Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 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
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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
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Postal code
141765383761
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
Ṡchool of Rehabilitation, Tehran University of Medical Sciences
Full name of responsible person
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Sponsors / Funding sources

1

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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
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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