Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

Effects of Intrinsic foot muscle(IFM) exercises on static and dynamic balance , Ankle dorsi flexion Range Of Motion(ROM) & performance of adolescent soccer players with flexible flat feet

Protocol summary

Study aim

The purpose of study is to evaluate the effects of Intrinsic foot muscles exercises on static and dynamic balance,ankle dorsiflexion range of motion and performance of adolescent football players with flexible flat feet

Design

Randomized clinical trial with control group,with parallel group,double blinded,44 participants,randomization with concealed envelope

Settings and conduct

Professional footballers who meet the inclusion criteria will be invited to participate in this study.Evaluation and teaching of exercises will be done in the sports club of football players.By the sealed envelope,the participants are divided into two treatment groups(double blinded)and the assistant of physiotherapist who has received the necessary training performs the tests.Then the exercises are taught to the participants by the physiotherapist

Participants/Inclusion and exclusion criteria

Inclusion criteria: Adolescent professional football players 10-19 Years of age More than +6 foot posture index Exclusion criteria: trauma or fracture

Intervention groups

For the control group,non-biomechanical function ankle exercises are performed.These exercises include plantar and dorsiflexion of the metatarsophalangeal joint in the Unloaded position(sitting)with the knee bent at 90 degrees.The control group performs these exercises for 6 weeks.The control group will do these exercises 5 times a day,hold the movement for 30 seconds each time and rest for 10 seconds and do 10 repetitions.Also,the intervention group exercises the intrinsic muscles of the foot for 6 weeks(Vele's forward lean,short foot exercise,toe spread out,second to fifth metatarsal extension,big toe extension,towel curl)

Main outcome variables

Reaching distance in modified Star excursion test in anterior,posteromedial and posterolateral directions number of errors in Balance error scoring system Lateral hop test score ankle dorsi flexion range of motion

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20240126060810N1**
Registration date: **2024-04-06, 1403/01/18**
Registration timing: **registered_while_recruiting**

Last update: **2024-04-06, 1403/01/18**
Update count: **0**

Registration date

2024-04-06, 1403/01/18

Registrant information

Name
Poorya Rouhidel
Name of organization / entity
Country
Iran (Islamic Republic of)
Phone
+98 21 2246 4265
Email address
pooryarouhidel@yahoo.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2024-01-21, 1402/11/01

Expected recruitment end date

2024-04-20, 1403/02/01

Actual recruitment start date
empty
Actual recruitment end date
empty
Trial completion date
empty

Scientific title
Effects of Intrinsic foot muscle(IFM) exercises on static and dynamic balance , Ankle dorsi flexion Range Of Motion(ROM) & performance of adolescent soccer players with flexible flat feet

Public title
Effects of Intrinsic foot muscle strengthening on flexible flat feet
Purpose
Treatment
Inclusion/Exclusion criteria
Inclusion criteria:
Adolescent football players from different football clubs that are professional according to Early sport specialization 10-19 years of age More than +6 FPI(Foot Posture Index)
Exclusion criteria:
No acute injury , fracture or surgery of the lower extremity in the past 3 months No history of foot or lower leg pathology and gait disturbances in the past 6 months No neurological or vestibular disease
Age
From **10 years** old to **19 years** old
Gender
Male

Phase
N/A
Groups that have been masked

- Participant
- Care provider

Sample size
Target sample size: **44**
Randomization (investigator's opinion)
Randomized
Randomization description
The first physiotherapy assistant will divide people into intervention and control group using sealed envelope method. 44 envelopes(22 being number 1 and 22 being number 2) with numbers 1 & 2(one of them being intervention and the other being control group) are used which only the second physiotherapist(the main therapist) knows.Before being chosen by the patients , the order of the envelopes will be changed numerously and after they have chosen the envelope , its number will be recorded. The background information form is completed by the participant after randomization with the help of the first physiotherapist
Blinding (investigator's opinion)
Double blinded
Blinding description
In this study the person(Physiotherapist assistant) which randomizes participants and does the testings is blind. The way to conduct the tests and randomization process will be taught to assistant without telling them about the way to interpretate them. They just write the numbers. Participants will also be blind by the way of concealed envelope
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 Sciences
Street address
No. 5 , first Golestan street , Shahid Mahallati town , Minicity district
City
Tehran
Province
Tehran
Postal code
1955754678
Approval date
1998-07-14, 1377/04/23
Ethics committee reference number
IR.TUMS.FNM.REC.1402.187

Health conditions studied

1

Description of health condition studied
Flexible Flat Foot
ICD-10 code
ICD-10 code description

Primary outcomes

1

Description
Reaching distance in modified star balance test in three directions anterior, posterior medial and posterior lateral
Timepoint
Before intervention , 3rd week , 6th week
Method of measurement
Tape measure

2

Description
Number of errors in the balance error scoring system
Timepoint

Before intervention , 3rd week , 6th week

Method of measurement

Balance Error Scoring System

3

Description

Lateral hop test score

Timepoint

Before intervention , 3rd week , 6th week

Method of measurement

Digital watch

4

Description

Ankle dorsiflexion range of motion

Timepoint

Before intervention , 3rd week , 6th week

Method of measurement

Goniometer

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: IFM exercises for 6 weeks The first week :Towel curl exercise (in this exercise, the person sits and the knee is bent at 90 degrees, bends slightly forward and puts the weight of the hand on the knee to load the ankle joint. Then, without lifting the heel, the first and fifth metatarsals tries to curl towels) The second week : The Big toe extension exercise (in this exercise, the person sits and the knee is bent at 90 degrees, bends slightly forward and puts the weight of the hand on the knee to load the ankle joint. Then, without lifting the heel, the first metatarsal and the fifth metatarsal tries to lift the big toe while the rest of the toes are on the ground and not bent) The third week : The second to fifth metatarsal extension exercise (in this exercise, the person sits and the knee is bent at 90 degrees, bends slightly forward and puts the weight of the hand on the knee to load the ankle joint. Then, without lifting the heel, The first metatarsal and the fifth metatarsal tries to lift the second to fifth toes, while the big toe rests on the ground and does not bend. The fourth week : Toe Spread Out exercise (in this exercise, the person sits and the knee is bent at 90 degrees, bends slightly forward and puts the weight of the hand on the knee to load the ankle joint. Then, without lifting the heel, the first metatarsal And the fifth metatarsal tries to lift all the toes together and first places the big toe, then the fifth toe, and then the fourth, third and second toes respectively, while an abductor component is applied to the toes.(tries to open fingers) The fifth week : Short Foot exercise (in this exercise, the person sits and the knee is bent at 90 degrees, bends slightly forward and puts the weight of the hand on the knee to load the ankle joint. Then, without lifting the heel, the first metatarsal and The fifth metatarsal tries to bring the first and fifth metatarsals closer to the heel and increases the arch of the foot. The sixth week : Vele's Forward lean exercise (in this exercise, the person stands and tries to push himself forward without lifting the heel as far as he can with straight knees and hands by the side of the body. After completing this exercise, tries to walk backwards in Tandem position)

Category

Treatment - Other

2

Description

Control group: Non bio mechanic function of ankle exercises for 6 weeks These exercises include plantar and dorsiflexion of the metatarsophalangeal joint in the Unloaded position (sitting) with the knee bent at 90 degrees. The control group performs these exercises for 6 weeks. The control group will do these exercises 5 times a day, hold the movement for 30 seconds each time and rest for 10 seconds and do 10 repetitions and then do the next exercise. In order to comply with ethical principles, the control group will benefit from the exercises of the intervention group after the completion of the research project.

Category

Treatment - Other

Recruitment centers

1

Recruitment center

Name of recruitment center

Kia Football Academy

Full name of responsible person

Vahid Izadfar

Street address

Shohadaye Darake sports club , Seyed Mofidi street , Darake district

City

Tehran

Province

Tehran

Postal code

1448834954

Phone

+98 990 487 8747

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fckia2015@gmail.com

Web page address

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Tehran University of Medical Sciences

Full name of responsible person

Akbar Fotouhi

Street address

Safi Shah Street , Pich Shemiran District , Enghelab Street , Tehran

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Province

Tehran

Postal code

1148965111

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Email

rehabilitation@tums.ac.ir

Grant name

Grant code / Reference number

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

Yes

Title of funding source

Tehran 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

Tehran University of Medical Sciences

Full name of responsible person

Poorya Rouhidel

Position

Student

Latest degree

Bachelor

Other areas of specialty/work

Physiotherapy

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Person responsible for scientific inquiries

Contact

Name of organization / entity

Tehran University of Medical Sciences

Full name of responsible person

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Position

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Latest degree

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Other areas of specialty/work

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Person responsible for updating data

Contact

Name of organization / entity

Tehran University of Medical Sciences

Full name of responsible person

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

Undecided - It is not yet known if there will be a plan to make this available

Study Protocol

Undecided - It is not yet known if there will be a plan to

make this available

Statistical Analysis Plan

Undecided - It is not yet known if there will be a plan to make this available

Informed Consent Form

No - There is not a plan to make this available

Clinical Study Report

Undecided - It is not yet known if there will be a plan to make this available

Analytic Code

Undecided - It is not yet known if there will be a plan to make this available

Data Dictionary

Undecided - It is not yet known if there will be a plan to make this available