Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 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 electromygraphic 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 caffein 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/ɔ/130ɔ

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
electromyograhical 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
electromyograhical 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
electromyograhical 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
milimeter

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
milimeter

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

Tabriz

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
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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