Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

Comparative Effects of Mulligan Traction Straight Leg Raise Versus Muscle Energy Technique on Pain Intensity and Hamstring Tightness in patient With Knee Osteoarthritis

Protocol summary

Study aim
To evaluate the comparative effects of mulligan traction straight leg raise versus muscle energy technique on pain intensity and hamstring tightness in patient with knee osteoarthritis

Design
The study will be based on research design of randomized clinical trial. Single blind study, in which patient will be blind, patient with osteoarthritis grade1,2 will be included in this study, randomization being accomplished using simple random sampling by means of lottery method.

Settings and conduct
Re+active Rehabilitation Center. The participant are kept anonymous for conducting single-blind trail.

Participants/Inclusion and exclusion criteria
Both male and female Patients diagnosed with knee osteoarthritis grade 1 and grade 2, with the radiographic evidence as Kellgren-Lawrence criteria of knee osteoarthritis, Age between 40 to 65years, Subject shows more than mild pain on VAS, Patient more than mild disability in OKS, Unilateral involvement, participant can walk without any assistive device e.g. crutches or walk helplessly, Patients who will willing to participate, At least can climb and incline the flight of stairs, Patient who quit all pain killers and muscle relaxant medication will be included while pregnant women, participant with diagnosed musculoskeletal disorders related to knee joint e.g. femoral-patellar syndrome, patients with surgical history of lower limbs/spine, patients with pathologies or any deformity of hip joint/spine, patient with neurological disorder for example Alzheimer's disease, fracture will be excluded.

Intervention groups
Both groups will receive moist hot pack and TENS as a baseline treatment. Group A: after baseline treatment mulligan traction straight leg raise technique will be applied on effected leg. Group B: after baseline treatment muscle energy technique will be applied on effected leg.

Main outcome variables
Hamstring tightness, knee pain

General information

Reason for update
Because I have to update the recruitment dates.

Acronym

IRCT registration information
IRCT registration number: **IRCT20210815052194N1**
Registration date: **2021-08-29, 1400/06/07**
Registration timing: **prospective**

Last update: **2021-10-22, 1400/07/30**
Update count: **1**

Registration date
2021-08-29, 1400/06/07

Registrant information

Name
zain bal

Name of organization / entity
The University of Faisalabad

Country
Pakistan

Phone
+92 41 7733942

Email address
zainalibal47@gmail.com

Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2021-08-30, 1400/06/08

Expected recruitment end date
2021-09-10, 1400/06/19
Actual recruitment start date
2021-09-01, 1400/06/10
Actual recruitment end date
2021-09-11, 1400/06/20
Trial completion date
2021-10-14, 1400/07/22

Scientific title
Comparative Effects of Mulligan Traction Straight Leg Raise Versus Muscle Energy Technique on Pain Intensity and Hamstring Tightness in patient With Knee Osteoarthritis

Public title
Effect of stretching in patient with knee osteoarthritis
Purpose
Health service research
Inclusion/Exclusion criteria
Inclusion criteria:
Both male and female Patients diagnosed with knee osteoarthritis grade 1 and grade 2, with the radiographic evidence as Kellgren-Lawrence criteria of knee osteoarthritis. Age between 40 to 65years. Subject shows more than mild pain on VAS. Patient more than mild disability in OKS. Unilateral involvement. Can walk without any assistive device e.g. crutches or walk helplessly. Patients who was willing to participate. At least can climb and incline the flight of stairs. Patient who quit all pain killers and muscle relaxant medication.
Exclusion criteria:
Pregnancy. Participant with diagnosed musculoskeletal disorders related to knee joint e.g. femoral-patellar syndrome. Patients with surgical history of lower limbs/spine. Patients with pathologies or any deformity of hip joint/spine. Patient with neurological disorder for example Alzheimer's disease. Participants who were refusing to consent. Participants having unhealed fracture
Age
From **45 years** old to **65 years** old
Gender
Both

Phase
3
Groups that have been masked

- Participant

Sample size
Target sample size: **36**
Actual sample size reached: **36**
Randomization (investigator's opinion)
Randomized
Randomization description
The randomization of the participants will be done by using the simple random sampling also called lottery method. Firstly each member of the population is assigned a number. In the next step these numbers are written on separate cards which are physically similar in shape, size, color etc. Then they are placed in a basket and thoroughly mixed. In the last step the slips are taken out randomly without looking at them. The number of slips drawn will be equal to the sample size.
Blinding (investigator's opinion)
Single blinded
Blinding description
Both group Participants will not be aware of the study groups and this will be carried out by keeping the participants anonymous for the study period
Placebo
Not used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Ethics and Technical committee of The University of Faisalabad
Street address
University town, Sargodha road, Faisalabad
City
faisalabad
Postal code
38000
Approval date
2021-05-25, 1400/03/04
Ethics committee reference number
TUF/DR/SA/MSPP/2021/237-246

Health conditions studied

1

Description of health condition studied
knee osteoarthritis
ICD-10 code
M17
ICD-10 code description
Osteoarthritis of knee

Primary outcomes

1

Description
knee pain intensity
Timepoint
Before intervention, 2 weeks and 4 weeks after intervention
Method of measurement
Visual analogue scale will be used to measure the knee pain intensity.

2

Description
Hamstring tightness
Timepoint
Before intervention, 2 weeks and 4 weeks after intervention
Method of measurement
Goniometer during active knee extension test will used to assess reduction in hamstring tightness.

Secondary outcomes

1

Description
Oxford knee score questionnaire for disability
Timepoint
before intervention and 4th week
Method of measurement
Oxford knee score will be used for the assessment patients disability

Intervention groups

1

Description
Intervention group: Group A (Mulligan traction straight leg raise) treatment will be given to participant's for 4 week, baseline treatment will be moist hot pack and Tens for 10 minutes and than mulligan traction straight leg raise will be applied.
Category
Treatment - Other

2

Description
Intervention group: Group B (Muscle energy technique) treatment will be given to participant's for 4 week, baseline treatment will be moist hot pack and Tens for 10 minutes and than muscle energy technique will be applied, 2 sets of 10 repetitions per session. By using 20% of their total strength with hold of 5 second participants will perform isometric contraction and rest for 3-5 seconds between each isometric contraction
Category
Treatment - Other

Recruitment centers

1

Recruitment center
Name of recruitment center
Re+Active Rehabilitation Center, Faisalabad
Full name of responsible person
Head of Rehabilitation Department, The University of Faisalabad
Street address
Re+Active Rehabilitation Center, MTH Clinics, Canal Road, Faisal Town, Faisalabad ،Punjab.
City
Faisalabad
Postal code
38000
Phone
+92 41 8869862
Email
dpt-fa14-023@tuf.edu.pk
Web page address

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Pro Health Rehab and Medical Center
Full name of responsible person
Dr. Umer Shabbir
Street address
P-346 Kashmir Rd, C Block Amin Town, Faisalabad, Punjab, Pakistan.
City
Faisalabad
Postal code
38000
Phone
Email
Mianumer199@yahoo.com
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Pro Health Rehab and Medical Center
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
Pro Health Rehab and Medical Center
Full name of responsible person
Zain Ali
Position
Physiotherapist
Latest degree
Master
Other areas of specialty/work
Physiotherapy

Street address
P-346 Kashmir Rd, C Block Amin Town, Faisalabad, Punjab, Pakistan.
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Person responsible for scientific inquiries

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Person responsible for updating data

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Sharing plan

Deidentified Individual Participant Data Set (IPD)
No - There is not a plan to make this available
Justification/reason for indecision/not sharing IPD
As we have signed and assured the patient that there data will not be share any where else other than current study
Study Protocol
Yes - There is 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
Yes - There is a plan to make this available
Analytic Code
Not applicable
Data Dictionary
Not applicable
Title and more details about the data/document
The primary and secondary outcome measure data will be shared and no further detail regarding patients personal information will be provided,
When the data will become available and for how long
Starting in January 2022
To whom data/document is available
For everyone
Under which criteria data/document could be used
Whoever will request for data
From where data/document is obtainable
Through Email address
What processes are involved for a request to access data/document
an Email
Comments