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 propriocetion (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
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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

Semnan University of Medical Sciences

Full name of responsible person

Ziaeddin Safavi Farokhi

Position

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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