

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 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

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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

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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,

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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

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HBL street, sbzazar station, Bosan road, Multan,
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Person responsible for scientific inquiries

Contact

Name of organization / entity

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Full name of responsible person

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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

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Maliha Khalid Khan

Position

Demonstrator

Latest degree

Medical doctor

Other areas of specialty/work

Physiotherapy

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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