

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

30 Jun 2026

### Therapeutic utility of Mulligan traction straight leg raise stretch and proprioceptive exercise in treating osteoarthritis

#### Protocol summary

##### Study aim

The purpose of the present study to evaluate the synergistic effects of Mulligan Traction Straight Leg Raise Stretch and proprioceptive exercises in knee OA patients and effect of exercises to relive pain, stiffness and improve range of motion and functional ability of patients suffering from knee OA.

##### Design

The randomized clinical trial, double-blinded study use to investigate the effect of propioceptive and mulligan exercises in knee osteoarthritis.

##### Settings and conduct

Conduct at Muhammad physical therapy clinic and rehabilitation centre, Multan, Pakistan.

##### Participants/Inclusion and exclusion criteria

Inclusion criteria: 1) Age 40-65 years 2) Patients with diagnosed OA 3) Both genders 4) Patients with swelling in knee joints 5) Patients with pain in knee joints 6) Patients having difficulty in walking and climbing stairs  
Exclusion criteria: 1) Vascular neoplasia 2) Fibromyalgia 4) Radiculopathy 5) Neuropathy 6) Tumor 7) Joint fractures 8) Vestibular problems 9) Congenital disorders

##### Intervention groups

Group A will receive proprioceptive exercises, half squats, standing on just one foot, walking on the heel and toes, one-legged balance exercises and knee flexion and extension exercises while sat in a chair. Proprioceptive Exercise will be given 3 sessions/week for 8 weeks, with a total of 24 sessions, each lasting 45 minutes. Every exercise will be done for 1 to 2 minutes, with a 30-second break in between. Participants in the Mulligan Traction Straight Leg Raise Stretch group B will be the intervention 3 times a week for 30 minutes each session. Every session was involved performing 3 sets of 10 repetitions of straight leg lifts while using manual traction. Whereas Group C will be given both proprioceptive and MT-SLR.

##### Main outcome variables

Increase in ROM and functional ability, decrease in pain

and inflammatory load in body.

#### General information

##### Reason for update

Some changes have been made

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20230202057310N2**

Registration date: **2023-08-29, 1402/06/07**

Registration timing: **prospective**

Last update: **2024-09-25, 1403/07/04**

Update count: **3**

##### Registration date

2023-08-29, 1402/06/07

##### Registrant information

##### Name

Imran Ahmad Khan

##### Name of organization / entity

Muhammad Nawaz Shareef University of Agriculture, Multan

##### Country

Pakistan

##### Phone

+92 333 6120602

##### Email address

imran.ahmad@mnsuam.edu.pk

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2023-08-31, 1402/06/09

##### Expected recruitment end date

2024-03-02, 1402/12/12

##### Actual recruitment start date

empty

**Actual recruitment end date**

empty

**Trial completion date**

empty

**Scientific title**

Therapeutic utility of Mulligan traction straight leg raise stretch and proprioceptive exercise in treating osteoarthritis

**Public title**

Mulligan traction straight leg raise stretch and proprioceptive exercise in treating osteoarthritis

**Purpose**

Treatment

**Inclusion/Exclusion criteria****Inclusion criteria:**

Age 40-65 years Patients with diagnosed OA Both genders Patients with swelling in knee joints Patients with pain in knee joints Difficulty in walking and climbing stairs

**Exclusion criteria:**

Vascular neoplasia Fibromyalgia Radiculopathy Neuropathy Joint fractures Vestibular problems Congenital disorders Tumor

**Age**

From **40 years** old to **65 years** old

**Gender**

Both

**Phase**

1

**Groups that have been masked**

- Participant
- Data analyser

**Sample size**

Target sample size: **130**

More than 1 sample in each individual

Number of samples in each individual: **2**

Samples will be taken before and after treatment

**Randomization (investigator's opinion)**

Randomized

**Randomization description**

Allocation concealment occurs and patients will be recruited by using simple randomization through the Lottery method. lottery method carried out through sealed envelopes. Also the data analyser will be kept blind to minimize biasness

**Blinding (investigator's opinion)**

Double blinded

**Blinding description**

Participants will be blinded. Participants will be unaware of the type of treatments that will be evaluated after the completion of the intervention trial. Subjects will be completely unaware of the type and effects of both interventions. And in the same way data analyser will be kept blind by not knowing about the effects and group details

**Placebo**

Not used

**Assignment**

Parallel

**Other design features**

Patients were assessed by radiological finding (x-ray) and by physical assessment and by monitoring of biochemical parameters

**Secondary Ids**

empty

**Ethics committees****1****Ethics committee****Name of ethics committee**

The Institutional Ethical Committee of Muhammad Institute of Medical and Allied Sciences, Multan

**Street address**

HBL street, Sbzazar metro station, Bosan road, Multan, Pakistan

**City**

Multan

**Postal code**

66000

**Approval date**

2023-07-30, 1402/05/08

**Ethics committee reference number**

MIMAS/06/26/Maliha

**Health conditions studied****1****Description of health condition studied**

Knee osteoarthritis with grade 1,2 and 3

**ICD-10 code**

M17

**ICD-10 code description**

Osteoarthritis of knee

**Primary outcomes****1****Description**

Pain and functional disability

**Timepoint**

8 weeks

**Method of measurement**

Numerical Pain Rating Scale, Pain catastrophizing scale, The Western Ontario and McMaster Universities Arthritis Index (WOMAC)

**2****Description**

Range of motion

**Timepoint**

8 weeks

**Method of measurement**

The Western Ontario and McMaster Universities Arthritis Index (WOMAC)

## Secondary outcomes

### 1

#### Description

Inflammatory biomarkers

#### Timepoint

8 weeks

#### Method of measurement

Complete blood count (CBC) and interleukins measurement

## Intervention groups

### 1

#### Description

Intervention group: Group A will receive proprioceptive exercises, half squats, standing on just one foot, walking on the heel and toes (with eyes open and closed), one-legged balance exercises using a heating pad, and knee flexion and extension exercises while sat in a chair. Proprioceptive Exercise group A will be given 3 sessions/week for 8 weeks, with a total of 24 sessions, each lasting 45 minutes. The exercises in their program will develop from static to dynamic, including single-leg stances and balance exercises on unstable surfaces, starting with low-to-moderate intensity balance and stability exercises. Every exercise will be done for 1 to 2 minutes, with a 30-second break in between.

#### Category

Treatment - Other

### 2

#### Description

Intervention group: Group-B The total treatment regimen will be 8 weeks, including 24 sessions, participants in the Mulligan Traction Straight Leg Raise Stretch (MT-SLR) group B get the intervention 3 times a week for 30 minutes each session. Every session will involve performing 3 sets of 10 repetitions of straight leg lifts while using manual traction. The traction force will be adjusted according to each individual's comfort level and the repetitions were held for 15-20 seconds each.

#### Category

Treatment - Other

### 3

#### Description

Intervention group: Group C will be given both proprioceptive and MT-SLR The total treatment regimen will be 8 weeks, including 24 sessions, participants in the Mulligan Traction Straight Leg Raise Stretch (MT-SLR) get the intervention 3 times a week for 30 minutes each session. Proprioceptive Exercise group will be given in 3 sessions/week for 8 weeks, with a total of 24 sessions, each lasting 45 minutes.

#### Category

Treatment - Other

## Recruitment centers

### 1

#### Recruitment center

##### Name of recruitment center

Muhammad physical therapy clinic and rehabilitation center, Multan

##### Full name of responsible person

Maliha Khalid Khan

##### Street address

HBL street, near Sbzazar metro station, Bosan road, Multan, Pakistan

##### City

Multan

##### Postal code

66000

##### Phone

+92 312 6827130

##### Email

malihatareen1997@gmail.com

## Sponsors / Funding sources

### 1

#### Sponsor

##### Name of organization / entity

Muhammad Nawaz Sharif University of Agriculture

##### Full name of responsible person

Imran Ahmad Khan

##### Street address

Agriculture Complex, Old Shuja Abad Rd,

##### City

Multan

##### Postal code

66000

##### Phone

+92 333 6120602

##### Email

imranahmadkhandurrani@gmail.com

#### Grant name

Student fund

#### Grant code / Reference number

08/26/2023/MNSUAM

#### Is the source of funding the same sponsor organization/entity?

Yes

#### Title of funding source

Muhammad Nawaz Sharif University of Agriculture

#### Proportion provided by this source

70

#### Public or private sector

Public

#### Domestic or foreign origin

Domestic

#### Category of foreign source of funding

empty

#### Country of origin

#### Type of organization providing the funding

Academic

## Person responsible for general inquiries

### Contact

**Name of organization / entity**

Muhammad Institute of Medical and Allied Sciences,  
Multan, Pakistan

**Full name of responsible person**

Saman Iqbal

**Position**

Final year student of DPT

**Latest degree**

Medical doctor

**Other areas of specialty/work**

Physiotherapy

**Street address**

HBL street, sbzazar station, Bosan road, Multan,  
Pakistan

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**Province**

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**Phone**

034350467357

**Email**

samaniqbal2019@gmail.com

## Person responsible for scientific inquiries

### Contact

**Name of organization / entity**

Muhammad Nawaz Sharif University of Agriculture

**Full name of responsible person**

Imran Ahmad Khan

**Position**

Coordinator Department of Pharmacy

**Latest degree**

Ph.D.

**Other areas of specialty/work**

Medical Pharmacy

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## Person responsible for updating data

### Contact

**Name of organization / entity**

Muhammad Institute of Medical and Allied Sciences,  
Multan, Pakistan

**Full name of responsible person**

Maliha Khalid Khan

**Position**

Demonstrator

**Latest degree**

Medical doctor

**Other areas of specialty/work**

Physiotherapy

**Street address**

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**Postal code**

66000

**Phone**

+92 312 6827130

**Email**

malihatareen1997@gmail.com

## Sharing plan

**Deidentified Individual Participant Data Set (IPD)**

Yes - There is 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**

Yes - There is a plan to make this available

**Informed Consent Form**

Yes - There is 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

**Title and more details about the data/document**

The title is COMPARATIVE ANALYSIS OF MULLIGAN AND  
PROPRICEPTIVE EXERCISES IN KNEE OSTEOARTHRITIS.

**When the data will become available and for how long**

N/A

**To whom data/document is available**

N/A

**Under which criteria data/document could be used**

N/A

**From where data/document is obtainable**

N/A

**What processes are involved for a request to access data/document**

N/A

**Comments**

N/A