Clinical Trial Protocol
Iranian Registry of Clinical Trials

09 Nov 2026

Comparison of the immediate effect of dry needling and active release technique in amateur athletes with hamstring muscle shortness

Protocol summary

Study aim
Determining a more effective treatment method with longer lasting effects for treating hamstring strains in amateur athletes between dry needling and active muscle release.

Design
The clinical trial has two treatment intervention groups, with parallel groups, single-blind, randomized with block on 34 patients.

Settings and conduct
Eligible individuals, after being informed about the general treatment method and the purpose of the study, voluntarily fill out and sign the consent form. If they meet the inclusion criteria, they are randomly assigned to one of the treatment groups. Then, the initial characteristics and demographic information of the participants (including age, weight, height, gender, and body mass index) and pre-treatment evaluations are recorded by a trained assessor who is unaware of the study type. After this evaluation, a treatment session will be conducted by a trained therapist. Participants will also be re-evaluated immediately and 24 hours after the treatment by a trained assessor who is unaware of the type of treatment.

Participants/Inclusion and exclusion criteria
Inclusion criteria include male and female amateur athletes between the ages of 18 and 40 in Tehran who usually train three times a week or for a maximum of 6 hours per week; exclusion criteria include fear of needles and no orthopedic or neurological diseases.

Intervention groups
It includes two groups: active release and dry needling on the hamstring muscles of individuals.

Main outcome variables
Active knee extension test; Passive compliance; Passive peak torque; stretch tolrance

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20250704066369N1**
Registration date: **2025-07-29, 1404/05/07**
Registration timing: **prospective**

Last update: **2025-07-29, 1404/05/07**
Update count: **0**

Registration date
2025-07-29, 1404/05/07

Registrant information
Name
Fateme Zahra Sadat Mirian Khoshkroudi
Name of organization / entity
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Iran (Islamic Republic of)
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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2025-08-10, 1404/05/19

Expected recruitment end date
2025-11-10, 1404/08/19

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title

Comparison of the immediate effect of dry needling and active release technique in amateur athletes with hamstring muscle shortness

Public title
comparison of the immediate effect of dry needling and active release technique in amateur athlete's posterior thigh muscle shortness

Purpose
Treatment

Inclusion/Exclusion criteria

Inclusion criteria:
People between the ages of 18 and 40 People with hamstring shortness of 25 degrees or more Regular exercise three times a week, for less than 6 hours, for at least 10 months

Exclusion criteria:
Having a history of orthopedic or neurological problems Low back pain during the study Having a history of surgery in the back, hip, or knee joints Having a recent history of hamstring strain Being in a group of contraindications to the use of dry needling or active release Having upper or lower motor neuron injury Having a lower limb length discrepancy of more than 10 mm Experience of any injury to the lower extremities within the last three months Women during menstruation Needle's phobia

Age
From **18 years** old to **40 years** old

Gender
Both

Phase
N/A

Groups that have been masked

- Outcome assessor

Sample size
Target sample size: **34**

Randomization (investigator's opinion)
Randomized

Randomization description
Random assignment is performed using the Block Randomization method so that the number of participants in the two groups is balanced. 1. Determine the block size: Given that we have two groups in this study, the block size must be divisible by 2, which is the most common block size when we have two study groups, 4. From each block of 4, 2 people will be placed in Group A or the dry needling group and 2 people in Group B or the active release technique group. 2. All possible combinations for a block: AABB, ABAB, ABBA, BBAA, BABA, BAAB Since we want the total sample size of the study to be 34 people, 9 blocks will be randomly selected from all the permutations. 3. Allocation of individuals to blocks: Each individual who enters the study is entered into the study based on the order of individuals in the selected block. For example, if the random block is AABB, the first two individuals enter group A and the second two individuals enter group B, and ultimately we will have two groups of 17 individuals.

Blinding (investigator's opinion)
Single blinded

Blinding description
Eligible individuals, after being informed about the general treatment method and the purpose of the study, voluntarily fill out and sign the consent form. If they meet the inclusion criteria, they are randomly assigned to one of the treatment groups. Then, the initial characteristics and demographic information of the participants (including age, weight, height, gender, and body mass index) and pre-treatment evaluations are recorded by a trained assessor who is unaware of the study type. After this evaluation, a treatment session will be conducted by a trained therapist. Participants will also be re-evaluated immediately and 24 hours after the treatment by a trained assessor who is unaware of the type of treatment.

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Ethics committee of Tehran University of Medical Sciences

Street address
Room 605, 6th Floor, Tehran University of Medical Sciences Headquarters Building, Keshavarz Blvd and Qods Street junction, Tehran

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Tehran

Province
Tehran

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1461884513

Approval date
2025-07-01, 1404/04/10

Ethics committee reference number
IR.TUMS.FNM.REC.1404.080

Health conditions studied

1

Description of health condition studied
Hamstring muscle shortness

ICD-10 code
S76

ICD-10 code description
Injury of muscle, fascia and tendon at hip and thigh level

Primary outcomes

1

Description
Hamstring muscle flexibility
Timepoint
Before, immediately and 24 hour after intervention
Method of measurement
Goniometer and active knee extension test

2

Description
Passive compliance
Timepoint
Before, immediately and 24 hour after intervention
Method of measurement
Calculation by formula

3

Description
Passive peak torque
Timepoint
Before, immediately and 24 hour after intervention
Method of measurement
Manual dynamometer

4

Description
Stretch tolerance
Timepoint
Before, immediately and 24 hour after intervention
Method of measurement
Goniometer

Secondary outcomes

empty

Intervention groups

1

Description
Dry needling intervention group: This method is performed using disposable stainless steel needles (mm 0.3*60 DongBang). In this method, subjects are placed on the treatment table in a prone position, with their feet on the bed, and the hamstrings are needled at 3 points, each for 1 minute, using a rapid entry and exit technique in a conical shape. To standardize the approach and optimize the application of dry needling, points are needled approximately close to the movement points of the hamstring muscles. The first two points are at 30 and 60%, respectively, of a straight line drawn from the attachment of the ischial tuberosity to the long and short heads of the biceps femoris muscle and then to the head of the fibula. The third point is at 60% of a straight line extending from the ischial tuberosity (the attachment point of the semimembranosus and semitendinosus muscles) to the medial condyle of the femur.
Category
Rehabilitation

2

Description
Active release intervention group: Active release, compared to other manual therapies, is a unique technique in which the patient actively moves, while the therapist uses his or her hands to first palpate, then assess and release the soft tissue. In this method, the therapist encourages the patient to move actively by applying manual pressure to the affected areas, and the muscle is stretched from a short length to a long length. This combination of pressure and active movement helps to increase muscle flexibility. Steps: The patient lies prone on the bed, with the patient's feet hanging over the end of the bed. The therapist then finds the area of the muscle that is most tight by skin contact and palpation and applies gentle pressure to it. The patient bends and straightens their knee to stretch the muscle from its short length to its long length. This cycle is repeated five times.
Category
Rehabilitation

Recruitment centers

1

Recruitment center
Name of recruitment center
Physiotherapy clinic of Tehran University of Medical science's Rehabilitation school
Full name of responsible person
Fatemeh zahra sadat mirian khoshkroudi
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Sponsors / Funding sources

1

Sponsor
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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
Nourodin nakhostin ansari

Position
Professor

Latest degree
Ph.D.

Other areas of specialty/work
Physiotherapy

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Physiotherapy

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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

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

Informed Consent Form

Yes - There is 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

Title and more details about the data/document

All relevant data that has been agreed to be published can be shared.

When the data will become available and for how long

6 months after results

To whom data/document is available

It will be accessible to everyone involved in the industry.

Under which criteria data/document could be used

For researchers who are conducting research in this field and need information to improve their studies.

From where data/document is obtainable

1.Email 2.Contact Number 3.Postal Address

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

The individual submits their request, and after the necessary checks are made regarding how the data will be used, the individual's job scope, and the necessary documents are provided to the individual.كل

Comments