

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

10 Jun 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

###### Country

Iran (Islamic Republic of)

###### Phone

+98 83 3838 4185

###### Email address

mshamsi@kums.ac.ir

##### 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

**Street address**

Dolat Abad St.

**City**

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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**Position**

PhD

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## Person responsible for scientific inquiries

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## Person responsible for updating data

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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*