Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 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 precools 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

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Sargodha road faisalabad

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

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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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Position

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Latest degree

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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