

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

24 Jun 2026

### effects of 6-week corrective-plyometric training with and without visual feedback on lower extremity Biomechanics and dynamic balance in junior female athletes with dynamic knee valgus

#### Protocol summary

##### Study aim

comparing the effects of corrective-plyometric exercises with and without visual feedback on landing biomechanics and dynamic balance in female athletes with dynamic knee valgus

##### Design

Two arm parallel group randomised trial with single blinding, on 26 female athletes.

##### Settings and conduct

Both experimental groups will receive the same exercise protocol but in two different rooms in Miresmaili sport complex in Tehran city. One room in which feedback group will practice has full-mirrored walls. Exercise group will practice in another room without mirrored walls. Before each exercise, the examiner defines, and shows the correct alignment and ideal performance to the participants. In single blinding, assessor is not aware of subjects' information and their tests data are processed based on their given numbers, instead of their names.

##### Participants/Inclusion and exclusion criteria

Inclusion criteria: observing knee dynamic valgus by single-leg squat test and regular physical and sports activity between the last 3-5 years. Exclusion criteria: suffering from spine or lower extremity diseases, history of fracture, sprain, or strain in lower extremity, history of spine or lower extremity surgery, using any medicine or painkiller.

##### Intervention groups

Exercise group: They practice 30 minutes of corrective exercises and jump-landing exercises without receiving feedback for 6 weeks (3sessions each week). Feedback group: They practice 30 minutes of corrective exercises and jump-landing exercises in front of a mirror to receive visual feedback for 6 weeks (3sessions each week). Control group: They do not receive any exercises and follow their daily sports routines.

##### Main outcome variables

Kinematics (angles) of hip, knee, and ankle joints, Kinetics (moments and reaction forces) of hip, knee, and ankle joints, Dynamic balance in anterior, posteromedial, and posterolateral directions.

#### General information

##### Reason for update

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20180626040244N1**

Registration date: **2020-11-21, 1399/09/01**

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

Last update: **2020-11-21, 1399/09/01**

Update count: **0**

##### Registration date

2020-11-21, 1399/09/01

##### Registrant information

##### Name

Rahman Sheikhhoseini

##### Name of organization / entity

Allameh Tabataba'i University

##### Country

Iran (Islamic Republic of)

##### Phone

+98 21 4839 4134

##### Email address

rahmanhoseini@atu.ac.ir

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2020-10-13, 1399/07/22

##### Expected recruitment end date

2020-12-15, 1399/09/25

**Actual recruitment start date**

empty

**Actual recruitment end date**

empty

**Trial completion date**

empty

**Scientific title**

effects of 6-week corrective-plyometric training with and without visual feedback on lower extremity Biomechanics and dynamic balance in junior female athletes with dynamic knee valgus

**Public title**

effects of 6-week corrective-plyometric training with and without visual feedback on dynamic knee valgus

**Purpose**

Prevention

**Inclusion/Exclusion criteria****Inclusion criteria:**

Observing dynamic knee valgus by performing single leg squat test Regular physical activity between 3 to 5 years

**Exclusion criteria:**

suffering from spine or lower extremity disorders history of fracture, sprain, or strain in lower extremity history of spine or lower extremity surgery using any medicine or painkiller

**Age**

From **10 years** old to **14 years** old

**Gender**

Female

**Phase**

N/A

**Groups that have been masked**

- Investigator

**Sample size**

Target sample size: **26**

**Randomization (investigator's opinion)**

Randomized

**Randomization description**

After screening, by simple randomization participants will be divided into 3 groups of control (8 participants), exercise (8 participants), and feedback (10 participants). The randomization is going to be done by random numbers chart, by considering numbers between 0 to 8 for control group, 8 to 16 for exercise group, and 16 to 26 for feedback group. The researcher will choose one of the numbers and move through a previously determined direction and register the number and give it to the related group.

**Blinding (investigator's opinion)**

Single blinded

**Blinding description**

In this study, the assessor (who is the researcher) is blinded to the participants' information (single blinding), and the results of participants tests are analyzed based on participants' given number and without knowing their names. That information includes participants names, and weight, height, and age information.

**Placebo**

Not used

**Assignment**

Parallel

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

empty

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

University of Social Welfare and Rehabilitation Sciences

**Street address**

kodakyar Ave., daneshjo Blvd.,Evin

**City**

Tehran

**Province**

Tehran

**Postal code**

1985713871

**Approval date**

2019-05-19, 1398/02/29

**Ethics committee reference number**

IR.USWR.REC.1398.007

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

Dynamic knee valgus

**ICD-10 code**

M21.06

**ICD-10 code description**

Valgus deformity, not elsewhere classified, knee

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

lower extremity kinematics in 3 motion planes

**Timepoint**

before starting the interventions, and after 6 weeks of exercise interventions

**Method of measurement**

8 Vicon motion capture cameras, a Kistler force plate

**2****Description**

lower extremity kinetics in 3 motion planes

**Timepoint**

before starting the interventions, and after 6 weeks of exercise interventions

**Method of measurement**

8 Vicon motion capture cameras, a Kistler force plate

### 3

#### **Description**

Dynamic balance

#### **Timepoint**

before starting the interventions, and after 6 weeks of exercise interventions

#### **Method of measurement**

Y-balance kit

### **Secondary outcomes**

empty

### **Intervention groups**

#### 1

#### **Description**

Intervention group 1: This group will practice 6 weeks of plyometric-exercises with visual feedback during the exercises from a mirror in a sports gym. Each week includes 3 sessions of practice which takes 30 minutes. Exercises include squats, balance training, and jump-landing exercises.

#### **Category**

Prevention

#### 2

#### **Description**

Intervention group 2: This group will practice 6 weeks of plyometric-exercises without any visual feedback during the exercises, in a sports gym. Each week includes 3 sessions of practice which takes 30 minutes. Exercises include squats, balance training, and jump-landing exercises.

#### **Category**

Prevention

#### 3

#### **Description**

Control group: This group will not receive any exercises from the assessor and continues their daily routine activities.

#### **Category**

N/A

### **Recruitment centers**

#### 1

#### **Recruitment center**

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

Arash Miresmaieli sports complex

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

Mahdis Dadfar

##### **Street address**

Majidiyeh park - Majidiyeh street - Shamsabad

##### **City**

Tehran

##### **Province**

Tehran

##### **Postal code**

1671843111

##### **Phone**

+98 21 2232 3265

##### **Email**

mahdisidadfar3@gmail.com

##### **Web page address**

<http://ptmodares.ir/>

### **Sponsors / Funding sources**

#### 1

#### **Sponsor**

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

Allameh Tabataba'i University

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

Dr Habib Honari

##### **Street address**

West Azadi sports complex entrance, Hakim highway

##### **City**

Tehran

##### **Province**

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##### **Postal code**

۱۴۸۵۷۴۳۴۱۱

##### **Phone**

+98 21 4473 7636

##### **Email**

international@atu.ac.ir

#### **Grant name**

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

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

Yes

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

Allameh Tabataba'i University

#### **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**

Allameh Tabatabai University

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

Rahman Sheikh Hoseini

##### **Position**

Assistant professor

##### **Latest degree**

Ph.D.

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

Physiotherapy  
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West Azadi sports complex entrance, Hakim highway  
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## Person responsible for scientific inquiries

### Contact

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**Full name of responsible person**  
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## Person responsible for updating data

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Allameh Tabatabai University  
**Full name of responsible person**  
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**Position**  
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Ph.D.  
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## Sharing plan

### Deidentified Individual Participant Data Set (IPD)

Yes - There is a plan to make this available

### Study Protocol

Yes - There is a plan to make this available

### Statistical Analysis Plan

Yes - There is 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

Yes - There is a plan to make this available

### Data Dictionary

Yes - There is a plan to make this available

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

After publication, the data which will be also presented in the article, will be given to the researchers in Excel format which includes the pre and post interventions' results of landing tests' biomechanical analysis and dynamic balance, for future studies like meta-analysis studies.

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

After publication

### To whom data/document is available

The published data of the current study will be accessible for the researchers in the academic institutes and universities, and also people who work in the industry.

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

After publishing the article, the data will be used in future researches, like meta-analysis or other types of researches.

### From where data/document is obtainable

Responding author

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

Sending via an email

### Comments