

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

10 Jun 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

EFFECTS OF KNEE STRENGTHENING EXERCISES WITH

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

**Postal code**

54000

**Phone**

+92 42 37564705

**Fax**

+92 42 35232285

**Email**

abidminhas.pt@gmail.com

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

University of Lahore

**Full name of responsible person**

Mariam Umer Hayat

**Street address**

No 103 L DHA Raber Lahore Pakistan

**City**

Lahore

**Postal code**

54000

**Phone**

+92 321 4437350

**Email**

mariamumerhayat@gmail.com

**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

**Street address**

L 103 DHA rahber phase 2 Lahore

**City**

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**Province**

Punjab

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**Phone**

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**Email**

mariamumerhayat@gmail.com

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

The University of Lahore

**Full name of responsible person**

Mariam Umer Hayat

**Position**

Mphil student

**Latest degree**

Master

**Other areas of specialty/work**

Physiotherapy

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

the university of Lahore

**Full name of responsible person**

Mariam Umer Hayat

**Position**

Mphil student

**Latest degree**

Master

**Other areas of specialty/work**

Physiotherapy

**Street address**

L103 DHA rahber phase 2 Lahore

**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