

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

24 Jun 2026

### Study the efficacy of plyometric exercise on static and dynamic balance indices in athletic and non-athletic subjects

#### Protocol summary

##### Summary

The objective of this randomized trial is to investigate the effect of plyometric exercise in static and dynamic balance indices in athletic and non-athletic subjects. In this study 100 subjects ( 50 athlete and 50 non-athlete) who meet the inclusion/exclusion criteria will be recruited and randomly assigned into intervention or control group. The subjects in the intervention group will receive plyometric exercise. The subjects in control group will receive no intervention. Intervention lasts for 6 weeks. Static and dynamic balance indices with eyes opened and closed, falling risk and limited stability of all participants will be measured before intervention, immediately after and 1 month after the intervention, and will be compared between groups.

#### General information

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT201207184203N3**

Registration date: **2012-08-16, 1391/05/26**

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

Last update:

Update count: **0**

##### Registration date

2012-08-16, 1391/05/26

##### Registrant information

##### Name

Atefeh Aminian Far

##### Name of organization / entity

Semnan University of Medical Sciences

##### Country

Iran (Islamic Republic of)

##### Phone

+98 23 1335 4180

##### Email address

aminianfar@razi.tums.ac.ir

##### Recruitment status

**Recruitment complete**

##### Funding source

Deputy of Research, Semnan University of Medical Sciences (Governmental source)

##### Expected recruitment start date

2012-06-21, 1391/04/01

##### Expected recruitment end date

2012-09-22, 1391/07/01

##### Actual recruitment start date

empty

##### Actual recruitment end date

empty

##### Trial completion date

empty

##### Scientific title

Study the efficacy of plyometric exercise on static and dynamic balance indices in athletic and non-athletic subjects

##### Public title

Exersice and Balance

##### Purpose

Other

##### Inclusion/Exclusion criteria

Inclusion criteria: Healthy female and male students with professional sport activity or non-athletic subjects.

Exclusion criteria: 1) having musculo-skeletal, neuro-muscular, cardio-vascular, respiratory diseases, 2) Previous history of lower limb fracture during last year, 3) Previous history of sever trunk or lower limbs truma during last 3 months, 4) Aquaired flat foot, 5) having musculo-skeletal disorders/abnormality.

##### Age

From **18 years** old to **25 years** old

##### Gender

Both

**Phase**

N/A

**Groups that have been masked**

No information

**Sample size**

Target sample size: **100**

**Randomization (investigator's opinion)**

Randomized

**Randomization description****Blinding (investigator's opinion)**

Single blinded

**Blinding description****Placebo**

Not used

**Assignment**

Parallel

**Other design features****Secondary Ids**

empty

**Ethics committees****1****Ethics committee****Name of ethics committee**

Deputy of Research, Semnan University of Medical Sciences

**Street address**

Bassij Blvd, Semnan University of Medical Sciences, Deputy of Research, Semnan, Iran.

**City**

Semnan

**Postal code**

3519899951

**Approval date**

2012-06-12, 1391/03/23

**Ethics committee reference number**

186171/91

**Health conditions studied****1****Description of health condition studied**

Athletes' Balance

**ICD-10 code**

Z50.7

**ICD-10 code description**

Occupational therapy and vocational rehabilitation, not elsewhere classified

**Primary outcomes****1****Description**

Overall balance, with open eyes

**Timepoint**

Before Intervention, 6 weeks following the intervention, 1

month following end of intervention.

**Method of measurement**

Biodex Balance measurement System

**2****Description**

Anterior-Posterior balance, with open eyes

**Timepoint**

Before Intervention, 6 weeks following the intervention, 1 month following end of intervention.

**Method of measurement**

Biodex Balance measurement System

**3****Description**

Medial-lateral balance, with open eyes

**Timepoint**

Before Intervention, 6 weeks following the intervention, 1 month following end of intervention.

**Method of measurement**

Biodex Balance measurement System

**4****Description**

Overall balance, with closed eyes

**Timepoint**

Before Intervention, 6 weeks following the intervention, 1 month following end of intervention.

**Method of measurement**

Biodex Balance measurement System

**5****Description**

Anterior-Posterior balance, with closed eyes

**Timepoint**

Before Intervention, 6 weeks following the intervention, 1 month following end of intervention

**Method of measurement**

Biodex Balance measurement System

**6****Description**

Medial-Lateral balance, with closed eyes

**Timepoint**

Before Intervention, 6 weeks following the intervention, 1 month following end of intervention

**Method of measurement**

Biodex Balance measurement System

**7****Description**

Falling risk

**Timepoint**

Before Intervention, 6 weeks following the intervention, 1 month following end of intervention.

**Method of measurement**

Biodex Balance measurement System

## **8**

### **Description**

Limited stability

### **Timepoint**

Before Intervention, 6 weeks following the intervention, 1 month following end of intervention.

### **Method of measurement**

Biodex Balance measurement System

## **Secondary outcomes**

empty

## **Intervention groups**

### **1**

#### **Description**

Intervention Group: Plyometric Exercises as follows:

Week 1: Side to side ankle hops (2 sets × 15 Reps), Standing jump and reach (2 sets × 15 Reps), Front cone hops (5 sets × 6 Reps). Week 2: Side to side ankle hops (2 sets × 15 Reps), Standing long jump (5 sets × 6 Reps), Lateral jump over barrier (2 sets × 15 Reps), Double leg hops (5 sets × 6 Reps). Week 3: Side to side ankle hops (2 sets × 12 Reps), Standing long jump (4 sets × 6 Reps), Lateral jump over barrier (2 sets × 12 Reps), Lateral cone hops (2 sets × 12 Reps). Week 4: Diagonal cone hops (4 sets × 8 Reps), Standing long jump with lateral sprint (4 sets × 8 Reps), Lateral cone hops (2 sets × 12 Reps), Single leg bounding (4 sets × 7 Reps), Lateral jump single leg (4 sets × 6 Reps). Week 5: Diagonal cone hops (2 sets × 7 Reps), Standing long jump with lateral sprint (4 sets × 7 Reps), Lateral cone hops (2 sets × 12 Reps), Cone hops with 180 degree turn (4 sets × 7 Reps), Single leg bounding (4 sets × 7 Reps), Lateral jump single leg (2 sets × 7 Reps). Week 6: Diagonal cone hops (2 sets × 12 Reps), Hexagonal drill (2 sets × 12 Reps), Cone hops with change of direction sprint (4 sets × 6 Reps), Double leg hops (3 sets × 8 Reps), Lateral jump single leg (4 sets × 6 Reps). All exercises will be perform twice per week for 6 weeks.

#### **Category**

Treatment - Other

### **2**

#### **Description**

Control group: no exercise

#### **Category**

Treatment - Other

## **Recruitment centers**

### **1**

#### **Recruitment center**

##### **Name of recruitment center**

Sport centers under supervision of Semnan Universities

##### **Full name of responsible person**

Dr. Atefeh Aminian Far

#### **Street address**

Kilometer 5 Damghan road, Semnan University of Medical Sciences

#### **City**

Semnan

## **Sponsors / Funding sources**

### **1**

#### **Sponsor**

##### **Name of organization / entity**

Deputy of Research, Semnan University of Medical Sciences

##### **Full name of responsible person**

Dr. Raheb Ghrbani

##### **Street address**

Bassij Blvd, Semnan University of Medical Sciences, Deputy of Research, Semnan, Iran.

##### **City**

Semnan

##### **Grant name**

##### **Grant code / Reference number**

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

Yes

##### **Title of funding source**

Deputy of Research, Semnan 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**

Semnan University of Medical Sciences

##### **Full name of responsible person**

Dr. Atefeh Aminian Far

##### **Position**

Ph.D of Physiotherapy/ Assistant Professor

##### **Other areas of specialty/work**

##### **Street address**

Kilometer 5 Damghan road, Semnan University of Medical Sciences

##### **City**

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##### **Postal code**

1439957181

##### **Phone**

+98 23 1335 4182

##### **Fax**

##### **Email**

aminfar@sem-ums.ac.iraminfar83@yahoo.com

**Web page address**

## Person responsible for scientific inquiries

### Contact

**Name of organization / entity**

Semnan University of Medical Sciences

**Full name of responsible person**

Dr. Atefeh Aminian Far

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Ph.D of Physiotherapy/ Assistant Professor

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## Person responsible for updating data

### Contact

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Semnan University of Medical Sciences

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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*