

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

10 Jun 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

###### Street address

Sargodha road faisalabad

###### City

Faisalabad

###### Postal code

38000

###### 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

Dr. Iqra Tahir

###### Street address

West Canal road faialabad

###### City

Faisalabad

###### Postal code

38000

###### Phone

+92 302 7150546

###### Email

iqra.tahir741@gmail.com

###### 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

##### Street address

West Canal road faisalabad

##### City

Faisalabad

##### Province

punjab

##### Postal code

38000

##### Phone

+92 302 7150546

##### Email

iqra.tahir741@gmail.com

### Person responsible for scientific 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

##### Street address

West Canal road faisalabad

##### City

Faisalabad

**Province**

punjab

**Postal code**

38000

**Phone**

+92 302 7150546

**Email**

iqra.tahir741@gmail.com

**Postal code**

38000

**Phone**

+92 302 7150546

**Email**

iqra.tahir741@gmail.com

**Person responsible for updating data****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

**Street address**

West Canal road faisalabad

**City**

Faisalabad

**Province**

punjab

**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