

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 2026

Effect of 8-weeks selected physical rehabilitation exercises on motor function and micro-structure of meniscus in injured athletes

Protocol summary

Study aim

Purpose of this research is to study the effect of 8-weeks physical rehabilitation exercises on motor function and micro-structure of injured meniscus in athletes.

Design

Clinical experiment was composed of 24 athletes with meniscus injury that were selected by purposive sampling and were divided into control and experimental groups randomly.

Settings and conduct

Method and type of this study is semi-experimental and applied. This study was accomplished in orthopedic clinics to find subjects, rehabilitation faculty lab to record variables, exercise site to implement protocol, hospital for meniscectomy, and pathobiology lab to prepare the tissue. Surveys were done before and after 8 weeks (control: not exercised and experimental: exercised; intergroup comparison) and after surgery (intragroup comparison).

Participants/Inclusion and exclusion criteria

Study entry criteria include subjects being volunteer for meniscectomy; not more than six months is passed from their injury; is volunteer to participate in the exercise program. Condition for not entering this study was subsiding from it in the middle of the research for any reason.

Intervention groups

Torque, balance, range of motion, and proprioception of the injured knee were measured before and after 8 weeks (control: not exercised; experimental: selective rehabilitation exercise). Meniscectomy was performed on both groups and during meniscectomy injured meniscus tissue was removed. Then surface topography, surface profile, surface roughness, number of surface fibrocartilages, and diameter of fibrocartilages were deliberated in both groups.

Main outcome variables

Eight weeks of selective rehabilitation program improved motor function (knee muscle torque; balance; ROM; and

knee proprioception) and micro-structure (meniscus surface roughness; number of meniscus fibrocartilages; diameter of fibrocartilages) in injured athletes.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20200507047331N1**

Registration date: **2020-06-15, 1399/03/26**

Registration timing: **registered_while_recruiting**

Last update: **2020-06-15, 1399/03/26**

Update count: **0**

Registration date

2020-06-15, 1399/03/26

Registrant information

Name

Seyede Mona Hosseini

Name of organization / entity

University of Isfahan

Country

Iran (Islamic Republic of)

Phone

+98 21 2234 5000

Email address

mona_s1379@yahoo.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2020-05-24, 1399/03/04

Expected recruitment end date

2020-07-25, 1399/05/04

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Effect of 8-weeks selected physical rehabilitation exercises on motor function and micro-structure of meniscus in injured athletes

Public title

Effect of exercise on motor function and micro-structure of injured meniscus

Purpose

Supportive

Inclusion/Exclusion criteria**Inclusion criteria:**

Be a volunteer for meniscectomy Not more than six months is passed from the time of his/her meniscus injury Having surgery up to three month after acquaintance with the study Having specific severity in injury which is diagnosed by the surgeon Be a volunteer for participating in the exercise protocol

Exclusion criteria:**Age**

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

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **25**

Randomization (investigator's opinion)

Not 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**

Ethics Committee of the Isfahan University

Street address

Isfahan University, Azadi Sq.

City

Isfahan

Province

Isfahan

Postal code

8174673441

Approval date

2020-05-23, 1399/03/03

Ethics committee reference number

IR.UI.REC.1399.006

Health conditions studied**1****Description of health condition studied**

Meniscus Injury (Musculoskeletal Injury)

ICD-10 code**ICD-10 code description****Primary outcomes****1****Description**

Maximum torque of knee flexor muscles

Timepoint

Before and after eight weeks of exercise

Method of measurement

Biodex Isokinetic Dynamometer

2**Description**

Maximum torque of knee extensor muscles

Timepoint

Before and after eight weeks of exercise

Method of measurement

Biodex Isokinetic Dynamometer

3**Description**

Overall static balance index

Timepoint

Before and after eight weeks of exercise

Method of measurement

Biodex Balance System SD

4**Description**

Anteroposterior static balance index

Timepoint

Before and after eight weeks of exercise

Method of measurement

Biodex Balance System SD

5**Description**

Mediolateral static balance index

Timepoint

Before and after eight weeks of exercise

Method of measurement

Biodex Balance System SD

6

Description

Overall dynamic balance index

Timepoint

Before and after eight weeks of exercise

Method of measurement

Biodex Balance System SD

7

Description

Anteroposterior dynamic balance index

Timepoint

Before and after eight weeks of exercise

Method of measurement

Biodex Balance System SD

8

Description

Mediolateral dynamic balance index

Timepoint

Before and after eight weeks of exercise

Method of measurement

Biodex Balance System SD

9

Description

Absolute repositioning active angle error

Timepoint

Before and after eight weeks of exercise

Method of measurement

Biodex Isokinetic Dynamometer

10

Description

Knee extension range of motion

Timepoint

Before and after eight weeks of exercise

Method of measurement

Biodex Isokinetic Dynamometer

11

Description

Roughness of meniscus surface

Timepoint

Post surgery

Method of measurement

Atomic Force Microscope

12

Description

Number of meniscus fibrocartilages

Timepoint

Post surgery

Method of measurement

Atomic Force Microscope

13

Description

Diameter of meniscus fibrocartilages

Timepoint

Post surgery

Method of measurement

Atomic Force Microscope

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: one hour daily of selective rehabilitation exercises for eight weeks composed of stretch, strengthening, and balance exercises applied by the researcher based on FITT principles. These exercises were modified by the associated orthopedic surgeon.

Category

Rehabilitation

2

Description

Control group: did not receive any intervention

Category

N/A

Recruitment centers

1

Recruitment center

Name of recruitment center

Sadi Hospital

Full name of responsible person

Abbas Rahimi

Street address

Sadi Hospital, Khodaverdi Alley, West Nazar St.

City

Isfahan

Province

Isfahan

Postal code

8166886163

Phone

+98 31 3627 3031

Email

info@sadihospital.com

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

University of Isfahan

Full name of responsible person

Vazgen Minasian

Street address

University of Isfahan, Azadi Sq.

City

Isfahan

Province

Isfahan

Postal code

8174673441

Phone

+98 31 3793 2128

Fax

+98 31 3668 7396

Email

info@ui.ac.ir

Web page address

https://ui2.ui.ac.ir

Grant name**Grant code / Reference number****Is the source of funding the same sponsor organization/entity?**

Yes

Title of funding source

University of Isfahan

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**

University of Isfahan

Full name of responsible person

Seyede Mona Hosseini

Position

PhD Student

Latest degree

Master

Other areas of specialty/work

Sport Injuries and Corrective Exercise

Street address

No. 7, Apt. 4, Yas Ct., Shahid Soori St., Evin, Chamran Highway

City

Tehran

Province

Tehran

Postal code

1997657557

Phone

+98 21 2234 5000

Fax**Email**

mona_s1379@yahoo.com

Person responsible for scientific inquiries**Contact****Name of organization / entity**

University of Isfahan

Full name of responsible person

Seyede Mona Hosseini

Position

PhD Student

Latest degree

Master

Other areas of specialty/work

Sport Injuries and Corrective Exercise

Street address

No. 7, Apt. 4, Yas Ct., Shahid Soori St., Evin, Chamran Highway

City

Tehran

Province

Tehran

Postal code

1997657557

Phone

+98 21 2234 5000

Fax**Email**

mona_s1379@yahoo.com

Person responsible for updating data**Contact****Name of organization / entity**

University of Isfahan

Full name of responsible person

Seyede Mona Hosseini

Position

PhD Student

Latest degree

Master

Other areas of specialty/work

Sport Injuries and Corrective Exercise

Street address

No. 7, Apt. 4, Yas Ct., Shahid Soori St., Evin, Chamran Highway

City

Tehran

Province

Tehran

Postal code

1997657557

Phone

+98 21 2234 5000

Fax**Email**

mona_s1379@yahoo.com

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

Undecided - It is not yet known if there will be 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