# Clinical Trial Protocol
# Iranian Registry of Clinical Trials

22 Nov 2026

## Difference between Neuromuscular Electrical Stimulation and Kinesio Taping® in Decreasing Ankle Swelling in Athletes with Lateral Ankle Sprain

## Protocol summary

**Summary**

Backgrounds and Objective: The purpose of the study was to compare the effectiveness of Kinesio Taping® (KT) and neuromuscular electrical stimulation (NMES) on AS in such individuals. Materials & methods: Thirty-one athletes with a unilateral ligamentous ankle sprain from various sports were allocated to either KT (N=16) or NMES (N=15) groups. During five consecutive days, KT was applied over the ankle medial and lateral surface in a Fan cut pattern; however, NMES was performed for Tibialis Anterior and Gastrocnemius muscles in 30 minutes. Outcome measurements to evaluate the extent of AS included volumetry, perimetry, relative volumetry, and the difference in both ankles volumetry and perimetry at baseline, after receiving the interventions, and 15 days following the treatment completion.

## General information

**Acronym**

**IRCT registration information**

IRCT registration number: **IRCT2017050233772N1**
Registration date: **2017-06-07, 1396/03/17**
Registration timing: **retrospective**

Last update:
Update count: **0**

**Registration date**

2017-06-07, 1396/03/17

**Registrant information**

**Name**

Pouya Rabiei

**Name of organization / entity**

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**Country**

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**Recruitment status**

**Recruitment complete**

**Funding source**

Investigator

**Expected recruitment start date**

2015-07-23, 1394/05/01

**Expected recruitment end date**

2015-08-21, 1394/05/30

**Actual recruitment start date**

empty

**Actual recruitment end date**

empty

**Trial completion date**

empty

**Scientific title**

Difference between Neuromuscular Electrical Stimulation and Kinesio Taping® in Decreasing Ankle Swelling in Athletes with Lateral Ankle Sprain

**Public title**

Decreasing Ankle Swelling in Athletes

**Purpose**

Treatment

**Inclusion/Exclusion criteria**

Inclusion criteria: Diagnosis of lateral ankle sprain by the physician. Exclusion criteria: fractures; open wounds; swelling systemic lower limbs due to heart disease, kidney or intravenous; skin's sensitivity to tape Kinesiotape; a piece of metal on foot; injured his ankle against the need to have surgery during the past year; taking blood pressure; and pacemakers.

**Age**

No age limit

**Gender**
Both

**Phase**
N/A
**Groups that have been masked**
*No information*
**Sample size**
Target sample size: **31**
**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

### 1

**Registry name**
**Secondary trial Id**
**Registration date**
2017-11-22, 1396/09/01

## Ethics committees

### 1

**Ethics committee**
**Name of ethics committee**
Semnan University Medical Sciences And Health
**Street address**
University Medical Sciences And Health, semnan
**City**
semnan
**Postal code**
**Approval date**
2014-09-23, 1393/07/01
**Ethics committee reference number**
۳۲۵۹۰-۷۸ب

## Health conditions studied

### 1

**Description of health condition studied**
Ankle Sprain
**ICD-10 code**
s93.4
**ICD-10 code description**
Sprain and strain of ankle

## Primary outcomes

### 1

**Description**
Ankle Swelling
**Timepoint**
at baseline, after receiving the interventions, and 15 days following the treatment completion.
**Method of measurement**
evaluate the extent of AS included volumetry, perimetry, relative volumetry, and the difference in both ankles

## Secondary outcomes

### 1

**Description**
no secondery outcome measure
**Timepoint**
no secondery outcome measure
**Method of measurement**
no secondery outcome measure

## Intervention groups

### 1

**Description**
Intervention group 1: ļased on the sheet by the person that a number written on it was (number 1 represents the electrical stimulation group and the number 2 represents the group Kinesiotape), the two treatment groups neuromuscular electrical stimulation (n = 18) and Kinesiotape (n = 17) groups. interventions were done during 5 days. Electrical stimulation of neuromuscular electrical stimulation device in the new company 710 P model comes with four electrodes were used. The interventions were as follows: one in the supine position to sleep and affected leg above heart level are high and on a seat placed using a rubber band tightly around the ankle it was connected. To minimize any movement of the ankle joint, the foot was placed against the wall. The type of electrode used in this study was Carbonflex disk with a thickness of 10 cm are made of carbon rubber and covered by a foam pad were not put directly on the skin. Two electrodes on muscle bulk and two electrodes were placed on the tibialis anterior muscle. Feeling that the person will experience during the application process, he explained. Each of the two electrodes placed on the muscles targeted by a separate cable to two output devices was connected directly. Low-voltage electrical stimulation applied with rectangular waves (Rectangular waveform) with Modulation in frequency and duration of pulses were applied. Neuromuscular electrical stimulation test time by 30 minutes (360 cycles of 5 seconds) was determined. Each cycle of 400 pulses with different combinations of pulse period to the next pulse (Pulse-to-pulse intervals) and size it was time. The average frequency of 80 Hz electrical stimulation was calculated, but actually received electrical stimulation in Burst of short-term muscle contractions that cause for every 25/1 seconds (8.0 Hz) was. During each Burst, a pulse duration between 60 and 240 Myly¬Sanyh varied

and ranged from pulse to pulse the next 8 ms (125 Hz), respectively.

**Category**
Rehabilitation

**2**

**Description**
Intervention group 2: Intervention in Kinesio taping (n=17) using tapes with a width of 5 cm Kinesio taping Tem Tex model and a thickness of 5 mm was carried out. High adhesion and is also waterproof with minimal skin irritation, the model was chosen because it was, because in this study Strips for 5 days on the body, and separating it from the skin during this time for researchers were important. kinesio taping applies for Fan cut the pattern. Days before the Kinesio taping person was asked to create maximum adhesion, to shave the hair area. For intervention, subjects were placed in the supine position and 13 cm above the ankle 10 cm high external and internal ankle injured ankle was checked. Another brigade that was on the inside of the ankle was cut to the size of the type.Kinesio taping both domestic and foreign bands marked the start of the leg and the foot metatarsal stress were 20 percent will continue. kinesiotape bar with four bars became thinner and each of them was placed a distance of about 1 cm from the adjacent bar. Kiesiotape bar slightly toward the inner surface of Tibia miles and sort order of the bands was as follows: the internal malleolus, on the inner ankle, ankle domestic front, and in line with the little finger.

**Category**
Rehabilitation

## Recruitment centers

**1**

**Recruitment center**

**Name of recruitment center**
Niki physical therapy clinic

**Full name of responsible person**
Dr. Vahid Mazloum

**Street address**
Haftetir street

**City**
karaj

## Sponsors / Funding sources

**1**

**Sponsor**

**Name of organization / entity**
investigator

**Full name of responsible person**
Dr. vahid Mazloum

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haftetir street

**City**
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**Grant name**

**Grant code / Reference number**

**Is the source of funding the same sponsor organization/entity?**
Yes

**Title of funding source**
investigator

**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**
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master of sports injury

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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*