

Clinical Trial Protocol

Iranian Registry of Clinical Trials

17 Sep 2026

Comparison of the effects of massage and cryotherapy on the knee extensor muscles fatigue and isokinetic parameters in soccer athletes

Protocol summary

Summary

Fatigue is one of the factors associated with sport injuries. One of the ways to reduce fatigue, is the use of massage and cryotherapy. The aim of this study is the comparison of massage and cryotherapy on the muscle fatigue and isokinetic knee extensor parameters of athletes after alternating maximal isokinetic concentric exercise. In this study 54 male soccer players between 20-30 years and with a BMI of 21 to 25 will be voluntary participate and any pathology in the lower extremities will lead to the exit of the test. Volunteers will be randomly, but without blinding, allocated into two modality groups (massage and cryotherapy), and a control (resting) groups. Each of volunteers will be evaluated in two sessions. The first session is in order to familiarize the volunteers with the test. At the beginning of second session, main variables were recorded. So the fatigue protocol applied and subjects were asked to perform repetitions successive maximal quadriceps concentric contractions and submaximal hamstring concentric contractions by 60 degree/sec velocity until three subsequent quadriceps torque output drop below 50% of maximal torque output. After 60 second, fatigue protocol for the second and third time were repeated. Immediately after the fatigue, fifteen minutes interventions include ice pack, massage and rest were performed. The main variables, are isokinetic parameters includes the average peak torque, average power and total work with the fatigue index and perceived fatigue.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2014090719079N1**

Registration date: **2014-10-22, 1393/07/30**

Registration timing: **retrospective**

Last update:

Update count: **0**

Registration date

2014-10-22, 1393/07/30

Registrant information

Name

Hassan Nouri

Name of organization / entity

School of Rehabilitation Sciences

Country

Iran (Islamic Republic of)

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+98 71 3235 4887

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nouriha@sums.ac.ir

Recruitment status

Recruitment complete

Funding source

Vice chancellor for Research affairs, Shiraz University of Medical Sciences.

Expected recruitment start date

2013-08-23, 1392/06/01

Expected recruitment end date

2014-09-16, 1393/06/25

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparison of the effects of massage and cryotherapy on the knee extensor muscles fatigue and isokinetic parameters in soccer athletes

Public title

Cryotherapy and massage effects on recovery

Purpose

Treatment

Inclusion/Exclusion criteria
Inclusion criteria: athletic 20-30 years that have at least three sessions a week training or a competition for at least 45 minutes. Body mass index of these people are between 21 and 25. They are painless with full range of motion of knee. Exclusion criteria: history of fracture and dislocation of lower extremity in the last year, symptomatic ligament, tendon or muscle injuries in the lower extremity, any pain or injury that affect results of work performance, any lesions in the knee extensor muscles of the dominant leg during the study

Age
From **20 years** old to **30 years** old

Gender
Male

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **54**

Randomization (investigator's opinion)
Randomized

Randomization description

Blinding (investigator's opinion)
Not blinded

Blinding description

Placebo
Not used

Assignment
Parallel

Other design features
Subject will be randomized by Blocked Randomization method. For this purpose, six blocks will be used.

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics committee of shiraz University of Medical Sciences

Street address

Zand Ave., beside the Red-Crescent building, central building of Shiraz University of Medical Sciences, 7th floor

City

Shiraz

Postal code

71348-14336

Approval date

2013-07-22, 1392/04/31

Ethics committee reference number

CT-92-6628

Health conditions studied

1

Description of health condition studied

Muscle fatigue

ICD-10 code

M95-M96-M9

ICD-10 code description

Other disorders of the musculoskeletal system and connective tissue

Primary outcomes

1

Description

Muscle fatigue index.

Timepoint

Before and immediately after intervention.

Method of measurement

Calculated by Fatigue index = (the maximum power - the minimum power) / the maximum power × 100

2

Description

Isokinetic parameters such as average peak torque, average power and total work.

Timepoint

Before and immediately after intervention.

Method of measurement

Isokinetic system Biodex 4

3

Description

Perceived fatigue.

Timepoint

Before and immediately after intervention.

Method of measurement

Visual analog scale

Secondary outcomes

empty

Intervention groups

1

Description

Cryotherapy intervention with ice pack on quadriceps muscle in cryotherapy group. Ice pack size's is 31 * 17 cm and its temperature is -1 degrees C.

Category

Rehabilitation

2

Description

Massage intervention on quadriceps muscle in massage

group by Swedish massage techniques. To massage, for the front of the thigh from the groin to the top of the patella, stroking techniques for 2 minutes, effleurage for 3 minutes, rolling and ringing for 5 minutes, compression for 3 minutes, and finally effleurage for 3 minutes will be used.

Category

Rehabilitation

3

Description

Passive rest in control group and no intervention in this group.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Bahman Shiraz cultural and sport Club

Full name of responsible person

Ali Rezaie

Street address

Dena Alley, Etehad Blvd., Doran St., Modarres Blvd., Shiraz

City

Shiraz

2

Recruitment center

Name of recruitment center

Labaniyat Arjan Shiraz Futsal Club

Full name of responsible person

Milad Jalali

Street address

Shahid Abolfathi Sport Club, Sibooye Blvd., Shiraz

City

Shiraz

3

Recruitment center

Name of recruitment center

Enghelab Shiraz Football Club

Full name of responsible person

Karim Aghaie

Street address

Enghelab Shiraz Football Club, 2nd Abiverdi St., Chamran Blvd., Shiraz.

City

Shiraz

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Vice Chancellor of Research, Shiraz University of Medical Sciences

Full name of responsible person

Gholam Reza Hatam

Street address

7th floor, Vice Chancellor of Research, central building of Shiraz University of Medical Sciences, beside the Red-Crescent building, Zand Ave.

City

Shiraz

Grant name

Grant code / Reference number

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

Yes

Title of funding source

Vice Chancellor of Research, Shiraz University of Medical Sciences

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

School of Rehabilitation Sciences -Shiraz University of Medical Sciences

Full name of responsible person

Mohsen Razeghi

Position

Doctor of Physiotherapy

Other areas of specialty/work

Street address

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Person responsible for scientific inquiries

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Mohsen Razeghi

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Hassan Nouri

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Master Student

Other areas of specialty/work

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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