Effect of thigh muscle cooling on standing balance in healthy young males

Submission date 25/12/2016	Recruitment status No longer recruiting	 Prospectively registered Protocol
Registration date 06/01/2017	Overall study status Completed	— [_] Statistical analysis plan [X] Results
Last Edited 15/01/2018	Condition category Musculoskeletal Diseases	[] Individual participant data

Plain English summary of protocol

Background and study aims:

The use of cryotherapy (cooling therapy) in the form of ice packs, gel packs, and ice immersion are frequently used to treat minor muscle injuries. Although ice is known to be effective in decreasing pain and feeling, its effect on balance has received comparatively little attention. In addition to the various benefits of cryotherapy, reduced performance scores have been reported immediately after treatment. The role of quadriceps (thigh) and hamstring (calf) muscles for maintaining standing balance is well established, but the effect of cooling of these muscles on standing balance has not been reported previously. The aim of this study therefore is to compare the effect cooling the quadriceps and hamstring muscles on standing balance in healthy men.

Who can participate? Healthy men aged between 20 and 30.

What does the study involve?

Participants are randomly allocated to one of three groups. Those in the first group are asked to lie down on their back and have a cool pack placed on their thigh for 20 minutes. Those in the second group are asked to lie down on their front and have a cool pack placed on their calf for 20 minutes. Those in the third group rest for 20 minutes and do not receive any cooling. At the start of the study and after the cooling period (20 minutes), participants in all groups stand on a special plate which measures their balance.

What are the possible benefits and risks of participating? There are no direct benefits or risks involved with participating.

Where is the study run from? Rehabilitation Research Chair, King Saud University (Saudi Arabia)

When is the study starting and how long is it expected to run for? December 2014 to March 2016 Who is funding the study? Rehabilitation Research Chair, King Saud University (Saudi Arabia)

Who is the main contact? Mr Shahnawaz Anwer

Contact information

Type(s) Scientific

Contact name Mr Shahnawaz Anwer

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Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers N/A

Study information

Scientific Title Effect of quadriceps and hamstrings muscle cooling on standing balance in healthy young males

Study objectives

1. The effects of quadriceps or hamstring muscles cooling on standing balance are significant in healthy individuals

2. The differences in the effects of quadriceps and hamstring muscles cooling on standing balance are significant in healthy individuals

Ethics approval required

Old ethics approval format

Ethics approval(s)

CAMS Research ethics committee, King Saud University, Saudi Arabia, 08/01/2015, ref: CAMS 21 /3536

Study design Randomised controlled trial

Primary study design Interventional

Secondary study design Randomised controlled trial

Study setting(s) Other

Study type(s) Prevention

Participant information sheet

Not available in web format, please use the contact details below to request a patient information sheet

Health condition(s) or problem(s) studied

Balance following muscle cooling

Interventions

Participants are randomised to one of three groups by lottery method.

Quadriceps cooling (QC) group: Participants are asked to lie down in a supine position and a cold pack (gel pack, temperature -60 C to -120 C) is placed on the anterior thigh (from apex of patella to mid-thigh) of the both limbs for 20 minutes.

Hamstrings cooling (HC) group: Participants are asked to lie down in a prone position and a cold pack (gel pack, temperature -60 C to -120 C) is placed on the posterior thigh (from base of the popliteal fossa to mid-thigh) of the both limbs for 20 minutes.

Control (no cooling) group: Participants rest without any intervention.

At baseline and post-cooling/rest (20 minutes) participants have their sway velocity assessed using a force plate.

Intervention Type

Device

Primary outcome measure

Sway velocity (degree/sec) for the Unilateral Stance (US) is tested on a force plate (NeuroCom Balance Master®) at baseline and immediately after the cooling protocol.

Secondary outcome measures

No secondary outcome measures

Overall study start date 12/12/2014

Completion date 01/03/2016

Eligibility

Key inclusion criteria

1. Male 2. Age 20-30 years 3. Healthy

Participant type(s) Healthy volunteer

Age group

Adult

Sex Male

Target number of participants 30

Key exclusion criteria

- 1. History of recent previous knee injury
- 2. Sensory deficits in lower extremity
- 3. History of previous recent lower extremity surgery

Date of first enrolment 10/02/2015

Date of final enrolment 20/12/2015

Locations

Countries of recruitment Saudi Arabia

Study participating centre Rehabilitation Research Chair College of Applied Medical Sciences, King Saud University Building Number 24 G095/1 Riyadh Saudi Arabia 11433

Sponsor information

Organisation King Saud University

Sponsor details Building Number 24 College of Applied Medical Sciences G095/1 Rehabilitation Research Chair Riyadh Saudi Arabia 11433

Sponsor type University/education

Website http://ksu.edu.sa/en/

ROR https://ror.org/02f81g417

Funder(s)

Funder type University/education

Funder Name Rehabilitation Research Chair, King Saud University

Results and Publications

Publication and dissemination plan Planned publication in a high-impact peer reviewed journal.

Intention to publish date 01/07/2017

Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study are/will be available upon request from Shahnawaz Anwer (sanwer@ksu.edu.sa)

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	01/09/2017		Yes	No