# Clinical Trial Protocol
# Iranian Registry of Clinical Trials

22 Nov 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**

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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
**Age**
From **18 years** old to **45 years** old
**Gender**
Male

**Phase**
N/A
**Groups that have been masked**

- Participant
- Investigator
- Outcome assessor
- Data analyser

**Sample size**
Target 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.
**City**
Tehran
**Province**
Tehran
**Postal code**
1417653761
**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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**Full name of responsible person**
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**Web page address**
https://research.tums.ac.ir/
**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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**Full name of responsible person**
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## Person responsible for scientific inquiries

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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**