

Clinical Trial Protocol

Iranian Registry of Clinical Trials

11 Sep 2026

Comparing electromyographic changes, pelvic tilt and back strength in chronic low back pain sufferers with tight hamstring muscle in stretching exercise group and strength exercise in lengthened position group. A randomized controlled clinical Trial

Protocol summary

Summary

Objectives: The aim of this study is to investigate hamstring muscle EMG signals, pelvic tilt and back muscle strength changes in chronic LBP patients with hamstring tightness following stretching exercise usual or strengthening exercise in lengthened position of this muscle. **Design:** The study is double blind for participants and therapists. Seventy-five 18-60 years chronic non-specific LBP patients with hamstring tightness will be assigned randomly into three groups (25 participants in each) receiving: 1- usual physiotherapy treatment (including: heat, TNS and therapeutic exercise) plus stretching exercise, 2- usual physiotherapy treatment plus strengthening exercise in lengthened position of muscle, and 3- a control group of subjects receiving only usual physiotherapy treatment. Interventions would be with the frequency of three sessions per week for 4 weeks and a total of 12 sessions. Hamstring stretching exercise will be done in lying position for 10 minutes each session. EMG signals from: 1- Hamstring 2- Longissimus 3- Iliocostalis muscles during trunk bending and in full trunk flexion (Flexion Relaxation) will be measured. For each muscle, by dividing root mean square (RMS) value at the end of flexion to RMS of one second of mid flexion, a ratio will be calculated which is the index being assessed. This variable, the RMS of muscles in standing, pelvic tilt and back muscle strength will be measured before and after the intervention too.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT201507258035N2**

Registration date: **2015-09-16, 1394/06/25**

Registration timing: **prospective**

Last update:

Update count: **0**

Registration date

2015-09-16, 1394/06/25

Registrant information

Name

MohammadBagher Shamsi

Name of organization / entity

Kermanshah University of Medical Sciences

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Recruitment status

Recruitment complete

Funding source

Deputy of research, Kermanshah University of medical sciences

Expected recruitment start date

2015-10-23, 1394/08/01

Expected recruitment end date

2016-10-21, 1395/07/30

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparing electromyographic changes, pelvic tilt and back strength in chronic low back pain sufferers with tight hamstring muscle in stretching exercise group and strength exercise in lengthened position group. A

randomized controlled clinical Trial

Public title

Comparing usual physiotherapy treatment and stretching exercise for tight hamstring muscle in chronic low back pain sufferers

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria: having LBP for more than 3 months, pain intensity from 3 to 6 in visual analogue scale (VAS) and age of 18 to 60 years. Exclusion criteria: history of having pathology or anomaly in lower limbs such as malignancy, inflammatory diseases, severe osteoporosis, arthritis or bone diseases.

Age

From **18 years** old to **60 years** old

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **75**

Randomization (investigator's opinion)

Randomized

Randomization description

Blinding (investigator's opinion)

Double blinded

Blinding description

Placebo

Not used

Assignment

Parallel

Other design features

The study is double blind as the participants and the tester would not be aware of the research groups.

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics committee of Kermanshah University of Medical Sciences

Street address

Kermanshah University of Medical Sciences, Shahid Beheshti Boulevard

City

Kermanshah

Postal code

Approval date

2015-06-23, 1394/04/02

Ethics committee reference number

kums.rec.1394.26

Health conditions studied

1

Description of health condition studied

Low Back Pain

ICD-10 code

M54.9

ICD-10 code description

Dorsalgia, unspecified

Primary outcomes

1

Description

Electromyographic amplitude of hamstring

Timepoint

Before and after the intervention

Method of measurement

with surface EMG equipment

2

Description

Pelvic tilt angle

Timepoint

Before and after the intervention

Method of measurement

With inclinometer

3

Description

Back muscles strength

Timepoint

Before and after the intervention

Method of measurement

With dynamometer

Secondary outcomes

empty

Intervention groups

1

Description

Stretching Exercise (Ten minutes of exercises for stretching the hamstring muscle each session)

Category

Rehabilitation

2

Description

Usual Physiotherapy Treatment (Including: heat, TNS and therapeutic exercise).

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Outpatient Clinic, Kermanshah University of Medical Sciences

Full name of responsible person

MohammadBagher Shamsi

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Dolat Abad St.

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Kermanshah

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Vice Chancellor for Research, Kermanshah University of Medical Sciences

Full name of responsible person

Dr Farid Najafi

Street address

Shahid Beheshti Boulevard, Deputy of Research, Kermanshah University of Medical Sciences

City

Kermanshah

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, Kermanshah 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

Kermanshah University of Medical Sciences

Full name of responsible person

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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