Clinical Trial Protocol
Iranian Registry of Clinical Trials

17 Sep 2026

The effect of strength exercise program on the hip abductor and lateral rotator muscles in correcting pronated foot

Protocol summary

Summary

The purpose of this study was to examine the effect of a strength exercise program on the hip abductor and lateral rotator muscles in pronated foot. This study was a randomized clinical trial of pre-and post-test. Thirty male subjects with pronated foot participated in this study were randomly divided into control and experimental groups. Before starting strength training program the pronated foot was measured by navicular drop test and the strength of hip abductor and lateral rotator muscles assessed using hand-held dynamometer. The experimental group participated in strength training program three days a week for six weeks. The control group asked to continue their daily activity. After 6 weeks, pronated foot and muscles strength were measured again.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2013012312241N1**
Registration date: **2013-03-23, 1392/01/03**
Registration timing: **retrospective**

Last update:
Update count: **0**

Registration date

2013-03-23, 1392/01/03

Registrant information

Name

Amir Dadashpoor

Name of organization / entity

University of Kharazmi

Country

Iran (Islamic Republic of)

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Email address

dadashpoor.amir@gmail.com

Recruitment status

Recruitment complete

Funding source

Submitted for master of science degree in faculty of physical education & sport sciences, department of corrective exercise & sport injuries

Expected recruitment start date

2011-08-22, 1390/05/31

Expected recruitment end date

2011-12-22, 1390/10/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The effect of strength exercise program on the hip abductor and lateral rotator muscles in correcting pronated foot

Public title

Correcting pronated foot

Purpose

Supportive

Inclusion/Exclusion criteria

Inclusion criteria: Age beetween 18-25 years; Navicular drop over than 10 millimeter. Exclusion criteria: Surgery at lower extremity, BMI lower than 20 and higher than 25.

Age

From **18 years** old to **25 years** old

Gender

Male

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **30**

Randomization (investigator's opinion)

Randomized

Randomization description

Blinding (investigator's opinion)

Not blinded

Blinding description

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Faculty of physical education & sport sciences, Kharazmi university

Street address

Shahid Keshvari complex, Razan jonobi st., Mirdamad st.

City

Tehran

Postal code

Approval date

2011-06-08, 1390/03/18

Ethics committee reference number

64/9138ت

Health conditions studied

1

Description of health condition studied

Foot Pronation

ICD-10 code

M21.6

ICD-10 code description

Other acquired deformities of ankle and foot

Primary outcomes

1

Description

Pronated foot

Timepoint

before and a month and a half after the intervention

Method of measurement

Navicular drop test

2

Description

Hip abductor muscles strength

Timepoint

before and a month and a half after the intervention

Method of measurement

hand-held dynamometer

3

Description

lateral rotator muscles strength

Timepoint

before and a month and a half after the intervention

Method of measurement

hand-held dynamometer

Secondary outcomes

empty

Intervention groups

1

Description

Brody’s method was used to assess navicular drop. The subject sat with hips, knees, and ankles bent to 90_ in an adjustable-height chair with the tibia perpendicular to the floor and the foot resting on the floor. Inorder to measure navicular drop, the tester palpated the talar dome of the subject’s foot by placing the thumb and index finger on the medial and lateral aspects of the talus, one over the sinus tarsi and the other over the anteromedial portion of the talar dome. The foot was repositioned by the tester until the talus was centrally located and could be felt equally under each point of palpation, or until the ankle joint was in subtalar neutral. The navicular tuberosity was then palpated and marked with a washable marker. The height caliper was positioned and the movement arm adjusted so that it was lined up with the navicular tuberosity. The height of the navicular relative to the floor was measured. The subject was then asked to stand up, keeping the tibia perpendicular to the floor and the knee in line with the hallux, placing equal amounts of body weight on each leg. The position of the navicular relative to the floor was measured again. The difference in navicular height between the seated and standing position was calculated and represented the subject’s navicular drop. Hip abductor strength was assessed using methods described by Ireland.Participants assumed a side-lying position with the test leg facing upward and were stabilized with a strap around the trunk and the table. The test leg was placed in a neutral position, placing pillows between the lower extremities to maintain this position. A handheld dynamometer was placed 5 cm proximal to the lateral knee joint line secured to the leg using a rigid strap that surrounded the leg and table.Stabilizing the participant and dynamometer using immovable straps removed the potential for tester strength or experience to influence the results. The peak

force (kg) of the three experimental trials was recorded. Hip external rotation strength was measured with participants seated with their hips and knees in 90_ of flexion. The dynamometer was placed 5 cm above the medial malleolus and secured by a strap around the ankle that was anchored to a table leg. The participants were asked to maximally push against the dynamometer by externally rotating the hip for 5 s. One practice trial and three experimental trials were performed, with 15 s of rest in between. The peak force (kg) of the three experimental trials was recorded. The experimental group participated in strength training program on the hip abductor and external rotator muscles using Delorm method three days a week for six weeks. Between sessions there are at least forty-eight hour period and training. For principals, ten percent of the amount of weight each week if progress is being added. Progressive phase at any weight for about ten percent of the subjects seem to twelve repetitions, if progress is added, the process is executed to load the proper overload the muscles are. Each exercise was performed three times. Sixty-second rest period. Before beginning the exercise, subjects in the experimental group to determine the appropriate intensity of exercise and weight training are evaluated. Four practice hip abduction in side lying position, hip external rotation in side lying position, Hip abduction in standing position and hip external rotation in sitting position was used.

Category

Other

2

Description

Brody's method was used to assess navicular drop. The subject sat with hips, knees, and ankles bent to 90_ in an adjustable-height chair with the tibia perpendicular to the floor and the foot resting on the floor. Inorder to measure navicular drop, the tester palpated the talar dome of the subject's foot by placing the thumb and index finger on the medial and lateral aspects of the talus, one over the sinus tarsi and the other over the anteromedial portion of the talar dome. The foot was repositioned by the tester until the talus was centrally located and could be felt equally under each point of palpation, or until the ankle joint was in subtalar neutral. The navicular tuberosity was then palpated and marked with a washable marker. The height caliper was positioned and the movement arm adjusted so that it was lined up with the navicular tuberosity. The height of the navicular relative to the floor was measured. The subject was then asked to stand up, keeping the tibia perpendicular to the floor and the knee in line with the hallux, placing equal amounts of body weight on each leg. The position of the navicular relative to the floor was measured again. The difference in navicular height between the seated and standing position was calculated and represented the subject's navicular drop. Hip abductor strength was assessed using methods described by Ireland.Participants assumed a side-lying position with the test leg facing upward and were stabilized with a strap around the trunk and the table. The test leg was placed in a neutral position, placing pillows between the lower extremities to maintain this position. A handheld dynamometer was placed 5 cm proximal to the lateral knee joint line secured to the leg using a rigid strap that surrounded the leg and table.Stabilizing the participant and dynamometer using immovable straps removed the potential for tester strength or experience to influence the results. The peak force (kg) of the three experimental trials was recorded. Hip external rotation strength was measured with participants seated with their hips and knees in 90_ of flexion. The dynamometer was placed 5 cm above the medial malleolus and secured by a strap around the ankle that was anchored to a table leg. The participants were asked to maximally push against the dynamometer by externally rotating the hip for 5 s. One practice trial and three experimental trials were performed, with 15 s of rest in between. The peak force (kg) of the three experimental trials was recorded.

Category

Other

Recruitment centers

1

Recruitment center

Name of recruitment center

Artan fitness gym

Full name of responsible person

Street address

City

Tehran

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Kharazmi University

Full name of responsible person

Seyyed Sadreddin Shojaeddin, Ph.D

Street address

Shahid Keshvari complex, Razan jonobi st., Mirdamad st.

City

Tehran

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

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

Name of organization / entity

Kharazmi university

Full name of responsible person

Amir Dadashpoor

Position

Master in physical education & sport sciences(corrective exercise and sport injuries)

Other areas of specialty/work

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Position

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Other areas of specialty/work

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Web page address

Person responsible for updating data

Contact

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