Clinical Trial Protocol
Iranian Registry of Clinical Trials

27 Jun 2026

The effect of dry needling on biomechanical data in subjects with hamstring tightness in dynamic tasks

Protocol summary

Study aim
The effect of dry needling on biomechanical data in subjects with hamstring tightness in dynamic tasks

Design
Patients are randomly divided into two groups of dry needle and sham-dry needle by block-balance method from randomization site. The study is single blind and the dry needle group included 8 patients and the sham-dry needle group included 8 patients.

Settings and conduct
In this study, women aged 18-40 years who have bilateral hamstring shortness are selected. Short hamstring test (AKE active knee extension or active knee extension) and single leg stance test and walking tests: slow walking, fast walking and running are performed using Moticon smart insoles made in Germany, and the changes of the mean displacement of the pressure center, the velocity of the displacement of the pressure center are evaluated. Then, patients are randomly divided into two groups. For the dry needle group, applying 30*50mm needle near the motor points of the hamstring muscles and in the sham-needle group, apply a 13 x 20 mm needle only in the area of the motor points in the tissue so that the person feels the needle of the treatment and place it in the tissue for 20 minutes After that, tests are repeated immediately after the intervention and after 3th session and after 5th session and the second to fifth sessions are performed with an interval of 48 hours.

Participants/Inclusion and exclusion criteria
Inclusion criteria: Extension limit in active knee extension test equal to or greater than 20 degrees. Exclusion criteria: Fear of the needle; Metabolic disorders such as diabetes; Pregnancy.

Intervention groups
dry needling and sham dry needling

Main outcome variables
Popliteal angle; Average pressure center displacement; Pressure center displacement speed; Ground reaction force; Static balance.

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20201016049039N1**
Registration date: **2021-03-04, 1399/12/14**
Registration timing: **retrospective**

Last update: **2021-03-04, 1399/12/14**
Update count: **0**

Registration date
2021-03-04, 1399/12/14

Registrant information

Name
parisa fakhari

Name of organization / entity

Country
Iran (Islamic Republic of)

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2020-10-24, 1399/08/03

Expected recruitment end date
2020-12-21, 1399/10/01

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date

empty

Scientific title
The effect of dry needling on biomechanical data in subjects with hamstring tightness in dynamic tasks

Public title
the effect of dry needling on walking in subjects with short leg muscles

Purpose
Treatment

Inclusion/Exclusion criteria

Inclusion criteria:
Extension limit in active knee extension test equal or greater than 20 degrees Age range 18-40 years Body mass index 18.5-29.9 Normal Q-angle between 16-18 Negative navicular drop test

Exclusion criteria:
Fear of needling Metabolic disorders such as diabetes Pregnancy Severe genovarum and genovalgom Athlete Coagulation problems Neurological problems such as epilepsy Withdrawal from cooperation Failure to complete assessment tests Failure to complete treatment sessions Feeling pain or discomfort during assessment and treatment Receive secondary treatment during treatment sessions Dissatisfaction with continued treatment

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

Gender
Female

Phase
N/A

Groups that have been masked

- Participant

Sample size
Target sample size: **16**

Randomization (investigator's opinion)
Randomized

Randomization description
Patients are randomly divided into two groups of dry needle and sham needle by block-balance method from randomization site, in such a way that we give the site software the number of groups and the required number of samples, then the site a category According to the number of samples we need, for example, the first person is in group a and the second person is in group b, and we write this category on paper and put the sum of the papers in a box and each sample Considering that he is the second person in the group, he takes his paper and gives it to us. In this method, the number of groups, the maximum number of people considered according to the list provided by the site are randomly placed in groups.

Blinding (investigator's opinion)
Single blinded

Blinding description
We write the category received from the site on a piece of paper and fold the paper and put all the papers in a box, and each sample, given that it is the second person in the group, takes its paper and gives it to us, and this is the content of the group. The layout inside the paper is unaware.

Placebo
Used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Ethics Committee in Research School of Medicine - Tehran University of Medical Sciences

Street address
No185, East 405, Beigi Ave, Golha Blvd, 4th Phase of Mehrshahr

City
Karaj

Province
Alborz

Postal code
3183864887

Approval date
2020-10-28, 1399/08/07

Ethics committee reference number
IR.TUMS.MEDICINE.REC.1399.677

Health conditions studied

1

Description of health condition studied
hamstring muscles tightness

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description
popliteal angle

Timepoint
Before the intervention, immediately after the intervention of the first session, after the intervention of the third session, after the intervention of the fifth session

Method of measurement
goniometer

Secondary outcomes

1

Description

the mean displacement of center of pressure

Timepoint

Before the intervention, immediately after the intervention, after the third session, after the fifth session

Method of measurement

By Moticon smart insole

2

Description

Velocity of center of pressure displacement

Timepoint

Before the intervention, immediately after the intervention, after the third session, after the fifth session

Method of measurement

By Moticon smart insole

3

Description

ground reaction force

Timepoint

Before the intervention, immediately after the intervention, after the third session, after the fifth session

Method of measurement

By Moticon smart insole

Intervention groups

1

Description

Intervention group: Dry needle group, in this group, the patient lies prone and in three points behind each thigh, which is the motor point of the hamstring muscles, a 50 * 30 mm echo needle made in China is inserted and a needle in the opposite direction is inserted too. Rotate the clock 360 degrees for 15 seconds and then the needle is inserted into the tissue for 20 minutes. We perform this intervention within 5 days with an interval of 48 hours.

Category

Rehabilitation

2

Description

Control group: In this group which is called the sham-needle group, the patient lies prone and in three points behind each thigh, which is the motor point of the hamstring muscles, researcher inserts a 13 * 20 mm echo needle made in China and then inserts the needle in the tissue for 20 minutes. And do this within 5 days with an interval of 48 hours.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Mehrshahr Phase Four Jame Clinic

Full name of responsible person

Parisa Fakhari

Street address

NO 405 West Ave ,Razahban Blvd, Mehrshahr Phase Four

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Tehran University of Medical Sciences

Full name of responsible person

Dr Seyyed Mohsen Mir

Street address

The School of Rehabilitation, Piche-e-shemiran, Enghelab Ave, Tehran

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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
Parisa Fakhari

Position
Student

Latest degree
Bachelor

Other areas of specialty/work
Physiotherapy

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Person responsible for scientific inquiries

Contact

Name of organization / entity
Tehran University of Medical Sciences

Full name of responsible person
Parisa Fakhari

Position
Student

Latest degree
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Other areas of specialty/work
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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
Yes - There is a plan to make this available

Title and more details about the data/document
Data on study variables

When the data will become available and for how long
march 2020

To whom data/document is available
researchers

Under which criteria data/document could be used
In case of related study

From where data/document is obtainable
parisa fakhari

What processes are involved for a request to access data/document
By sending an email and submitting a request to receive data

Comments