

Clinical Trial Protocol

Iranian Registry of Clinical Trials

06 Jul 2026

The investigation of the effect of the heel height on the activation and co-contraction pattern of Quadriceps & Hamstrings muscle in patients with Chondromalacia of the patellae and healthy population during stair walking

Protocol summary

Summary

Goal of this study is to investigate effects of the heel height on the activation and co-contraction pattern of Quadriceps & Hamstrings muscle in patients with Chondromalacia of the patellae and healthy population during stair walking. Inclusion criteria: range of age must be between 12 - 38 in both group; be able to walking for 6 meter and stepping without aid device; mcnconel and clark test be positive in patient with chondromalacia. Exclusion criteria: heart diseases and diabet and neuromuscular diseases; injection in arthicular or surgery in 3 month ago; truma in knee and hip in 3 month ago; regular professional sport more two times a week; inability in walking and stepping due to severe weakness; deformity in lower limb such as genu valgum, genu varum, ankle supination&...; shortness in hamstring and iliotibial band. 30 healthy people and 30 patient with chondromalacia participate in this study. first of beganing record, participants 3 times step up and step down from step with 16 Centimeter height by wearing shoes with 4 & 10 Centimeter heel height to familiarization. then all participants stepping down and stepping up three times with 3 condition: bare foot and wearing shoe with 4 Centimeter heel and 10 Centimeter heel height. during this activity EMG activity is record from medial and lateral hamstrings and VMO and vastus lateralis. For records of steps phases, use force plate system. After this activity record maximum voluntary contraction from this muscle by using isokinetic dinamometer system. Maximum voluntary contraction is use for noramalizing electromyography data. maximum voluntary contraction of quadriceps is record in 30 degree of knee flexion in isokinetik dinamometer system and ask to patient extend knee and maintain for 5 second and repeat this for 3 times. for normalaizing of hamstring ask to patient in previous positon flexed knee

and mainatin it for 5 second and repeat for 3 times.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2015041321738N1**

Registration date: **2015-06-02, 1394/03/12**

Registration timing: **registered_while_recruiting**

Last update:

Update count: **0**

Registration date

2015-06-02, 1394/03/12

Registrant information

Name

Sahar Masoumi

Name of organization / entity

Semnan University of Medical Sciences

Country

Iran (Islamic Republic of)

Phone

+98 23 3365 4180

Email address

saharmasoomi87_pt2010@yahoo.com

Recruitment status

Recruitment complete

Funding source

Semnan University of Medical Sciences

Expected recruitment start date

2015-05-22, 1394/03/01

Expected recruitment end date

2015-09-21, 1394/06/30

Actual recruitment start date

empty
Actual recruitment end date
empty
Trial completion date
empty

Scientific title
The investigation of the effect of the heel height on the activation and co-contraction pattern of Quadriceps & Hamstrings muscle in patients with Chondromalacia of the patellae and healthy population during stair walking

Public title
The investigation of the effect of the heel height on the Chondromalacia

Purpose
Prevention

Inclusion/Exclusion criteria
Inclusion criteria:range of age must be between 12 - 38 in both group;be able to walking for 6 meter and stepping without aid device;mconel and clark test be positive in patient with chondromalacia. Exclusion criteria:heart diseases and diabet and neuromuscular diseases;injection in arthicular or surgery in 3 month ago;truma in knee and hip in 3 month ago;regular professional sport more two time a week;inability in walking and stepping due to severe weakness;deformity in lower limb such as genu valgum,genu varum,ankle supination&...;shortness in hamstring and iliotibial band.

Age
From **12 years** old to **38 years** old

Gender
Female

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **60**

Randomization (investigator's opinion)
N/A

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
Semnan University Of Medical Science

Street address
5th kilometer of damqan road, Semnan
City
Semnan
Postal code
3519899951
Approval date
2015-03-17, 1393/12/26
Ethics committee reference number
A-10-84-7

Health conditions studied

1
Description of health condition studied
Chondromalacia
ICD-10 code
XIII
ICD-10 code description
Diseases of the musculoskeletal system and connective tissue

Primary outcomes

1
Description
Coactivation pattern
Timepoint
First session
Method of measurement
electromyography system

Secondary outcomes

1
Description
Force
Timepoint
First session
Method of measurement
Force plate

Intervention groups

1
Description
healthy people and patient stepping up and stepping down by shoe with 4 Centimeter heel height.
Category
Diagnosis

2
Description
healthy people and patient stepping up and stepping down bare foot.
Category

Diagnosis

3

Description

healthy people and patient stepping up and stepping down by shoe with 10 Centimeter heel height.

Category

Diagnosis

Recruitment centers

1

Recruitment center

Name of recruitment center

Center of Musculoskeletal Research of Semnan University of Medical Science

Full name of responsible person

Sahar Masoumi

Street address

Qods blvd.Semnan

City

Semnan

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Semnan University of Medical Science

Full name of responsible person

Sahar Masoumi

Street address

5th kilometer of Damqan 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

Semnan University of Medical Science

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 Science

Full name of responsible person

Sahar Masoumi

Position

Master of Science Student

Other areas of specialty/work

Street address

5th kilometer of Damqan road.Semnan

City

Semnan

Postal code

3519899951

Phone

+233 3654180

Fax

+98 23 3365 3314

Email

saharmasoomi87_pt2010@yahoo.comrds@semums.ac.ir

Web page address

Person responsible for scientific inquiries

Contact

Name of organization / entity

Semnan University of Medical Science

Full name of responsible person

Sahar Masoumi

Position

Master of Science Student

Other areas of specialty/work

Street address

5th kilometer of Damqan road.Semnan

City

Semnan

Postal code

3519899951

Phone

+98 23 3365 4180

Fax

+98 23 3365 3314

Email

saharmasoomi87_pt2010@yahoo.comrds@semums.ac.ir

Web page address

Person responsible for updating data

Contact

Name of organization / entity

Semnan University of Medical Science

Full name of responsible person

Sahar Masoumi

Position

master of science student

Other areas of specialty/work

Street address

5th kilometer of damqan road.Semnan

City

Semnan

Postal code

3519899951

Phone

+98 23 3365 4180

Fax

+98 23 3365 3314

Email

saharmasoomi87_pt2010@yahoo.comrds@semums.a
c.ir

Web page address**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