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
Abbas Tabatabaiee
Name of organization / entity
Iran University of Medical and Science
Country
Iran (Islamic Republic of)
Phone
+98 21 2253 4001
Email address
tabataba.a@tak.iums.ac.ir

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
algometery

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
City
Tehran
Province
Tehran
Postal code
۱۳۴۸۷ - ۱۵۴۵۹
Phone
+98 21 2222 2059
Email
pt.taba.a@gmail.com

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Iran University of Medical Sciences
Full name of responsible person
kazem malakouti
Street address
Iran University of Medical Sciences, Shahid Hemmat Highway, Tehran
City
tehran
Province
Tehran
Postal code
۱۳۴۸۷ - ۱۵۴۵۹
Phone
+98 21 2222 2059
Email
malakoutik@yahoo.com
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
Street address
Faculty of rehabilitation sciences., Madadkaran St., shahnazari St., Madar Squar, Mirdamad, Tehran
City

Tehran

Province

Tehran

Postal code

۱۳۴۸۷ - ۱۵۴۵۹

Phone

+98 21 2222 2059

Email

pt.taba.a@gmail.com

Person responsible for scientific inquiries

Contact

Name of organization / entity

Iran University of Medical Sciences

Full name of responsible person

Ismail ebrahimi

Position

Professor

Latest degree

Ph.D.

Other areas of specialty/work

Physiotherapy

Street address

Faculty of rehabilitation sciences., Madadkaran St., shahnazari St., Madar Squar, Mirdamad, Tehran

City

Tehran

Province

Tehran

Postal code

۱۳۴۸۷ - ۱۵۴۵۹

Phone

+98 21 2222 2059

Email

dr_i_ebrahimi@yahoo.com

Person responsible for updating data

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

Street address

Faculty of rehabilitation sciences., Madadkaran St., shahnazari St., Madar Squar, Mirdamad, Tehran

City

Tehran

Province

Tehran

Postal code

۱۳۴۸۷ - ۱۵۴۵۹

Phone

+98 21 2222 2059

Email

pt.ataba.a@gmail.com

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 unidentified.

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