

Clinical Trial Protocol

Iranian Registry of Clinical Trials

11 Sep 2026

Investigating the immediate and short-term effectiveness of adding the muscle energy technique to dry needling on pain and function in amateur bodybuilders with chronic non-specific low back pain

Protocol summary

Study aim

Investigating the immediate and short-term effectiveness of adding the muscle energy technique to dry needling on pain and function in amateur bodybuilders with chronic non-specific low back pain

Design

A controlled, double-blind, parallel-group, randomized clinical trial on 20 patients. Manual numerical grouping and random selection were used for randomization.

Settings and conduct

Eligible individuals will undergo one session of either dry needling plus MET or dry needling plus placebo MET for the erector spinae and quadratus lumborum muscles at the physiotherapy clinics of TUMS. The needles will remain in the area for ten minutes without fast in and out. MET treatment will also be performed with 10 seconds of contraction at an intensity of 20-35% of maximum contraction followed by 30 seconds of stretching and three repetitions. Initial patient assessment includes determining pain intensity, range of flexion and lateral flexion, lumbar muscle endurance, and completion of the FRI questionnaire. All assessments will be repeated immediately and after one week.

Participants/Inclusion and exclusion criteria

1) Male bodybuilders with at least 6 months of training experience and at least 2 training sessions per week 2) Age range between 18-45 years 3) Having back pain without a specific cause or pathology for at least three months or more 4) Literacy in Persian 5) Pain intensity between 3 and 7 based on VAS Exclusion criteria 1) Unwillingness to continue the plan or increased pain during the intervention 2) Fear of needles 3) Receiving other back treatments at the same time

Intervention groups

Group 1 (Dry needling + Muscle Energy Technique)
Group 2 (Dry needling + Placebo Muscle Energy Technique)

Main outcome variables

Pain intensity Lumbar flexion and lateral flexion range of motion Lumbar muscular endurance Functional disability

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20260201068721N1**

Registration date: **2026-06-12, 1405/03/22**

Registration timing: **registered_while_recruiting**

Last update: **2026-06-12, 1405/03/22**

Update count: **0**

Registration date

2026-06-12, 1405/03/22

Registrant information

Name

Morteza Mahi

Name of organization / entity

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2026-05-22, 1405/03/01

Expected recruitment end date

2026-06-22, 1405/04/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Investigating the immediate and short-term effectiveness of adding the muscle energy technique to dry needling on pain and function in amateur bodybuilders with chronic non-specific low back pain

Public title

Investigating the immediate and short-term effectiveness of adding the muscle energy technique to dry needling on pain and function in amateur bodybuilders with chronic non-specific low back pain

Purpose

Treatment

Inclusion/Exclusion criteria**Inclusion criteria:**

Male bodybuilders with at least 6 months of training experience and at least 2 training sessions per week Age range between 18-45 years old Having back pain without a specific cause or pathology for at least three months or more Being able to read and write in Persian Pain intensity between 3 and 7 based on VAS

Exclusion criteria:

People whose back pain is caused by a specific cause such as radiculopathy, tumor, vertebral fracture, or any other specific cause. History of back and hip surgery Having systemic diseases such as arthritis or tuberculosis Needle phobia Receiving other back treatments at the same time

Age

From **18 years** old to **45 years** old

Gender

Male

Phase

N/A

Groups that have been masked

- Participant
- Investigator
- Outcome assessor

Sample size

Target sample size: **20**

Randomization (investigator's opinion)

Randomized

Randomization description

To determine the treatment group of the individuals, first, the questionnaire is duplicated according to the number of participants. Code 1 is written on them for the dry needling group and code 2 for the combination therapy group and the sheets are mixed together. The examiner randomly selects one of these sheets for each patient.

Blinding (investigator's opinion)

Double blinded

Blinding description

In addition to this treatment, individuals in the dry needling group will undergo placebo MET treatment (position and method of treatment are the same as real

MET treatment but without isometric contraction) for the target muscle. The evaluator and the therapist are different individuals, and the evaluator is unaware of the type of treatment received.

Placebo

Used

Assignment

Parallel

Other design features**Secondary Ids**

empty

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

Ethics committee of School of Nursing and Rehabilitation Of Tehran University of Medical Sciences

Street address

Next to Imam Khomeini Hospital, Dr. Gharib Intersection, Nosrat Street

City

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Approval date

2026-02-23, 1404/12/04

Ethics committee reference number

IR.TUMS.FNM.REC.1404.268

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

Low Back Pain

ICD-10 code

M54.5

ICD-10 code description

Low back pain

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

Pain

Timepoint

Before the intervention, immediately after the intervention, and one week after the intervention

Method of measurement

by using visual analog scale

2

Description

Function

Timepoint

Before the intervention, immediately after the intervention, and one week after the intervention

Method of measurement

by using functional rating index

Secondary outcomes

1

Description

Back Muscles Endurance

Timepoint

Before the intervention, immediately after the intervention, and one week after the intervention.

Method of measurement

By Sorensen Test

2

Description

Lumbar Flexion Range Of Motion

Timepoint

Before the intervention, immediately after the intervention, and one week after the intervention.

Method of measurement

The distance between two specific points on the lumbar spine in flexion and extension is measured and recorded.

3

Description

Lumbar Side Flexion Range Of Motion

Timepoint

Before the intervention, immediately after the intervention, and one week after the intervention.

Method of measurement

By goniometer

Intervention groups

1

Description

Intervention group: Dry needling with muscle energy technique group. For the erector spinae muscles, a total of 10 needles are inserted bilaterally, 25 mm to the left and right of the spinous processes, and remain in the area for 10 minutes. For the quadratus lumborum muscles, a needle is inserted laterally from the L4 vertebra directly downwards in the direction of the transverse process of the vertebra and remains in the area for 10 minutes. Muscle energy technique treatment for these muscles is also a 10-second resistive contraction of the muscle in the opposite direction of the therapist's pressure with 20-35% of the maximum voluntary contraction, followed by 30 seconds of stretching with 3 repetitions for each muscle. The number of treatment sessions is one session.

Category

Treatment - Other

2

Description

Control group: Dry needling with sham muscle energy technique group. IN the control group, all treatments will be performed similarly to the intervention group, with the difference that the muscle energy technique in this group will be performed as a placebo or unreal method, meaning without voluntary muscle contraction.

Category

Treatment - Other

Recruitment centers

1

Recruitment center

Name of recruitment center

School of Rehabilitation, Tehran University of Medical Sciences

Full name of responsible person

Dr Sophia Naghdi

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

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Full name of responsible person

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Grant name

Grant code / Reference number

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

Yes

Title of funding source

Tehran University of Medical Sciences

Proportion provided by this source

100

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**

Tehran University of Medical Sciences

Full name of responsible person

Morteza Mahi

Position

M.Sc. student

Latest degree

Bachelor

Other areas of specialty/work

Physiotherapy

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

Undecided - It is not yet known if there will be 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

Undecided - It is not yet known if there will be a plan to make this available

Informed Consent Form

Undecided - It is not yet known if there will be 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