

Clinical Trial Protocol

Iranian Registry of Clinical Trials

11 Sep 2026

The repeated bout effect of a certain eccentric exercise on soreness indicators of the trained and untrained knee extensor muscles in untrained healthy females

Protocol summary

Summary

The purpose this study is the evaluation of the repeated bout effect of a certain eccentric exercise on soreness indicators of the trained and untrained knee extensor muscles in untrained healthy females. 28 healthy females with no history of performing eccentric or strengthening exercises in lower extremities are randomly assigned into trained and untrained groups. In trained group participants perform two bouts of maximal eccentric exercise at in same extremity. In untrained group, they perform these two bouts but the first bout will be performed in one leg and the other will be performed in the other untrained extremity. Maximal isometric torques at 30, 60, 90 and 120 degrees of knee flexion, maximal concentric torques at 60 and 180 degree per second velocities, delayed onset muscle soreness, knee range of motion, thigh circumference and electromyographic activity of vastus medialis, lateralis and rectus femoris parts of quadriceps muscle during isometric contraction will be recorded before, immediately after, 48, 120 hours and 14 days after performing two bouts of eccentric exercises.

General information

Acronym

DOMS

IRCT registration information

IRCT registration number: **IRCT201204249553N1**

Registration date: **2013-02-05, 1391/11/17**

Registration timing: **registered_while_recruiting**

Last update:

Update count: **0**

Registration date

2013-02-05, 1391/11/17

Registrant information

Name

Mandana Rezaei

Name of organization / entity

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Recruitment status

Recruitment complete

Funding source

Physiotherapy PhD dissertation Tehran University of Medical Sciences

Expected recruitment start date

2012-07-22, 1391/05/01

Expected recruitment end date

2013-04-21, 1392/02/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The repeated bout effect of a certain eccentric exercise on soreness indicators of the trained and untrained knee extensor muscles in untrained healthy females

Public title

The effect of eccentric exercise on DOMS indicators of the knee in healthy females

Purpose

Health service research

Inclusion/Exclusion criteria

Inclusion criteria: Healthy females (18-35 yrs range) in the middle of menstrual cycle
Exclusion criteria: participants who are not familiar with resistance training; with isokinetic or eccentric exercise especially in lower extremities; who are not performed lower extremity resistance training in last year; people with sedentary life style ;extra usage of caffeine will exclude from study; no history of pathologies and injuries especially in knee joint structures; Participants who performed lower extremity resistance training exercises with the regular basis and who were athletes; Participants have taken medication or any form of dietary supplementation in the preceding 3 months and using these for the duration of the experimental period.

Age

From **18 years** old to **35 years** old

Gender

Female

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **28**

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

Tehran University of Medical Sciences

Street address

Tehran Keshavarz Bl. Ghods Av.

City

Tehran

Postal code

Approval date

2012-05-12, 1391/02/23

Ethics committee reference number

280090/s/130s

Health conditions studied

1

Description of health condition studied

Delayed onset muscle soreness

ICD-10 code

R29.8

ICD-10 code description

Other and unspecified symptoms and signs involving the nervous and musculoskeletal systems

Primary outcomes

1

Description

maximal knee extensor isometric peak torque

Timepoint

Pre test and post test values of dependent variables are obtained immediately before, immediately, 48 hours, 120 hours and 14 days after the performance of 2 bouts of eccentric exercise

Method of measurement

newton meter

2

Description

concentric peak torque at 60 and 180 degree per second velocities

Timepoint

Pre test and post test values of dependent variables are obtained immediately before, immediately, 48 hours, 120 hours and 14 days after the performance of 2 bouts of eccentric exercise

Method of measurement

newton meter

3

Description

angle of concentric peak torque at 60 and 180 degree per second velocities

Timepoint

Pre test and post test values of dependent variables are obtained immediately before, immediately, 48 hours, 120 hours and 14 days after the performance of 2 bouts of eccentric exercise

Method of measurement

degree

4

Description

electromyographical activity of vastus medialis part of Q.C muscle

Timepoint

Pre test and post test values of dependent variables are obtained immediately before, immediately, 48 hours, 120 hours and 14 days after the performance of 2 bouts of eccentric exercise

Method of measurement

microvolt

5

Description

electromyographical activity of vastus lateralis part of Q.C muscle

Timepoint

Pre test and post test values of dependent variables are obtained immediately before, immediately, 48 hours, 120 hours and 14 days after the performance of 2 bouts of eccentric exercise

Method of measurement

microvolt

6

Description

electromyographical activity of rectus femoris part of Q.C muscle

Timepoint

Pre test and post test values of dependent variables are obtained immediately before, immediately, 48 hours, 120 hours and 14 days after the performance of 2 bouts of eccentric exercise

Method of measurement

microvolt

7

Description

delayed onset muscle soreness intensity

Timepoint

Pre test and post test values of dependent variables are obtained immediately before, immediately, 48 hours, 120 hours and 14 days after the performance of 2 bouts of eccentric exercise

Method of measurement

visual analog scale

8

Description

pain pressure threshold

Timepoint

Pre test and post test values of dependent variables are obtained immediately before, immediately, 48 hours, 120 hours and 14 days after the performance of 2 bouts of eccentric exercise

Method of measurement

millimeter

9

Description

active range of motion

Timepoint

Pre test and post test values of dependent variables are obtained immediately before, immediately, 48 hours, 120 hours and 14 days after the performance of 2 bouts of eccentric exercise

Method of measurement

degree

10

Description

passive range of motion

Timepoint

Pre test and post test values of dependent variables are obtained immediately before, immediately, 48 hours, 120 hours and 14 days after the performance of 2 bouts of eccentric exercise

Method of measurement

degree

11

Description

thigh circumference

Timepoint

Pre test and post test values of dependent variables are obtained immediately before, immediately, 48 hours, 120 hours and 14 days after the performance of 2 bouts of eccentric exercise

Method of measurement

millimeter

Secondary outcomes

empty

Intervention groups

1

Description

control group: performing 2 bouts of knee extensor maximal eccentric exercise (6 set, 20 trial) at 120 degree per second velocity(separated with 2 weeks) in one extremity

Category

Other

2

Description

intervention group: performing 1 bout of knee extensor maximal eccentric exercise (6 set, 20 trial) at 120 degree per second velocity in one extremity and repeat it 2 weeks later in contralateral untrained extremity

Category

Other

Recruitment centers

1

Recruitment center

Name of recruitment center

physical medicine research center in Imam Reza hospital

Full name of responsible person

Dr Salek-Zamani

Street address

Tabriz Golgasht Av. Imam Reza hospital

City

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Tehran University of Medical Sciences

Full name of responsible person

Dr Ebrahimi

Street address

Tehran Mirdamad Mohseni square School of Rehabilitation

City

Tehran

Grant name

پایان نامه دکتری فیزیوتراپی

Grant code / Reference number

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

Yes

Title of funding source

Tehran 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

Tehran University of Medical Sciences

Full name of responsible person

Dr Ebrahimi

Position

Full Professor of Physiotherapy

Other areas of specialty/work

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Person responsible for scientific

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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