

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

10 Jun 2026

### COMPARATIVE EFFECTS OF GASTROCNEMIUS MUSCLE ENERGY TECHNIQUE AND STRAIN COUNTERSTRAIN ON GAIT OF FAST BOWLERS WITH GASTROCNEMIUS TRIGGER POINTS

#### Protocol summary

##### Study aim

Evaluate the effects of muscle energy technique and strain counterstrain on pain, cadance, stride length, ankle dorsiflexion and planterflexion of fast bowlers with gastrocnemius trigger points.

##### Design

Randomized clinical trial, Non-probability simple random sampling technique was used in this study.

##### Settings and conduct

Saeed Ajmal International Cricket Academy Borannwalla Ground Jinnah Bagh Faisalabad Jawad Sports and Cultural Complex

##### Participants/Inclusion and exclusion criteria

Inclusion Criteria • Fast bowlers willing to participate in the age group of 20-30 years • Fast bowlers having at least one hypersensitive tender nodule within a palpable taut band in the gastrocnemius muscle • Fast bowlers having ankle dorsiflexion range of motion less than 20 degrees • Pain intensity of more than 4 on numeric pain rating scale • Subjects running for 3 days per week for more than 6-months will be recruited Exclusion Criteria • Participants having Fibromyalgia syndrome • Congenital deformity of the foot and ankle • Tumors of the lower back and lower limb • Lower limb fractures • Diabetic neuropathy • Peripheral vascular disease • 3-month recent injuries to legs, foot or ankle will be excluded from the study

##### Intervention groups

Patients were divided into two group i.e., group A (muscle energy technique group) and group B (strain counterstrain group).

##### Main outcome variables

Pain Cadence Stride length Ankle dorsiflexion/plantarflexion Sprinting

#### General information

##### Reason for update

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20230427058011N1**

Registration date: **2023-09-26, 1402/07/04**

Registration timing: **retrospective**

Last update: **2023-09-26, 1402/07/04**

Update count: **0**

##### Registration date

2023-09-26, 1402/07/04

##### Registrant information

##### Name

Nabeel Zahid

##### Name of organization / entity

The University of Faisalabad

##### Country

Pakistan

##### Phone

+92 322 6373400

##### Email address

nabeelzahid7@gmail.com

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2023-03-01, 1401/12/10

##### Expected recruitment end date

2023-05-01, 1402/02/11

##### Actual recruitment start date

2023-03-24, 1402/01/04

##### Actual recruitment end date

2023-05-15, 1402/02/25

##### Trial completion date

2023-05-15, 1402/02/25

### Scientific title

COMPARATIVE EFFECTS OF GASTROCNEMIUS MUSCLE ENERGY TECHNIQUE AND STRAIN COUNTERSTRAIN ON GAIT OF FAST BOWLERS WITH GASTROCNEMIUS TRIGGER POINTS

### Public title

COMPARATIVE EFFECTS OF GASTROCNEMIUS MUSCLE ENERGY TECHNIQUE AND STRAIN COUNTERSTRAIN ON GAIT OF FAST BOWLERS WITH GASTROCNEMIUS TRIGGER POINTS

### Purpose

Treatment

### Inclusion/Exclusion criteria

#### Inclusion criteria:

Fast bowlers willing to participate in the age group of 20-30 years Fast bowlers having at least one hypersensitive tender nodule within a palpable taut band in the gastrocnemius muscle Fast bowlers having ankle dorsiflexion range of motion less than 20 degrees Pain intensity of more than 4 on numeric pain rating scale Subjects running for 3 days per week for more than 6-months will be recruited

#### Exclusion criteria:

Participants having Fibromyalgia syndrome Congenital deformity of the foot and ankle Tumors of the lower back and lower limb Lower limb fractures Diabetic neuropathy Peripheral vascular disease 3-month recent injuries to legs, foot or ankle will be excluded from the study

### Age

From **20 years** old to **30 years** old

### Gender

Male

### Phase

N/A

### Groups that have been masked

- Participant

### Sample size

Target sample size: **42**

Actual sample size reached: **42**

### Randomization (investigator's opinion)

Randomized

### Randomization description

Randomized clinical trial, a single-blinded experimental study was conducted. There was the formation of two study groups out of selected sample naming as group A and group B. Simple random sampling technique was used for the recruitment of study participants and they were allocating to groups using lottery method by keeping the allocation ratio (1:1) for both groups.

### Blinding (investigator's opinion)

Single blinded

### Blinding description

Participants were blinded from the interventionl groups during the study. They didn't know which study group contain which intervention.

### Placebo

Not used

### Assignment

Other

### Other design features

## Secondary Ids

empty

## Ethics committees

### 1

#### Ethics committee

##### Name of ethics committee

RESEARCH AND ETHICS / TECHNICAL COMMITTEE

##### Street address

Faisal Town, West Canal Road

##### City

Faisalabad

##### Postal code

38000

#### Approval date

2023-03-24, 1402/01/04

#### Ethics committee reference number

TUF/DR/SA/MSPP/2023/231

## Health conditions studied

### 1

#### Description of health condition studied

GASTROCNEMIUS TRIGGER POINTS

#### ICD-10 code

M70.90

#### ICD-10 code description

Unspecified soft tissue disorder related to use, overuse and pressure of unspecified site

### 2

#### Description of health condition studied

GAIT IN GASTROCNEMIUS TRIGGER POINTS

#### ICD-10 code

R26.2

#### ICD-10 code description

Difficulty in walking, not elsewhere classified

## Primary outcomes

### 1

#### Description

Pain

#### Timepoint

Before intervention, after 2nd week of intervention and after 4th week of intervention

#### Method of measurement

Pain was measured using NPRS (numerical pain rating scale)

## Secondary outcomes

## 1

### **Description**

Cadence

### **Timepoint**

Before intervention, after 2nd week of intervention and after 4th week of intervention

### **Method of measurement**

Measured by using stop watch and measuring tape

## 2

### **Description**

Stride length

### **Timepoint**

Before intervention, after 2nd week of intervention and after 4th week of intervention

### **Method of measurement**

Measured by using stop watch and measuring tape

## 3

### **Description**

Ankle dorsiflexion/plantarflexion

### **Timepoint**

Before intervention, after 2nd week of intervention and after 4th week of intervention

### **Method of measurement**

Using goniometer

## 4

### **Description**

Sprinting and Function

### **Timepoint**

Before intervention, after 2nd week of intervention and after 4th week of intervention

### **Method of measurement**

LEFS (lower extremity functional scale)

## **Intervention groups**

## 1

### **Description**

Intervention group A Muscle Energy Technique (MET): Group A subject received 10 minutes session of moist hot pack from hydro collator at 55 degrees followed by a set of 7 repetitions of calf stretching where each stretch was held static for 10 seconds & after which treatment for each group was performed. This baseline treatment took almost 15 minutes. After that the participants of group A post-isometric relaxation technique of muscle energy technique was used. On a therapeutic bed, the participants were lying face down with their feet dangling off the edge. The individual feels a tension barrier when the dominant foot is gently moved into dorsiflexion. The subject next be told to perform an isometric contraction for seven seconds using 20% of their maximal strength against the therapist's resistance. The subject was told to relax after seven seconds as the therapist moves their ankle into a deeper range of dorsiflexion till, they feel the next stress barrier. This tension barrier continued for 60

seconds. There were three instances of this process. Total session time of group A treatment along with the common/baseline treatment was 30 minutes.

### **Category**

Treatment - Other

## 2

### **Description**

Intervention group B Strain Counter Strain (SCS): Group B subject received 10 minutes session of moist hot pack from hydro collator at 55 degrees followed by a set of 7 repetitions of calf stretching where each stretch was held static for 10 seconds & after which treatment for each group was performed. This baseline treatment took almost 15 minutes. After that the subject was laying prone with the knee bent at a 90-degree angle and ankle plantarflexed. Therapist exerted intense manual pressure on the trigger point, had been palpated and hold it 90 seconds. This process was carried out three times. Total session time of group B treatment along with the common/baseline treatment was 30 minutes.

### **Category**

Treatment - Other

## **Recruitment centers**

## 1

### **Recruitment center**

#### **Name of recruitment center**

Saeed Ajmal International Cricket Academy

#### **Full name of responsible person**

Hassan Ali (Manager)

#### **Street address**

Jhang Road, Faisalabad, Pakistan

#### **City**

Faisalabad

#### **Postal code**

38000

#### **Phone**

+92 300 7210711

#### **Email**

saica2020@gmail.com

#### **Web page address**

<http://saicacricketers.com>

## 2

### **Recruitment center**

#### **Name of recruitment center**

Borannwalla Ground Jinnah Bagh Faisalabad

#### **Full name of responsible person**

M Afzal Mehmood

#### **Street address**

Jinnah Bagh, Faisalabad

#### **City**

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#### **Phone**

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malikg000142@gmail.com  
**Web page address**

**3**

**Recruitment center**

**Name of recruitment center**  
Jawad Sports and Cultural Complex  
**Full name of responsible person**  
Zubair (HR and Admin)  
**Street address**  
Marzipura, Faisalabad  
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**Sponsors / Funding sources**

**1**

**Sponsor**

**Name of organization / entity**  
The University of Faisalabad  
**Full name of responsible person**  
Nabeel Zahid  
**Street address**  
Abdullah Garden Faisalabad  
**City**  
Faisalabad  
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**Phone**  
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**Email**  
nabeelzahid7@gmail.com  
**Grant name**  
**Grant code / Reference number**  
**Is the source of funding the same sponsor organization/entity?**  
Yes  
**Title of funding source**  
The University of Faisalabad  
**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**

Persons

**Person responsible for general inquiries**

**Contact**

**Name of organization / entity**  
The University of Faisalabad  
**Full name of responsible person**  
Mohsin Ali  
**Position**  
Consultant  
**Latest degree**  
Master  
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**Person responsible for scientific inquiries**

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**Person responsible for updating data**

**Contact**

**Name of organization / entity**  
The University of Faisalabad  
**Full name of responsible person**

Nabeel Zahid

**Position**

Consultant

**Latest degree**

Master

**Other areas of specialty/work**

Physiotherapy

**Street address**

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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**

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**

Yes - There is a plan to make this available

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

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

The Data will be available till the end of 2023

**To whom data/document is available**

Data will be available to all the students whom has access to the desired journals in which it will be published

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

Cannot be used for republished purpose. For Study and knowledge purpose only

**From where data/document is obtainable**

mail at nabeelzahid7@gmail.com

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

Detail how you want to use this data and for what purpose

**Comments**