

2021-04-05, 1400/01/16

Ethics committee reference number

IRB-UOL-FAHS/831-VII/2021

Health conditions studied

1

Description of health condition studied

KNEE OSTEOARTHRITIS

ICD-10 code

M19.91

ICD-10 code description

Primary osteoarthritis, unspecified site

Primary outcomes

1

Description

Pain

Timepoint

6th Week

Method of measurement

Pain by Visual Analog scale(VAS)

2

Description

Function

Timepoint

6th Week

Method of measurement

Function by subscale of Knee Injury and Osteoarthritis Outcome Score(KOOS)

3

Description

Quality of life

Timepoint

6th Week

Method of measurement

Quality of life by subscale of Knee Injury and Osteoarthritis Outcome Score(KOOS)

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: Experimental group received

progressive hip and knee strengthening exercises for 6th week, 4 session per week on alternative days, frequency of exercise was 3 set with 10 repetition in each set, session completed in 40 min, 2 rest, Thera-Band with medium resistance to heavy resistance was used .

Category

Rehabilitation

2**Description**

Control group: received knee strengthening exercises for 6th week, 4 session per week on alternative days, frequency of exercise was 3 set with 10 repetition in each set, session completed in 40 min, 2 rest, Thera-Band with medium resistance to heavy resistance was used .

Category

Rehabilitation

Recruitment centers**1****Recruitment center****Name of recruitment center**

WAPDA TEACHING HOSPITAL COMPLEX LAHORE

Full name of responsible person

Abid Javaid

Street address

210-Ferozpur Road Lahore

City

Lahore

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54000

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+92 42 37564705

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abidminhas.pt@gmail.com

Sponsors / Funding sources**1****Sponsor****Name of organization / entity**

University of Lahore

Full name of responsible person

Mariam Umer Hayat

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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

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**

The University of Lahore

Full name of responsible person

Mariam Umer Hayat

Position

Mphill student

Latest degree

Master

Other areas of specialty/work

Physiotherapy

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

The University of Lahore

Full name of responsible person

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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

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Full name of responsible person
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Position
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Latest degree
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Other areas of specialty/work
Physiotherapy
Street address
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City
Lahore
Province

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

No - There is not a plan to make this available

Statistical Analysis Plan

No - There is not a plan to make this available

Informed Consent Form

No - There is not a plan to make this available

Clinical Study Report

No - There is not a plan to make this available

Analytic Code

No - There is not a plan to make this available

Data Dictionary

No - There is not a plan to make this available