

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

04 Jul 2026

### Comparison of muscle fatigue induced by electrical stimulations in athletes and non-athletes

#### Protocol summary

##### Study aim

Comparison of muscle fatigue induced by electrical stimulation in athletes and non-sports

##### Design

In the present study, the research sample will be selected from the students from all majors in the paramedical faculty in the Medical University of Kermanshah. Required numbers of participants for each group (athletes and non-athletes) will be selected from the volunteer students, and then each sample will be assessed in two different days. In the first day, muscular fatigue will be evaluated after the athletic protocol and in another day, after applying the relevant intervention (electrical stimulation) each group will be assessed again and the degree of muscular fatigue will be recorded. Electrical stimulation will be applied using Electrical Stimulation Device ITO made in Japan for 450 microseconds at the frequency of 100 Hz through a pair of surface electrodes (5×9 CMs) by placing them along the middle line of the Plantar Flexor Muscles in the sprain. Muscular fatigue will be measured by means of the Electromyography Machine. The surface EMG electrode will be attached to the Gastrocnemius muscle according to the SENIAM protocol, and before and after the application of the electrical stimulation, the EMG signals from this muscle will be recorded. After filtering the assessed signals, the frequency spectrum will be the mean frequency.

##### Settings and conduct

This study will be performed by the researcher in the School of Allie Medical Sciences of Kermanshah University of Medical Sciences

##### Participants/Inclusion and exclusion criteria

being healthy, being athletic

##### Intervention groups

Electrical Stimulation

##### Main outcome variables

EMG signal of gastrocnemius muscle of the subjects

#### General information

##### Reason for update

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20180313039076N1**

Registration date: **2018-06-17, 1397/03/27**

Registration timing: **registered\_while\_recruiting**

Last update: **2018-06-17, 1397/03/27**

Update count: **0**

##### Registration date

2018-06-17, 1397/03/27

##### Registrant information

##### Name

Cyrus Nazari Pirdousti

##### Name of organization / entity

##### Country

Iran (Islamic Republic of)

##### Phone

+98 83 3827 9697

##### Email address

Maryam.mirzaee@kums.ac.ir

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2018-04-09, 1397/01/20

##### Expected recruitment end date

2018-09-11, 1397/06/20

##### Actual recruitment start date

empty

##### Actual recruitment end date

empty

##### Trial completion date

empty

##### Scientific title

Comparison of muscle fatigue induced by electrical stimulations in athletes and non-athletes

### Public title

Investigating the effects of electrical stimulation on muscular fatigue between athletes and non-athletes

### Purpose

Education/Guidance

### Inclusion/Exclusion criteria

#### Inclusion criteria:

Being athletic

#### Exclusion criteria:

not having special diseases

### Age

No age limit

### Gender

Male

### Phase

N/A

### Groups that have been masked

No information

### Sample size

Target sample size: 20

### 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

Ethics committee of Kermanshah University of Medical Sciences

##### Street address

Kermanshah University of Medical Sciences, Shahid Beheshti Boulevard

##### City

Kermanshah

##### Province

Kermanshah

##### Postal code

6719851351

#### Approval date

2018-05-27, 1397/03/06

#### Ethics committee reference number

IR.KUMS.REC.1397.100

## Health conditions studied

### 1

#### Description of health condition studied

muscle fatigue

#### ICD-10 code

#### ICD-10 code description

## Primary outcomes

### 1

#### Description

muscle fatigue

#### Timepoint

Before and after the intervention

#### Method of measurement

Using electromyography

## Secondary outcomes

empty

## Intervention groups

### 1

#### Description

Intervention group: Athlete and non-Athlete. Electrical stimulation will be applied using Electrical Stimulation Devise ITO made in Japan for 450 microseconds at the frequency of 100 Hz through a pair of surface electrodes (5×9 CMs) by placing them along the middle line of the Plantar Flexor Muscles in the sprain. Muscular fatigue will be measured by means of the Electromyography Machine. The surface EMG electrode will be attached to the Gastrocnemius muscle according to the SENIAM protocol, and before and after the application of the electrical stimulation, the EMG signals from this muscle will be recorded. After filtering the assessed signals, the frequency spectrum will be the mean frequency.

#### Category

N/A

## Recruitment centers

### 1

#### Recruitment center

##### Name of recruitment center

School of Allie Medical Sciences of Kermanshah University of Medical Sciences

##### Full name of responsible person

Mohammadbagher Shamsi

##### Street address

School of Allie Medical Sciences, Dolat Abad Blvd, Isar Square

##### City

Kermanshah

##### Province

Kermanshah

**Postal code**

6719851351

**Phone**

+98 83 3827 9697

**Email**

siroosnazari@hotmail.com

**Sponsors / Funding sources****1****Sponsor****Name of organization / entity**

Kermanshah University of Medical Sciences

**Full name of responsible person**

Dr Farid Najafi

**Street address**Shahid beheshti Boulevard, Vice Chancellor for  
Research of Kermanshah University of Medical  
Sciences**City**

Kermanshah

**Province**

Kermanshah

**Postal code**

6715847141

**Phone**

+98 83 3835 0177

**Email**

farid\_n32@yahoo.com

**Grant name****Grant code / Reference number****Is the source of funding the same sponsor organization/entity?**

Yes

**Title of funding source**

Kermanshah University of Medical Sciences

**Proportion provided by this source**

100

**Public or private sector**

Public

**Domestic or foreign origin**

Domestic

**Category of foreign source of funding***empty***Country of origin****Type of organization providing the funding**

Academic

**Person responsible for general inquiries****Contact****Name of organization / entity**

Kermanshah University of Medical Sciences

**Full name of responsible person**

Mohammadbagher Shamsi

**Position**

Assistant professor

**Latest degree**

Ph.D.

**Other areas of specialty/work**

Physiotherapy

**Street address**Kermanshah University of Medical Sciences, Shahid  
Behshti Boulevard**City**

Kermanshah

**Province**

Kermanshah

**Postal code**

6719851351

**Phone**

+98 83 3827 9697

**Email**

mbshamsi@yahoo.com

**Person responsible for scientific inquiries****Contact****Name of organization / entity**

Kermanshah University of Medical Sciences

**Full name of responsible person**

Mohammadbagher Shamsi

**Position**

Assistant professor

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**Person responsible for updating data****Contact****Name of organization / entity**

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**Email**

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**Sharing plan****Deidentified Individual Participant Data Set (IPD)**

Yes - There is a plan to make this available

**Study Protocol**

No - There is not a plan to make this available

**Statistical Analysis Plan**

No - There is not a plan to make this available

**Informed Consent Form**

Yes - There is a plan to make this available

**Clinical Study Report**

Yes - There is a plan to make this available

**Analytic Code**

No - There is not a plan to make this available

**Data Dictionary**

No - There is not a plan to make this available

**Title and more details about the data/document**

All collected deidentified data will be shared with others

**When the data will become available and for how long**

Starting 6 months after relative manuscript publication

**To whom data/document is available**

Researchers working in academic institutions or people working in businesses can also apply to receive it.

**Under which criteria data/document could be used**

No access criteria for data/documents

**From where data/document is obtainable**

Correspond with Dr MohammadBagher Shamsi

**What processes are involved for a request to access data/document**

Correspond with and email to Dr MohammadBagher Shamsi.

**Comments**