Clinical Trial Protocol
Iranian Registry of Clinical Trials

27 May 2026

Study of effect and comparison of two therapeutic exercise protocols on functional outcomes and pain relief in athletes with long - standing adductor – related groin pain

Protocol summary

Summary

The study aim: to study of effect and comparison of two therapeutic exercise protocols on functional outcomes and pain relief in athletes with long - standing adductor – related groin pain. Design: a double blind clinical trial. Subjects: the athletes suffering from long-standing adductor-related groin pain (at least 2 months). inclusion criteria: male, suffering from groin pain, 18-35 years old.Their pain should be chronic at least for 2 months.The subjects should feel pain during squeeze test which its severity according to VAS must not be more than 5. Exclusion criteria: inguinal or femoral hernia, hip joint disorders, NSAIDs consumption during the study. Sampling method: simple available. Sample size in each group of the study is estimated 30. Primary outcome measures are pain, maximum isometric muscle strength, maximum eccentric muscle strength, flexibility and function. Each of these variables will be measured before and after application of the therapeutic protocols on groups 1 and 2 by an examiner who is unaware of arrangement of the subjects in the groups.The subjects are arranged in one of two groups randomly. In protocol 1 which is "Holmich protocol", isometric exercises and hip machine are used to strengthen hip abductor and adductor muscles. In this protocol, adductor muscles stretching is prohibited. In protocol 2 which is suggested by the researchers of this study, elastic band (thera band) is used as an external load to strengthen hip abductor and adductor muscles. In this protocol, adductor muscles stretching will be done regularly during the study. Furthermore, speed factor is added to the exercises, pain is assessed quantitatively, and function assessment is done by functional tests.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2016080829269N1**
Registration date: **2016-11-27, 1395/09/07**
Registration timing: **registered_while_recruiting**

Last update:
Update count: **0**

Registration date

2016-11-27, 1395/09/07

Registrant information

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Name of organization / entity

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Recruitment status

Recruitment complete

Funding source

The principle investigator of this study is responsible to prepare funding source

Expected recruitment start date

2016-06-21, 1395/04/01

Expected recruitment end date

2016-12-20, 1395/09/30

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title
Study of effect and comparison of two therapeutic exercise protocols on functional outcomes and pain relief in athletes with long - standing adductor – related groin pain

Public title
Study of effect and comparison of two therapeutic exercise protocols on function and pain relief in athletes with long - standing adductor – related groin pain

Purpose
Treatment

Inclusion/Exclusion criteria
inclusion criteria:the subjects should be male; suffering from groin pain at hip adductor tendon region; between 18-35 years old; The pain should be chronic with the previous history of minimum two months and accompanied with sport activities; The participants should be of those who are continuing their sport activities more or less; During squeeze test and maximum isometric contraction of hip adductors, they should feel pain that its severity according to VAS must not be more than 5; they should have at least two of following symptoms: a history of morning groin pain and stiffness, nighttime groin pain and groin pain while coughing and sneezing. Exclusion criteria: inguinal or femoral hernia; prostatitis, urinary tract chronic disorders; referential pain due to 10th thoracic down to 5th lumbar segment; malignant disorders; fracture in pelvis or lower limbs; other injuries of lower limbs; ilioinguinal, genitofemoral and lateral femoral cutaneous nerve entrapment; bursitis; osteoarthritis or any other hip joint disorders(according to clinical findings and previous history reported by the subjects); trigger points in adductor muscles belly; NSAID consumption during the study; Lack of cooperation and inability to do therapeutic protocols or to participate in assessments.

Age
From **18 years** old to **35 years** old

Gender
Male

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **60**

Randomization (investigator's opinion)
Randomized

Randomization description

Blinding (investigator's opinion)
Double blinded

Blinding description

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 Science

Street address
Tehran University of Medical Science, Enghelab Square,Tehran

City
Tehran

Postal code

Approval date
2016-07-18, 1395/04/28

Ethics committee reference number
IR.TUMS.VCR.REC.1395.321

Health conditions studied

1

Description of health condition studied
chronic groin pain

ICD-10 code
M62.6

ICD-10 code description
muscle strain

Primary outcomes

1

Description
pain intensity at hip adductor tendon region

Timepoint
outcome measurement in this study is done in two time sections.first at the day before begining intervention and the second at the day after finishing intervention that is after 8 weeks.

Method of measurement
VAS is used

2

Description
maximum isometric muscle strength

Timepoint
outcome measurement in this study is done in two time sections.first at the day before begining intervention and the second at the day after finishing intervention that is after 8 weeks.

Method of measurement
hand held dynamometer

3

Description
maximum eccentric muscle strength

Timepoint
outcome measurement in this study is done in two time

sections.first at the day before begining intervention and the second at the day after finishing intervention that is after 8 weeks.

Method of measurement

hand held dynamometer

4

Description

range of motion

Timepoint

outcome measurement in this study is done in two time sections.first at the day before begining intervention and the second at the day after finishing intervention that is after 8 weeks.

Method of measurement

goniameter

5

Description

function

Timepoint

outcome measurement in this study is done in two time sections.first at the day before begining intervention and the second at the day after finishing intervention that is after 8 weeks.

Method of measurement

TT,ESST,THT tests

Secondary outcomes

empty

Intervention groups

1

Description

group 1. protocol 1 (Holmich protocol): 1 - Static adduction against soccer ball placed between feet when lying supine; each adduction 30 s, ten repetitions. 2 - Static adduction against soccer ball placed between knees when lying supine; each adduction 30s, ten repetitions. 3 - Abdominal sit-ups both in straightforward direction and in oblique direction; five series of ten repetitions. 4 - Combined abdominal sit-up and hip flexion, starting from supine position and with soccer ball placed between knees (folding knife exercise); five series of ten repetitions. 5 - Balance training on wobble board for 5 min. 6 - One-foot exercises on sliding board, with parallel feet as well as with 90° angle between feet; five sets of 1 min continuous work with each leg, and in both positions. Module II (from third week; module II was done twice at each training session) 1- Leg abduction and adduction exercises lying on side; five series of ten repetitions of each exercise. 2 - Low-back extension exercises prone over end of couch; five series of ten repetitions. 3 - One-leg weight-pulling abduction/adduction standing; five series of ten repetitions for each leg. 4 - Abdominal sit-ups both in straightforward direction and in oblique direction; five series of ten repetitions. 5 - One-leg coordination exercise flexing and extending knee and swinging arms in same rhythm (cross country skiing on one leg); five series of ten repetitions for each leg. 6 - Training in sidewards motion on a “Fitter” (rocking base curved on top and bottom; user stands on platform that rolls laterally on tracks on top of rocking base) for 5 min. 7 - Balance training on wobble board for 5 min. 8 - Skating movements on sliding board; five times 1 min continuous work (Holmich, Uhrskou et al. 1999). Participants in this group have not permission to stretch adductor muscles at any stage of the treatment but they can stretch any other muscle at the end of each session if neccessary.

Category

Rehabilitation

2

Description

group2 Protocol 2 (Concentric - Eccentric training at high velocity using elastic bands): Module 1 will be the same as Holmich protocol. Instead of number 3 of Module II, Leg abduction and adduction exercises in standing position will be done using Theraband as an external loading. In the standing position, the elastic band will be attached to a fixation point, and the participants will have the elastic band around the ankle of the leg nearest to the fixation point (the training leg). The pelvis should be in the horizontal plane; the upper body should be straight and fixated by holding on to a stationary object with both hands. This is the starting position. The exercise is performed in full range of motion from hip-abduction to hip-adduction. A repetition is performed from the starting position, as rapidly as possible to full adduction. The concentric hip-adduction is performed until the distance between the training leg and the standing leg is one foot width in the frontal plane, and at the same time, the training leg was a half foot length behind the standing leg in the sagittal plane. In this position, 2 s of isometric hip-adduction is performed, followed by 3 s of eccentric hip-adduction, until full hip-abduction range of motion is reached (without pelvic lateral tilt). Before the next repetition, a 2-s pause in maximal hip-abduction is performed. Time under tension is supervised by the physiotherapist. For abduction, the method is the same as adduction, but the motion is started from a position that the distance between the training leg and the standing leg is one foot width in the frontal plane, and at the same time, the training leg is a half foot length in front of the standing leg in the sagittal plane. From this position a concentric hip abduction is dine as rapidly as possible up to 45 degree of abduction.Then, in this angle, a 2-s isometric hip abduction is done, followed by a 3-s eccentric hip abduction, untill the training limb comes back to the starting point. Before the next repetition, a 2-s pause in starting point is performed. This exercise is performed 5 series of 10 repetition for abduction as well as adduction by affected limb. External load used in this part, is the maximum resistance overcome by the participant 10 times without aggravating pain. Elastic band used in this study is "Thera band" (Thera-Band, Hygienic Corporation, Akron, OH) which its different resistances are determined by different colors. In this study blue, black, silver and

golden colors are used(blue<black<silver<golden). In order to increase the resistance, we can apply stronger theraband or add extra theraband. All therabands used in this study are prepared with defined and fixed length and the distance between the testing limb and fixed point is also marked in a way that in the beginning of abduction or adduction, the elastic band not be stretched or slack. In this way the strongest combination of theraband which is overcome 10 times by each subject, is estimated as his 10RM. In this protocol, adductors stretching is practiced 5 times a week. Stretching is performed pain freely 2 times each session for 15 seconds, while the participant is in sitting position with bent knees and his soles are in contact together. Furthermore, the participants should also practice the exercises 1 , 4 and 8 as rapidly as possible.

Category
Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center
Esteghlal Physiotherapy Center

Full name of responsible person
Abbas Yousefzadeh

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity
Research Assistance of Faculty of Rehabilitation, Tehran University of Medical Science

Full name of responsible person
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Faculty of Rehabilitation, Tehran University of Medical Science

City
Tehran

Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?
Yes

Title of funding source
Research Assistance of Faculty of Rehabilitation, Tehran University of Medical Science

Proportion provided by this source
100

Public or private sector
empty

Domestic or foreign origin
empty

Category of foreign source of funding
empty

Country of origin

Type of organization providing the funding
empty

Person responsible for general inquiries

Contact

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Sharing plan

Deidentified Individual Participant Data Set (IPD)
empty
Study Protocol
empty
Statistical Analysis Plan
empty
Informed Consent Form
empty
Clinical Study Report
empty
Analytic Code
empty
Data Dictionary
empty