

Clinical Trial Protocol

Iranian Registry of Clinical Trials

14 Jul 2026

Comparison of Immediate Effectiveness of Dry Needling Versus Kinesio taping on Hamstring Muscles Flexibility, Range of Motion and Performance in Individuals with Hamstring Muscles Tightness, A Randomized Controlled Trial.

Protocol summary

Study aim

The aim of the present study is to compare the immediate effectiveness of hamstring Dry needling(DN) versus Kinesio taping(KT) on active straight leg raising, perceived hamstring tightness, passive knee extension test, modified sit and teach test, and Y balance test in individuals with hamstring tightness.

Design

A concealed blinded, randomized (online randomization website), controlled trial, parallel-group design for 34 individuals.

Settings and conduct

Only male participants with hamstring shortness from the international dorms of TUMS and School of rehabilitation aged between 18 to 45 years of age will be included in the study. The study is double-blind (participant, assessor, analyzer).

Participants/Inclusion and exclusion criteria

Inclusion Criteria: Male subjects. Hamstring length deficit greater than 20 degrees measured by the passive knee extension test using a universal goniometer aged 18 to 45 years. Exclusion Criteria: Surgical history of the lower limb, Allergy to Kinesio tape, Seizure, Bleeding disorders, Fractures of the lower limb, Congenital deformities, Trauma, Neurological disorders, Inflammatory skin diseases, Immunodeficiencies, consuming anticoagulant, Metal allergies, Radiculopathies, Reluctance to participate and withdrawal from the study at any time.

Intervention groups

Group A will receive DN on 1 random limb where needle is inserted at three different points on Long head of biceps femoris, Short head of biceps femoris, Semitendinosus and semimembranosus for the 30 seconds of Pistoning and 5 minutes in situ. Group B will receive Y-shaped Inhibitory Kinesio taping on 1 random limb from hamstring muscles insertion to origin. Both

groups will receive 30 seconds of hamstring static stretching as a basic treatment.

Main outcome variables

Active straight leg raise. Passive knee extension test
Perceived hamstring shortness Modified sit and reach test Y-balance test

General information

Reason for update

Acronym

Kinesio tape (KT) Dry needling (DN)

IRCT registration information

IRCT registration number: **IRCT20220401054381N1**

Registration date: **2022-12-09, 1401/09/18**

Registration timing: **registered_while_recruiting**

Last update: **2022-12-09, 1401/09/18**

Update count: **0**

Registration date

2022-12-09, 1401/09/18

Registrant information

Name

SYED MOHD RAZA AABIS

Name of organization / entity

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2022-11-02, 1401/08/11

Expected recruitment end date

2022-12-21, 1401/09/30

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparison of Immediate Effectiveness of Dry Needling Versus Kinesio taping on Hamstring Muscles Flexibility, Range of Motion and Performance in Individuals with Hamstring Muscles Tightness, A Randomized Controlled Trial.

Public title

Comparison of Dry Needling and Kinesio taping for the treatment of Individuals with hamstring tightness.

Purpose

Treatment

Inclusion/Exclusion criteria**Inclusion criteria:**

Normal Male Individuals. Hamstring length deficit of more than 20 degrees as measured by passive knee extension 90/90 test. Age must be between 18 to 45 years old.

Exclusion criteria:

Surgical history of the lower limb Allergy to kinesio tape
Seizure Bleeding disorders Fractures of the lower limb
Congenital deformities Trauma Neurological disorders
Inflammatory skin diseases Immunodeficiency's
Consuming anticoagulant Metal allergies Radiculopathies
Reluctance to participate and withdrawal from the study at any time

AgeFrom **18 years** old to **45 years** old**Gender**

Male

Phase

N/A

Groups that have been masked

- Participant
- Investigator
- Outcome assessor
- Data analyser

Sample sizeTarget sample size: **34****Randomization (investigator's opinion)**

Randomized

Randomization description

After the baseline assessment, the participants will be randomized into one of the two intervention groups using simple randomization procedure. Thirty-four cards will be collected inside a ball without any clinical involvement in the study to ensure allocation concealment. A computer generated list of random number will be used. Receptionists who is impartial will dispense to either Dry needle or Kinesio Tape according to a computer

generated randomization list includes the sequential numbers using an online randomization website (<https://www.graphpad.com/quickcalcs/randomize1.cfm>). Each number and it's allocate group will be written on a piece of paper and will be concealed in an opaque envelope. The receptionist will inform the therapist about patients' allocation according to the selected index card after the baseline measurements will be taken.

Blinding (investigator's opinion)

Double blinded

Blinding description

As already mentioned, the study is double blinded. The physiotherapist performing the baseline evaluations is blinded to the group the participant belongs to (assessor blind). The physiotherapist performing the post treatment evaluation is blinded to which group the patient belonged to. The data analyzer is also unaware of which study group the data belongs to. After recruitment and random allocation into their groups, the participants read and sign the consent form.

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

Vice Chancellor for Research, 6th Floor, Central University Organization, Corner of Ghods St, Keshavarz Blvd.

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Tehran

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Approval date

2022-10-25, 1401/08/03

Ethics committee reference number

IR.TUMS.FNM.REC.1401.099

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

Hamstring muscles shortness

ICD-10 code**ICD-10 code description**

Primary outcomes

1

Description

Active straight leg raising range of motion

Timepoint

Before intervention and immediately after the intervention.

Method of measurement

Participants will be positioned in supine position and will be instructed to flex the hip when knee is in extended position as much as possible. Hip flexion range of motion will be measured by a universal handheld goniometer.

The axis, moving arm, and stable arm of the goniometer will be placed on greater trochanter of the femur, parallel to the femur, and parallel to the trunk, respectively.

Secondary outcomes

1

Description

Passive knee extension test

Timepoint

Before intervention and immediately after the intervention

Method of measurement

Subjects will be asked to lie in supine position and flex the intended hip till 90° hip flexion. Contralateral limb will be positioned in extended position. Another clinician extends the knee gradually until reaching the maximal tolerable stretch of the hamstring muscle as indicated by the patient with the ipsilateral hip remaining in 90 degrees of flexion. Knee extension range of motion will be measured by a universal handheld goniometer. The axis, moving arm, and stable arm will be placed over the knee joint, parallel to shin, and femur, respectively.

2

Description

Perceived hamstring tightness

Timepoint

Before intervention and immediately after the intervention

Method of measurement

The participants will be asked to rate their perceived level of hamstring tightness by using a visual analogue scale of 100mm that has two ends. One end of the scale is 0mm representing no tightness or pain and the other end will be at 100mm representing maximum pain or tightness. The subjects will be asked to rate the pain on stretch on the scale when a therapist extends the knee passively while the other limb is stabilized on the table.

3

Description

Modified sit and reach test

Timepoint

Before intervention and immediately after the

intervention

Method of measurement

Participants will be asked to sit with their back against a solid wall and fix the feet against the sit and reach box and their arms stretched out to mark the starting position. When the intended knee is in extended position, and contralateral knee placed in slightly flexed position, participants will be asked to reach forward as much as possible.

4

Description

Y-balance test

Timepoint

Before intervention and immediately after intervention.

Method of measurement

Y-balance test will be performed in standing position. The subject stands on one leg while reaching out in 3 different directions (anterior, posteromedial and posterolateral) on measuring tapes stuck to the floor.

The data acquired will be normalized based on the obtained values of the participants' lower limb length, height and BMI.

Intervention groups

1

Description

Intervention group: Group A will receive dry needling treatment (0.30mm*50 mm, Huan-Qiu, China) on 1 randomly picked limb where needle is inserted in the muscle at three different points on (A) Long head of biceps femoris, (B) Short head of biceps femoris, (C) Semitendinosus and semimembranosus. An appropriate dry needle will be inserted at the above mentioned points using the 30 seconds of Pistoning and 5 minute in situ followed by static stretching.

Category

Rehabilitation

2

Description

Intervention group: Group B will receive Inhibitory Kinesio taping on 1 limb picked randomly where hamstring muscle tape is applied from hamstring muscles insertion to origin (distal to proximal). A 15-25% stretch is used for inhibition techniques using a Y-strip application of the kinesio Tex tape(Kinesio® tape, Kenzo Kase, Japan) followed by static stretching.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Tehran University of Medical Sciences

Full name of responsible person
Sara Fereydounnia
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Sponsors / Funding sources

1

Sponsor

Name of organization / entity
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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
Sara Fereydounnia
Position
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Person responsible for updating data

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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

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

All data is potentially shareable after de-identifying individuals

When the data will become available and for how long

The access period starts 3 months after the articles are published.

To whom data/document is available

For researchers working in academic, scientific and hospital institutions and clinicians.

Under which criteria data/document could be used

Researchers and clinicians working on musculoskeletal disorders and sports physical therapy.

From where data/document is obtainable

Applicants for documentation can contact Dr. Sara Fereydoonnia via email. s-fereydounnia@sina.tums.ac.ir

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

Once they have the necessary criteria, the information will be provided to them within a month.

Comments