

Clinical Trial Protocol

Iranian Registry of Clinical Trials

15 Jun 2026

The effect of dry needling technique on pain, disability and lower extremity kinematics during walking in patient with piriformis syndrome

Protocol summary

Study aim

The aim of this study was to examine the therapeutic aspect of the effect of the dry needling method on the symptoms of piriformis syndrome due to the specialty of this technique. Also in this study, the effect of piriformis dry needling technique on the changes in the range of motion of the lower limb joints while walking and the degree of kinematic variability of the hip, knee and ankle joints are investigated.

Design

In this study, patients with piriformis syndrome were first examined for pain and motion analysis during walking. Then, subjects will be divide into treatment and control groups. In the treatment group, patients receive three sessions of dry needling in one week, and the control group will not receive treatment. after then both groups are re-evaluated.

Settings and conduct

This study is single-blinded trial and will be carried out in the Clinic of Physiotherapy, Faculty of Rehabilitation Sciences of Iran.

Participants/Inclusion and exclusion criteria

Inclusion criteria include pain in the buttocks or sciatica nerve, increased symptoms by sitting, tenderness at the the piriformis, tension-demand Maneuver increase symptoms. The patient's pain intensity between 3 to 6 and about atleast12 weeks from the onset of pain. exclusion criteria include contraindication of dry needling, pain in any lower limb joints, pregnancy, flat foot and limping .

Intervention groups

The study included two groups of control and treatment. In both groups, a preliminary assessment will be carried out. After that, the control group will not receive treatment for a week and then will assess.in control group after final assessment, physical therapy intervention will be done. the treatment group will receive dry needling technique, a three session per week on the piriformis muscle and under ultrasound and then

re-evaluated.

Main outcome variables

pain; range of motion; kinematic variability; disability

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20151026024729N2**

Registration date: **2018-08-24, 1397/06/02**

Registration timing: **prospective**

Last update: **2019-01-16, 1397/10/26**

Update count: **3**

Registration date

2018-08-24, 1397/06/02

Registrant information

Name

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Name of organization / entity

Iran University of Medical and Science

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Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2018-08-27, 1397/06/05

Expected recruitment end date

2019-01-30, 1397/11/10

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The effect of dry needling technique on pain, disability and lower extremity kinematics during walking in patient with piriformis syndrome

Public title

The effect of dry needling technique on walking in subjects with piriformis syndrome

Purpose

Treatment

Inclusion/Exclusion criteria**Inclusion criteria:**

buttock pain or radicular pain of sciatic nerve increase symptoms with sitting tenderness in piriformis muscle increase symptoms with tension-generated maneuver

Exclusion criteria:

contraindication of dry needling history of vertebral or lower extremity surgery pregnancy hip arthritis or pain lumbar discopathy or instability

Age

From **20 years** old to **40 years** old

Gender

Both

Phase

N/A

Groups that have been masked

- Outcome assessor
- Data analyser

Sample size

Target sample size: **30**

Randomization (investigator's opinion)

Randomized

Randomization description

Randomization using random block method is performed individually using sealed envelopes.

Blinding (investigator's opinion)

Single blinded

Blinding description

In this study, evaluator do not know allocation and treatment effects.

Placebo

Not used

Assignment

Parallel

Other design features**Secondary Ids**

empty

Ethics committees**1****Ethics committee**

Name of ethics committee

Ethics Committee of Iran University of Medical Sciences

Street address

Iran University of Medical Sciences, Shahid Hemmat Highway

City

tehran

Province

Tehran

Postal code

۱۴۴۹۶۱۴۵۳۵

Approval date

2018-01-20, 1396/10/30

Ethics committee reference number

IR.IUMS.REC1396.9221342202

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

piriformis syndrome

ICD-10 code

S74.0

ICD-10 code description

Injury of sciatic nerve at hip and thigh level

Primary outcomes**1****Description**

pain

Timepoint

Before first intervention, 72 hours and 7th days after the last treatment session

Method of measurement

visual analog scale

Secondary outcomes**1****Description**

lower extremity kinematic

Timepoint

before first intervention and 72 hours after last treatment session

Method of measurement

motion analysis instrument

2**Description**

pain pressure threshold

Timepoint

Before first intervention, 72 hours and 7th days after the last treatment session

Method of measurement

algometry

3

Description

disability

Timepoint

Before first intervention, 72 hours and 7th days after the last treatment session

Method of measurement

oswestry questionnaire

4

Description

internal and external range of motion of hip joint

Timepoint

Before first intervention, 72 hours and 7th days after the last treatment session

Method of measurement

by goniometry

Intervention groups

1

Description

Control group: In this group, patients will not receive treatment for a week and after a week they will receive physiotherapy for the release of piriformis muscle.

Category

Rehabilitation

2

Description

Intervention group: In this group, people will be treated with dry needling. In this method, the needle is inserted into the piriformis muscle simultaneously with the help of an ultrasound apparatus, and it is rotated and returned for 60 seconds.

Category

Rehabilitation

Recruitment centers

1

Recruitment center**Name of recruitment center**

Physiotherapy Cilinic, Faculty of Rehabilitation, Iran University of Medical Sciences

Full name of responsible person

Abbas tabatabaiee

Street address

Physical therapy cilinic, Faculty of rehabilitation sciences., Madadkaran St., Shahnazari St., Madar Squar, Mirdamad, Tehran

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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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Grant name**Grant code / Reference number****Is the source of funding the same sponsor organization/entity?**

Yes

Title of funding source

Iran 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**

Iran University of Medical Sciences

Full name of responsible person

Abbas tabatabaiee

Position

Ph.D Candidate

Latest degree

Master

Other areas of specialty/work

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

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

The total data from this study, including demographic information, primary and secondary outcomes are shared after participant being unidentifiable.

When the data will become available and for how long

The start of the access period will be without a time limit from March of 2019.

To whom data/document is available

The data from this study will only be available to researchers at academic institutions.

Under which criteria data/document could be used

The data from this study will be available for use in secondary or review articles.

From where data/document is obtainable

It will be possible for the researchers to access the documentation by email with a personal page on the site .E-mail address: pt.taba.a@gmail.com Researchgate address:
https://www.researchgate.net/profile/Abbas_Tabatabaiee

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

All requests will be reviewed and answered within a maximum of 3 weeks.

Comments