Clinical Trial Protocol
Iranian Registry of Clinical Trials

04 Jun 2026

The effect of neuromuscular training on pain, proprioception, balance and selected functional tests in women runners with shin splints.

Protocol summary

Study aim
Determining the effect of neuromuscular exercises on pain, proprioception, balance and selected functional tests of female runners with shin splints.

Design
This research will have an intervention group and a control group, without blinding, randomized, randomization type random allocation law, phase 2 on 24 people.

Settings and conduct
The research is in the form of a pre-test and post-test design, semi-experimental and applied. The study will be conducted on female runners aged 17 to 23 years with shin splints in Hormozgan province, Bandar Abbas city and the Khalij fars athletics track.

Participants/Inclusion and exclusion criteria
Female gender; Placement in the age range of 17 to 23 years; The presence of shin splints; Athletics athlete; Absence in 3 sessions of practice; Causing injury during the training period; Reluctance to continue participating in training; Existence of injuries such as ACL injury, muscle tear and meniscus tear.

Intervention groups
24 people are randomly selected and divided into an intervention group and a control group. 12 of them are given neuromuscular exercises for 6 weeks, three sessions per week, and each session lasts 45-60 minutes.

Main outcome variables
Pain intensity; Ankle proprioception; Static balance; Dynamic balance; Functional tests: side jump, single leg jump and moving platforms.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20220830055829N1**

Registration date: **2022-09-24, 1401/07/02**

Registration timing: **registered_while_recruiting**

Last update: **2022-09-24, 1401/07/02**

Update count: **0**

Registration date

2022-09-24, 1401/07/02

Registrant information

Name
Saideh Loghmani abdani

Name of organization / entity

Country
Iran (Islamic Republic of)

Phone
+98 76 3367 9477

Email address
s.loghmani@khuisf.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2022-09-24, 1401/07/02

Expected recruitment end date

2022-11-03, 1401/08/12

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The effect of neuromuscular training on pain, proprioception, balance and selected functional tests in women runners with shin splints.

Public title

The effect of neuromuscular exercises on female runners

with shin splints.

Purpose

Supportive

Inclusion/Exclusion criteria

Inclusion criteria:

Female gender Placement in the age range of 17 to 23 years The presence of shin splints Athletics athlete

Exclusion criteria:

Absence in 3 sessions of practice Causing injury during the training period Reluctance to continue participating in training Existence of injuries such as ACL injury, muscle tear and meniscus tear.

Age

From **17 years** old to **23 years** old

Gender

Female

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **24**

Randomization (investigator's opinion)

Randomized

Randomization description

In this study, we will use the limited randomization method for all study groups with equal sample size, and among the types of limited randomization methods, we will use the assigned law randomization to achieve a balance in the number of people assigned to the study groups. First, we write the names of 24 people on the ball and put them in the box. We remove the balls from the box at random and without replacement. The 12 balls that we took out of the box at the beginning are called the intervention group and the 12 balls that are left are called the control group. Since it is not possible to reveal the random sequencing and to know the next assignment, concealment will not be performed.

Blinding (investigator's opinion)

Not blinded

Blinding description

Placebo

Not used

Assignment

Other

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethical Committee of Isfahan Azad University (Khorasgan)

Street address

Esfahan, East J St., Arghwanieh, University Blvd

City

Esfahan

Province

Isfehan

Postal code

815513999813

Approval date

2022-05-30, 1401/03/09

Ethics committee reference number

IR.IAU.KHUISF.REC.1401.088

Health conditions studied

1

Description of health condition studied

Shin splint

ICD-10 code

M76.81

ICD-10 code description

Anterior tibial syndrome

Primary outcomes

1

Description

Pain

Timepoint

The beginning of the study (before the intervention) and 6 weeks after that.

Method of measurement

A visual scale is used to measure leg pain. It is like a line 100 mm long, where the number zero indicates the absence of pain and the number 10 indicates the maximum amount of pain. According to the amount of pain they have had in the past 24 hours, the subjects draw a line around the stickers that are on the ruler and express the intensity of the pain, then by measuring the desired point, the intensity of the pain is measured in millimeters. . Numbers in the range of 0-10 mm indicate no pain, 10-30 mm indicate mild pain, 40-60 mm indicate moderate pain, and 70-100 mm indicate severe pain.

2

Description

Static balance

Timepoint

The beginning of the study (before the intervention) and 6 weeks after that.

Method of measurement

To evaluate static balance, standing on one leg test is used. The subject takes off his shoes and clasps his hands in his arms, then bends his other leg at the knee and places his toe on the inside of the knee of the other leg. Then the subject separates the heel of the other foot from the ground and balances on one leg. The timer starts when the heel is off the ground and stops when one of the following errors occurs: hands are separated from the hips, leg on the knee is separated from the knee, weight-bearing leg is unbalanced so that the heel of the weight-bearing foot comes into contact with the

ground.

3

Description
Dynamic balance
Timepoint
At the beginning of the study, before the start of the intervention, and 6 weeks after.
Method of measurement
To evaluate the dynamic balance, the adjusted Y balance test is used. The method of conducting the test will be in such a way that the subject will be informed about the test through the explanation of the researcher and will do it several times as a practice before the main test. Then, in the main performance, the subjects stood on one leg in the center of the intersection of the lines, while standing on one leg, the subject was asked to reach with his free leg in the anterior, posterior internal, and posterior external directions. The method of performing the test was that the person stands on his right foot and performs the reaching action three times in the front path, and then stands on the left foot and performs the reaching action three times in the front path. The internal posterior and external posterior are also repeated. In this test, people's leg length affects their reaching distance. As mentioned, in order to normalize this test, the average reaching distance is divided by the leg length of each subject and multiplied by 100 to calculate the dependent variable and the reaching distance is obtained as a percentage of the leg length.

4

Description
Deep feelings
Timepoint
At the beginning of the study, before the start of the intervention, and 6 weeks after.
Method of measurement
In this study, a goniometer will be used to evaluate proprioception. To start, the subject's ankle is dorsiflexed at an angle of 10 degrees, and then the foot returns to the first position, and the subject is asked to recreate the desired angle with closed eyes. In this situation, the amount of error is evaluated in degrees with a goniometer.

5

Description
Side jump
Timepoint
At the beginning of the study, before the start of the intervention, and 6 weeks after.
Method of measurement
The objective of this test is for a person to jump from one side to the other over an obstacle (60 x 4 x 2 cm) as quickly as possible within a time span of 15 seconds. The person is instructed to keep their legs together. The number of correct jumps in two trials is recorded.

6

Description
Single leg jump
Timepoint
At the beginning of the study, before the start of the intervention, and 6 weeks after.
Method of measurement
The person is instructed to hop on one foot at a time; After a successful jump with each foot, the height increases by adding new blocks (50 cm, 20 cm, 5 cm). The subject will have three attempts at each height and on each leg. Three, two or one points are awarded for successful completion of the first, second or third test. A maximum of 27 points can be awarded for each leg (maximum 54 points).

7

Description
Shifting platforms.
Timepoint
At the beginning of the study, before the start of the intervention, and 6 weeks after.
Method of measurement
The subject will start the test by standing with both feet on a platform (25 x 25 x 2 cm; 0.5 kg) supported on four legs and 3.7 cm high. The subject holds the second identical platform in his hands. He is then instructed to place the second platform next to the first platform and then step on it. Then he takes the first platform and places it next to the second platform and the person steps on it. This state lasts 20 seconds. Two points are awarded for each successful transfer from one platform to another (one point for moving the platform and another for moving the body to the second platform). The number of points in the interval of 20 seconds for two tests is recorded and summed up. If the person falls off the platform in this process, he gets back on the platform and continues the experiment.

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: In the neuromuscular training program, athletes are asked to follow their normal preseason track program and complete the neuromuscular training at the end of each session (weeks 1-6) after a 10-minute rest. The intervention period will be six weeks and will include three weekly training sessions. The duration of each training session is 30 minutes.
Category
Rehabilitation

2

Description
Control group: The control group will do their usual athletic training during this period
Category
N/A

Recruitment centers

1

Recruitment center
Name of recruitment center
Persian Gulf sports complex
Full name of responsible person
Seyyed Mansour Roshan Qiyas
Street address
Khalig fars sports complex, Gas intersection, South Elahia
City
Bandarabbas
Province
Hormozgan
Postal code
7915373311
Phone
+98 917 161 7049
Email
s.loghmani5486@yahoo.com

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Islamic Azad University
Full name of responsible person
Majid Taghiani
Street address
University Blvd, Arghvanieh, East J St., Esfahan,
City
Esfahan
Province
Isfehan
Postal code
8155139998
Phone
+98 31 3535 4001
Email
toghiani@hotmail.com
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Islamic Azad University
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
Islamic Azad University
Full name of responsible person
Saeeda Loqmani Abdani
Position
Masters student
Latest degree
Bachelor
Other areas of specialty/work
Sports pathology and corrective movements
Street address
University Blvd, Arghvanieh, East J St., Esfahan
City
Esfahan
Province
Isfehan
Postal code
8155139998
Phone
+98 31 5353 4001
Email
s.loghmani5486@yahoo.com

Person responsible for scientific inquiries

Contact
Name of organization / entity
Islamic Azad University
Full name of responsible person
Saideh Loghmani Abdani
Position
Masters student
Latest degree
Bachelor
Other areas of specialty/work
Sports pathology and corrective movements
Street address
University Blvd, Arghvanieh, East J St., Esfahan
City
Esfahan
Province
Isfehan
Postal code
8155139998
Phone
+98 31 5353 4001
Email
s.loghmani5486@yahoo.com

Person responsible for updating data

Contact

Name of organization / entity
Islamic Azad University

Full name of responsible person
Saeideh Loghmani

Position
Master student

Latest degree
Bachelor

Other areas of specialty/work
Sport injuries and corrective movements

Street address
University Blvd, Arghvanieh, East J St., Esfahan

City
Isfahan

Province
Isfehan

Postal code
8155139998

Phone
+98 31 5353 4001

Email
s.loghmani5486@yahoo.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
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

Title and more details about the data/document
All data related to people who participate as a sample in this research will be shared after de-identification.

When the data will become available and for how long
The access period starts 6 months after the results are published.

To whom data/document is available
The documents of this research are available to researchers working in academic institutions, athletics federations and sports coaches.

Under which criteria data/document could be used
Responsible people in sports in order to prevent injury, educational centers where there are people with problems mentioned in the research.

From where data/document is obtainable
Saideh Loghmani Abdani phone: 00989176478965 Email: S.loghmani5486@yahoo.com

What processes are involved for a request to access data/document
Checking the application, checking the applicant's documents, sending the required documents

Comments