

Clinical Trial Protocol

Iranian Registry of Clinical Trials

27 Jul 2026

Immediate effect of Mulligan 's bent leg raise versus active release technique on hamstring tightness in asymptomatic individuals

Protocol summary

Study aim

To evaluate the immediate effects of Mulligan's Bent leg raise and active release technique on tightness of hamstring in asymptomatic individuals for range of motion and flexibility

Design

A concealed ,randomized, double blinded clinical trial of 26 participants enrolled in April 2023

Settings and conduct

Setting of the study is MADINA TEACHING HOSPITAL, FAISALABAD The study population is 26 individuals. Double blinding is used for participant selection with sealed envelopes for choosing the intervention groups by lottery method and the data analyzer is also blinded. Participants in a randomized clinical trial can be blinded by not knowing which treatment group they are assigned to. The data analyzer can be blinded by not knowing which treatment group each participant belongs to. This helps reduce bias in analyzing the results. Participants of the study are asymptomatic individuals

Participants/Inclusion and exclusion criteria

Inclusion criteria: Straight leg raise range of motion less than 75°; both male and female participants; Between age 18 to 30 years; Who are willing to participate; Tightness of hamstring measured by Active knee extension test; Normal healthy subjects. Exclusion criteria: Recent Trauma; Spinal Surgery; Fractures; Osteoporosis; low back pain; Orthopedic disease effecting lower limb (meniscal injury, femoral fracture etc.)

Intervention groups

The Intervention group 1 received Mulligan 's bent leg raise technique. Intervention group 2 received Active Release Technique

Main outcome variables

Straight Leg Raise range of motion Active Knee Extension Test Sit and Reach Flexibility Test

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20230413057901N1**

Registration date: **2023-09-20, 1402/06/29**

Registration timing: **retrospective**

Last update: **2023-09-20, 1402/06/29**

Update count: **0**

Registration date

2023-09-20, 1402/06/29

Registrant information

Name

Anum Toheed

Name of organization / entity

The University Of Faisalabad

Country

Pakistan

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+92 308 6634924

Email address

dr.toheed112@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2023-04-10, 1402/01/21

Expected recruitment end date

2023-06-11, 1402/03/21

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Immediate effect of Mulligan 's bent leg raise versus active release technique on hamstring tightness in asymptomatic individuals

Public title

Hamstring touching

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Straight leg raise range of motion less than 75° Both male and female participants Age range of 18 to 40 years Willingness to participate in the study Tightness of hamstring measured by Active knee extension test with angle of popliteal less than 70 ° Normal healthy Subjects

Exclusion criteria:

Recent fractures Neurological disorders Recent trauma Spinal Surgery Osteoporosis Low back pain Orthopedic disease affecting lower limb (meniscal injury, femoral fracture etc.)

Age

From **18 years** old to **30 years** old

Gender

Both

Phase

N/A

Groups that have been masked

- Participant
- Data analyser

Sample size

Target sample size: **26**

Randomization (investigator's opinion)

Randomized

Randomization description

Randomization is done through sealed envelopes; a simple random method is used by means of the Lottery method; concealment of allocation is also done.

Blinding (investigator's opinion)

Double blinded

Blinding description

Participants and data analyzer are blinded. Subjects are unaware of their assigned groups (treatment) due to identical presentation of treatment. In investigator-initiated trials, the patient is not involved in treatment allocation discussions with participants. Care providers are blinded to subjects treatment ensuring unbiased care delivery. Those collecting data are uninformed about treatment allocation, maintaining objective data gathering. Data safety and monitoring board 's access to treatment information is limited, focusing on safety.

Placebo

Not used

Assignment

Parallel

Other design features

Academic

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Prof dr Aliya Fehmi

Street address

Street no 3

City

Faisalabad

Postal code

38000

Approval date

2023-01-08, 1401/10/18

Ethics committee reference number

TUF/Addl Reg/SB/351

Health conditions studied

1

Description of health condition studied

Hamstring tightness

ICD-10 code

M62. 461

ICD-10 code description

other muscle spasm

Primary outcomes

1

Description

Active knee Extension Test score

Timepoint

Before intervention and immediately after the intervention

Method of measurement

Active knee Extension Test

Secondary outcomes

1

Description

Sit and reach flexibility test

Timepoint

Before intervention and after immediate application of intervention

Method of measurement

range of motion of extension of hip for hamstring flexibility

2

Description

Straight leg raise

Timepoint

Before intervention and after immediate application of intervention

Method of measurement

range of motion of hip extension

Intervention groups

1

Description

Intervention group 1: Mulligan's BLR: Subjects in this group undergo a single session of this exercise on their dominant side. Participant's Position is lying on their backs at the plinth's edge with knee and hip at 90° heel coming off the plinth and flexion. Walk while adopting the affected side's stance. The inner hand's shoulder is positioned beneath the popliteal fossa. With both hands, the therapist holds the lower portion of the thigh. The femur's long axis is subjected to longitudinal traction, and the therapist bends the hip until they feel resistance. The contract-relax technique is used when a patient complains of stretch pain or the therapist experiences resistance because of tight muscles. The participant is requested to gently push the therapist's shoulder (hold for five seconds) If there is no pain, the therapist can now further flex the patient's hip. Before adding more hip flexion, the hip can be moved into abduction, external rotation, or extra traction if patients report pain during this technique. Remain in the final position for roughly 20 seconds. Perform the procedure three more times and then evaluate the results of the mobilization

Category

Treatment - Other

2

Description

Intervention group 2: Active Release Group : Active Release Technique (ART) was applied to subjects once on the dominant side. The ART procedure consists of 3 phases. • The subject was asked to lay supine on the plinth, and the hamstring muscle was gently pulled throughout its whole length as the leg was stretched in various postures to better train the muscle • At the insertion and origin of the hamstring muscle, light stress was applied • Since the hamstring connects to the adductors and gluteus muscle, which may be the cause of hamstring tightness, gentle stress was applied around these muscles

Category

Treatment - Other

Recruitment centers

1

Recruitment center

Name of recruitment center

The University of Faisalabad

Full name of responsible person

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Sponsors / Funding sources

1

Sponsor

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Grant name

Anum Toheed

Grant code / Reference number

1234

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

Yes

Title of funding source

The University of Faisalabad

Proportion provided by this source

1

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

Academic

Person responsible for general inquiries

Contact

Name of organization / entity

The University of Faisalabad

Full name of responsible person

Anum Toheed

Position

Student

Latest degree

Master
Other areas of specialty/work
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Sharing plan

Deidentified Individual Participant Data Set (IPD)

Yes - There is a plan to make this available

Study Protocol

Yes - There is a plan to make this available

Statistical Analysis Plan

No - There is not 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

Yes - There is 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

IPD will be included their demographic information, medical history ,treatment assignment and outcome measurements.

When the data will become available and for how long

08-11-2023

To whom data/document is available

Academic

Under which criteria data/document could be used

For research purpose only

From where data/document is obtainable

dr.toheed112@gmail.com

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

Inquirer must provide cover letter stating their reason to obtain data and details of the research. If any researcher share their approval letter and summary of the ongoing research. Within a day applicant will be responded.

Comments