

Clinical Trial Protocol

Iranian Registry of Clinical Trials

16 Sep 2026

The effect of cooling on knee extensor muscles strength and proprioception of knee joint in healthy young women

Protocol summary

Summary

Objective: The aim of this study is to determine the effects of cooling, on knee extensor muscles strength and knee joint proprioception (knee position sense) when applied over the quadriceps and over the knee joint, on the dominant leg . **Design:** This is a randomized clinical trial study with control group. **Setting:** 40 healthy volunteer female students will be randomly assigned to an interventional group or to a control group. **Inclusion and Exclusion:** The main inclusion criteria are healthy young female volunteer students aged between 18 and 30 years old who refer to Neuromuscular Rehabilitation Research Center of Semnan University of Medical Sciences. The main exclusion criteria are any neuromusculoskeletal and cardiopulmonary problems during intervention and some problems such as low back pain; tumors; migraine; vertigo; deep vein thrombosis, hip, knee and ankle joints deformities, pregnancy, any allergy to cooling and Raynaud's phenomenon . **Intervention:** The ice will be applied in the form of ice bag, filled with crushed ice, for 15 minutes over the quadriceps and knee joint. **Main Outcome Measures:** Immediately after, 30 minutes after and 1 hour post-cooling, knee extensor muscles strength and the intermediate range of knee flexion (from 40 ° and 60 °) will be used to assess proprioception (joint position sense).

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2016051422539N3**

Registration date: **2016-07-06, 1395/04/16**

Registration timing: **registered_while_recruiting**

Last update:

Update count: **0**

Registration date

2016-07-06, 1395/04/16

Registrant information

Name

Ziaeddin Safavi Farokhi

Name of organization / entity

Semnan University of Medical Sciences

Country

Iran (Islamic Republic of)

Phone

+98 23 3365 4180

Email address

zsafavi@semums.ac.ir

Recruitment status

Recruitment complete

Funding source

Vice chancellor for research, Semnan University of Medical Sciences

Expected recruitment start date

2016-06-21, 1395/04/01

Expected recruitment end date

2016-07-22, 1395/05/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The effect of cooling on knee extensor muscles strength and proprioception of knee joint in healthy young women

Public title

The effect of cooling on muscle strength and proprioception in healthy subjects

Purpose

Other

Inclusion/Exclusion criteria

Inclusion criteria: Healthy young volunteer female students aged between 18 and 30 years old. Exclusion criteria: Any neuromuscular or musculoskeletal and cardiopulmonary problems during interventional sessions; some problems such as low back pain; tumors; migraine; vertigo; deep vein thrombosis; any lower limb joint deformity; pregnancy; lower limbs fracture during last year; any severe trauma in trunk or lower limbs during last 3 months; any allergy to cooling; Raynaud's phenomenon.

Age

From **18 years** old to **30 years** old

Gender

Female

Phase

2

Groups that have been masked

No information

Sample size

Target sample size: **40**

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

Ethics committee of Semnan University of Medical Sciences

Street address

Semnan, Kilometer 5 of Damghan Road, Semnan University of Medical Sciences

City

Semnan

Postal code

Approval date

2016-03-17, 1394/12/27

Ethics committee reference number

IR.SEMUMS.REC.1394.194

Health conditions studied

1

Description of health condition studied

Injury of lower limb

ICD-10 code

M99.-;6

ICD-10 code description

Injury of muscles and tendons of anterior muscle group at knee and thigh level

Primary outcomes

1

Description

Muscle strength

Timepoint

Before, immediately after, 30 and 60 minutes after intervention

Method of measurement

N/M By isokinetic dynamometer

2

Description

Intermediate range of knee flexion from 40 ° and 60 ° to assess proprioception (joint position sense)

Timepoint

Before, immediately after, 30 and 60 minutes after intervention

Method of measurement

In degree by isokinetic dynamometer

Secondary outcomes

empty

Intervention groups

1

Description

In the control group a bag without ice will be used over the knee and bulk of quadriceps for 15 minutes.

Category

Prevention

2

Description

The ice will be applied in the form of ice bag, filled with crushed ice, for 15 min over the quadriceps and knee joint. The temperature will be measured by the digital thermometer.

Category

Prevention

Recruitment centers

1

Recruitment center

Name of recruitment center

Neuromuscular Rehabilitation Research Center of Semnan University of Medical Sciences

Full name of responsible person

Ziaeddin Safavi Farokhi

Street address

Mashahir Square, in front of Helal Ahmar, Semnan

City

Semnan

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Vice chancellor for research, Semnan University of Medical Sciences

Full name of responsible person

Dr Ali Rashidipour

Street address

Kilometer 5 of Damghan Road, Semnan

City

Semnan

Grant name

Grant code / Reference number

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

Yes

Title of funding source

Vice chancellor for research, Semnan 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

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Full name of responsible person

Ziaeddin Safavi Farokhi

Position

Ph.D, Assistant Professor

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