Clinical Trial Protocol
Iranian Registry of Clinical Trials

07 Nov 2026

Comparison the effect of gait retraining along with feedback with rehabilitation targeting exercises on trunk and lower extremity kinetic and kinematic of patients with groin pain.

Protocol summary

Study aim

Comparison the effect of gait retraining along with feedback with rehabilitation targeting exercises on trunk and lower extremity kinetic and kinematic of patients with groin pain.

Design

The statistical population of the present study consists of men aged 18-35 with groin pain, among whom 48 people were selected based on the criteria for entering the research purposefully and randomly into two intervention groups and one control group (each group included 16 people) are divided. One group performs targeted rehabilitation interventions, and the other group undergoes gait retraining along with visual and verbal feedback. The control group also continues the special routine exercises of their sport.

Settings and conduct

The study was performed on footballers with groin pain in the Kharazmi University Correctional Laboratory. Squeeze test is used to evaluate the pain variable, and motion analysis systems are used to evaluate the kinetic and kinematic variables during a cutting maneuver. These assessments are pre and post test. In this research, the evaluator is kept blind, so that one researcher who has no knowledge of how to allocate subjects in groups, performs the evaluation.

Participants/Inclusion and exclusion criteria

Inclusion criteria: groin pain history; intention to return to competitive sports; positive Squeeze testing; painful touch on the adductor tendon. Exclusion criteria: hip joint osteoarthritis; primary medical conditions; pain in the thoracolumbar area; performing hip adductor strengthening exercises.

Intervention groups

Intervention Group 1: This group receives rehabilitation exercises at three levels. Intervention Group 2: This group receives a gait retraining program along with visual and verbal feedback. Control group: This group continues the specific routine exercises of their sport.

Main outcome variables

Groin pain; Kinetic; Kinematic

General information

Reason for update

Enter information about the realized sample size, the start and end dates of the realized patient, and the end date of the clinical trial.

Acronym

IRCT registration information

IRCT registration number: **IRCT20200401046908N1**
Registration date: **2020-05-02, 1399/02/13**
Registration timing: **prospective**

Last update: **2020-10-20, 1399/07/29**
Update count: **1**

Registration date

2020-05-02, 1399/02/13

Registrant information

Name
Sarvenaz Kazempour
Name of organization / entity
Kharazmi University
Country
Iran (Islamic Republic of)
Phone
+98 11 4226 7159
Email address
std_kazempoursarvenaz@khu.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2020-04-13, 1399/01/25

Expected recruitment end date

2020-06-17, 1399/03/28

Actual recruitment start date

2020-05-04, 1399/02/15

Actual recruitment end date

2020-07-08, 1399/04/18

Trial completion date

2020-10-20, 1399/07/29

Scientific title

Comparison the effect of gait retraining along with feedback with rehabilitation targeting exercises on trunk and lower extremity kinetic and kinematic of patients with groin pain.

Public title

Comparison of gait retraining intervention along with feedback with rehabilitation targeting exercises on biomechanics of patients with groin pain.

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Men 18-35 years old have groin pain for at least 2 months People who intend to return to the same level of preinjury participation in competitive multidirectional sports Those who have a positive Squeeze test (at 45 degrees of hip flexion) Those who have painful palpation in the tendon of the adductor or its connections to the pubic bone

Exclusion criteria:

People with hip joint osteoarthritis Those with underlying medical conditions such as arthritis or infection People who feel pain in the thoracolumbar area Athletes who performed hip adductor strengthening exercises more than once a week for six months before the study

Age

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

Gender

Male

Phase

N/A

Groups that have been masked

- Outcome assessor

Sample size

Target sample size: **51**

Actual sample size reached: **48**

Randomization (investigator's opinion)

Randomized

Randomization description

To randomize, the names of each subject are written on a ball after being selected and placed inside a bag, and a person is asked to take them out of the bag and randomly place 1: 1: 1 in one of three study groups.

Blinding (investigator's opinion)

Single blinded

Blinding description

One researcher who is evaluating the outcome is kept blind. In this way, he does not know how the subjects are assigned to the groups and what treatment interventions each group of subjects receives. In this way, he does not make deliberate mistakes in his judgments and does not benefit from the new treatment intervention.

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics Committee in Kharazmi University Research

Street address

Center for Human Movement Sciences Kharazmi University, End of Mirdamad, Sout Razan Street, Hesari Street, Keshvari Sport Complex.

City

Tehran

Province

Tehran

Postal code

۴۳۹۸۱۵۸۷۵

Approval date

2020-01-12, 1398/10/22

Ethics committee reference number

IR.KHU.REC.1398.056

Health conditions studied

1

Description of health condition studied

Groin pain

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

Groin Pain

Timepoint

Pre and post test

Method of measurement

sphygmomanometer

Secondary outcomes

1

Description

Kinetic: Ankle moment sagittal (plantar)

Timepoint
Pre and post test
Method of measurement
Force plate

2

Description
Kinetic: Ankle power sagittal (eccentric)
Timepoint
Pre and post test
Method of measurement
Force plate

3

Description
Kinetic: Ankle power sagittal (concentric)
Timepoint
Pre and post test
Method of measurement
Force plate

4

Description
Kinetic: Hip power sagittal (concentric)
Timepoint
Pre and post test
Method of measurement
Force plate

5

Description
Kinetic: Hip moment sagittal (extensor)
Timepoint
Pre and post test
Method of measurement
Force plate

6

Description
Kinetic: Knee power sagittal (concentric)
Timepoint
Pre and post test
Method of measurement
Force plate

7

Description
Kinetic: Hip moment frontal (adductor)
Timepoint
Pre and post test
Method of measurement
Force plate

8

Description
Kinematic: Thorax angles frontal (contralateral side flexion)
Timepoint
Pre and post test
Method of measurement
Three-dimensional motion analysis system

9

Description
Kinematic: Pelvis angles transverse (contralateral rotation)
Timepoint
Pre and post test
Method of measurement
Three-dimensional motion analysis system

10

Description
Kinematic: Pelvis angles frontal (contralateral side flexion)
Timepoint
Pre and post test
Method of measurement
Three-dimensional motion analysis system

11

Description
Kinematic: Ankle angles sagittal (dorsiflexion)
Timepoint
Pre and post test
Method of measurement
Three-dimensional motion analysis system

12

Description
Kinematic: Thorax angles transverse (ipsilateral rotation)
Timepoint
Pre and post test
Method of measurement
Three-dimensional motion analysis system

13

Description
Kinematic: Hip angles sagittal (flexion)
Timepoint
Pre and post test
Method of measurement
Three-dimensional motion analysis system

14

Description
Kinematic: Hip angles frontal (abduction)
Timepoint
Pre and post test
Method of measurement
Three-dimensional motion analysis system

15

Description
Kinematic: Knee angles sagittal (flexion)
Timepoint
Pre and post test
Method of measurement
Three-dimensional motion analysis system

16

Description
Kinematic: Ground contact time
Timepoint
Pre and post test
Method of measurement
Three-dimensional motion analysis system

Intervention groups

1

Description
Intervention group 1: This group will implement a targeted rehabilitation protocol that includes three levels; level 1 addressed intersegmental control and strength, level 2 involved linear running mechanics and increasing linear running load tolerance, and level 3 targeted multidirectional mechanics and the transition back to high intensity sprinting. Exercises are performed 3 days a week, one day in between, for 8 weeks. The rest time between each set is 30 seconds to 1 minute.
Category
Treatment - Other

2

Description
Intervention group 2: This group performs gait retraining along with visual and verbal feedback. Gait retraining is done on a treadmill. People run on the treadmill at a comfortable pace in all sessions. Visual feedback during running through a full-length mirror that is placed directly in front of the treadmill, and verbal feedback in the form of instructions such as "keeping the knees in line with the toes, reducing pelvic prolapse and maintaining pelvic symmetry, reducing vertical acceleration (by inducing a quiet and quiet walking style)" provided by the tester. In general, the training time starts from 15 minutes in the first session and is increased to 3 to 9 minutes per week. While feedback time is reduced from 100% in the first four weeks to 25% in the last few weeks and then removed. Exercises are followed 1 day a week for 8 weeks.
Category
Treatment - Other

3

Description
Control group: This group continues the specific routine exercises of their sport.
Category
N/A

Recruitment centers

1

Recruitment center
Name of recruitment center
Tehran football clubs
Full name of responsible person
Amir Letafatkar
Street address
Center for Human Movement Sciences Kharazmi University, End of Mirdamad, Sout Razan Street, Hesari Street, Keshvari Sport Complex.
City
Tehran
Province
Tehran
Postal code
۴۳۹۸۱۵۸۷۵
Phone
+98 21 2222 8001
Email
AMIR.LETAFATKAR@KHU.AC.IR

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
kharazmi University
Full name of responsible person
Amir Letafatkar
Street address
Center for Human Movement Sciences Kharazmi University, End of Mirdamad, Sout Razan Street, Hesari Street, Keshvari Sport Complex.
City
Tehran
Province
Tehran
Postal code
۴۳۹۸۱۵۸۷۵
Phone
+98 21 2222 8001
Email
AMIR.LETAFATKAR@KHU.AC.IR
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
kharazmi University
Proportion provided by this source
50
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
kharazmi University
Full name of responsible person
Sarvenaz kazempour
Position
Student
Latest degree
Master
Other areas of specialty/work
Corrective Exercises and Sport Injuries
Street address
Between the 8th and 10th Yadgar, 16 Metri Dovom street.
City
Qaemshahr
Province
Mazandaran
Postal code
4766657165
Phone
+98 11 4226 7159
Email
Kazempour.sarvenaz@yahoo.com

Person responsible for scientific inquiries

Contact
Name of organization / entity
kharazmi University
Full name of responsible person
Sarvenaz Kazempour
Position
Student
Latest degree
Master
Other areas of specialty/work
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4766657165
Phone
+98 11 4226 7159
Email
Kazempour.sarvenaz@yahoo.com

Person responsible for updating data

Contact
Name of organization / entity
kharazmi University
Full name of responsible person
Sarvenaz Kazempour
Position
Student
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Master
Other areas of specialty/work
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Province
Mazandaran
Postal code
4766657165
Phone
+98 11 4226 7159
Email
Kazempour.sarvenaz@yahoo.com

Sharing plan

Deidentified Individual Participant Data Set (IPD)
No - There is not a plan to make this available
Justification/reason for indecision/not sharing IPD
There is no further information.
Study Protocol
Yes - There is a plan to make this available
Statistical Analysis Plan
No - There is not a plan to make this available
Informed Consent Form
Yes - There is a plan to make this available
Clinical Study Report
No - There is not a plan to make this available
Analytic Code
No - There is not a plan to make this available
Data Dictionary
No - There is not a plan to make this available
Title and more details about the data/document
Only part of the data, such as dependent variables, the average of all samples, can be shared in the form of scientific articles.
When the data will become available and for how long
Start accessing 6 months after publishing results in articles and obtaining permission from the relevant university.
To whom data/document is available
Personal information is confidential and general outcomes in paper form available to everyone.
Under which criteria data/document could be used
Information is not available to anyone. General outcomes in paper form available to everyone.
From where data/document is obtainable
Sarvenaz Kazempour Email:

kazempour.sarvenaz@yahoo.com

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

Information can be provided by contacting Sarvanaz Kazempour and coordinating with the Department of Sports Pathology of Kharazmi University of Tehran.

Comments