Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

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

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 TRAIL

Public title
EFFECTS OF KNEE STRENGTHENING EXERCISES WITH AND WITHOUT HIP STRENGTHENING EXERCISES IN WOMEN WITH KNEE OSTEOARTHRITIS: RANDOMIZED CONTROLLED TRAIL
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 pervious 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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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

University of Lahore

Full name of responsible person

Mariam Umer Hayat

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No 103 L DHA Raber Lahore Pakistan

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+92 321 4437350

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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

Mariam Umer Hayat

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

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Position
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Latest degree
Master
Other areas of specialty/work
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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