

Clinical Trial Protocol

Iranian Registry of Clinical Trials

24 Jul 2026

Comparing the effects of muscle energy techniques (post isometric relaxation and reciprocal inhibition) on hamstring tightness and anterior pelvic tilt with knee osteoarthritis: A randomized clinical trial

Protocol summary

Study aim

To evaluate and compare the effects of muscle energy techniques (post isometric relaxation and reciprocal inhibition) to improve hamstring flexibility, anterior pelvic tilt, functional status and pain with knee osteoarthritis

Design

Single Blinded Randomized Clinical Trial

Settings and conduct

District Head Quarter (DHQ) hospital Allied hospital
Madinah teaching hospital

Participants/Inclusion and exclusion criteria

Inclusion criteria: Age : 45-60 years old Gender: Both
Pain : mild to moderate osteoarthritis: grade II and III
Womac (The Western Ontario and McMaster Universities
Arthritis Index) scoring: 65-75 Active knee extension
test: 15-20 degree. Exclusion criteria: Patients with low
back issue Patients with previous history of infection,
trauma, implant and surgery of affected limb

Intervention groups

Group A (Post isometric relaxation) Group B (Reciprocal
Inhibition)

Main outcome variables

Hamstring flexibility - Anterior pelvic tilt - Functional
status - Pain

General information

Reason for update

want to update actual start date

Acronym

IRCT registration information

IRCT registration number: **IRCT20230615058490N1**

Registration date: **2023-06-24, 1402/04/03**

Registration timing: **prospective**

Last update: **2023-11-25, 1402/09/04**

Update count: **1**

Registration date

2023-06-24, 1402/04/03

Registrant information

Name

Iqra Tahir

Name of organization / entity

The University of Faisalabad

Country

Pakistan

Phone

+92 302 7150546

Email address

iqra.tahir@mth.org.pk

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2023-06-25, 1402/04/04

Expected recruitment end date

2023-08-23, 1402/06/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparing the effects of muscle energy techniques (post isometric relaxation and reciprocal inhibition) on hamstring tightness and anterior pelvic tilt with knee osteoarthritis: A randomized clinical trial

Public title

Effects of muscle energy techniques (post isometric relaxation and reciprocal inhibition) in knee osteoarthritis

Purpose

Health service research

Inclusion/Exclusion criteria

Inclusion criteria:
 Age : 45-60 years old Gender: Both Grade of knee Osteoarthritis: II and III (kellgren and Lawrence system of Classification) Pain level : mild to moderate on Visual analogue scale Active Knee extension test : 15-20 degree Anterior pelvic tilt: increase Chronic pain : 1-2 years Side : unilateral The Western Ontario and McMaster Universities Arthritis Index (WOMAC) scoring : 67-75

Exclusion criteria:
 Patients with any Low back issue Patients with recent history of injury of Hamstring Patients with history of fracture,surgery or implant of affected limb Patients with neurological disorder

Age
 From **45 years** old to **60 years** old

Gender
 Both

Phase
 N/A

Groups that have been masked

- Participant

Sample size
 Target sample size: **32**

Randomization (investigator's opinion)
 Randomized

Randomization description
 32 participants will be divided into 2 treatment groups A and B on the basis of lottery method randomization after division into 2 groups. Group A will receive Post isometric relaxation and other group will receive Reciprocal inhibition

Blinding (investigator's opinion)
 Single blinded

Blinding description
 Participants will be divided into two groups according to lottery method randomization. Group A and Group B will be mentioned on slips, participants will chose the slip according to which they will be divided, participants will not know will treatment preools they will receive.

Placebo
 Not used

Assignment
 Other

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics committee of The University of Faisalabad

Street address

West Canal Faisalabad

City

Faisalabad

Postal code

38000

Approval date

2023-03-03, 1401/12/12

Ethics committee reference number

TUF/IRB/176/2023

Health conditions studied

1

Description of health condition studied

Knee osteoarthritis

ICD-10 code

M17.9

ICD-10 code description

Arthropathies

Primary outcomes

1

Description

Hamstring flexibility

Timepoint

Will be assessed before start of 1st session, after 6th session and after 12th session

Method of measurement

Active knee extension test

2

Description

Anterior pelvic tilt

Timepoint

Will be assessed before start of 1st session, after 6th session and after 12th session

Method of measurement

Calliper based inclinometer

3

Description

Functional status

Timepoint

Will be assessed before start of 1st session, after 6th session and after 12th session

Method of measurement

The Western Ontario and McMaster Universities Arthritis Index (WOMAC)

Secondary outcomes

1

Description

Pain

Timepoint

Will be assessed before start of 1st session, after 6th

session and after 12th session

Method of measurement

Visual analogue scale

Intervention groups

1

Description

Intervention group: Group A will receive Post Isometric relaxation 3 sessions per week for 4 weeks

Category

Treatment - Other

2

Description

Intervention group: Group B will receive Reciprocal Inhibition 3 sessions per week for 4 weeks

Category

Treatment - Other

Recruitment centers

1

Recruitment center

Name of recruitment center

Madinah Teaching Hospital

Full name of responsible person

Dr. Iqra Tahir

Street address

Sargodha road faisalabad

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Phone

+92 302 7150546

Email

iqratahir741@gmail.com

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

The University of Faisalabad

Full name of responsible person

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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

all financial expenses will be born by myself

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

Other

Person responsible for general inquiries

Contact

Name of organization / entity

The University of Faisalabad

Full name of responsible person

Dr. Iqra Tahir

Position

Physiotherapist

Latest degree

Master

Other areas of specialty/work

Physiotherapy

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Person responsible for scientific inquiries

Contact

Name of organization / entity

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Full name of responsible person

Dr. Iqra Tahir

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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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

No - There is not 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