

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

30 Jun 2026

### The Comparison Of Effectiveness Sensory Motor With Neurofeedback Training Effectiveness On Pain, Balance, Proprioception, and Index Valgus Dynamic Knee in Male With Patellofemoral Pain Syndrome

#### Protocol summary

##### Study aim

The Comparison Effectiveness of Sensory Motor With Neurofeedback Training Effectiveness on Pain, Balance, Proprioception, And Index Valgus Dynamic Knee In Male With Patellofemoral Pain Syndrome

##### Design

The Present Study Involving 45 Men With Patellofemoral Pain Syndrome. The Groups Assigned to This Study Were Randomized By Random Number Generator Software And Then Divided Into Three Groups Based on SNOSE Allocation Hiding. All Tests Will Be Performed In Sports Rehabilitation Laboratory By The Responsible And Staff of Laboratory. Then Each Intervention Will Be Performed For 8 Weeks And Three Times a Week.

##### Settings and conduct

All Tests And Exercises Will Be Performed In The Sports Rehabilitation Laboratory By Responsible and Staff of The Laboratory, Will Not Be Aware of The Research Process.

##### Participants/Inclusion and exclusion criteria

Included: Report of Pain Greater Than 3 Month Duration Pain Located Specifically Around The Patellofemoral Articulation (3 out of 10 on a Visual Analog Scale) Increase Knee Pain When Performing Activities: Sitting For Prolonged Time, Squatting, Kneeling, Running, Ascending And Descending Stairs, Jumping And Landing No Previous Knee Surgery Excluded: History of Surgery In Any Lower Limb Joint History of Patellar Subluxation or Meniscal Injury or Ligament Instability,

##### Intervention groups

The First Group of Sensory Motor Exercises Is Selected Based on The Janda Approach, Which Has Three Stages: Stage One or Static Stage, Second Stage Is The Dynamic Phase And Stage Three or Functional Stage Activities. Neurofeedback Training, Which Is Specific to The Second Group, Involving Increased Sensory Motor Wave And Decreasing Beta And Theta In The CZ Region. The Third Group, The Control Group, did Not

Perform Any Rehabilitation Exercises During This Time.

##### Main outcome variables

Pain

#### General information

##### Reason for update

##### Acronym

PFPS Study

##### IRCT registration information

IRCT registration number: **IRCT20191209045669N1**

Registration date: **2020-01-13, 1398/10/23**

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

Last update: **2020-01-13, 1398/10/23**

Update count: **0**

##### Registration date

2020-01-13, 1398/10/23

##### Registrant information

##### Name

mohamadreza ahmadi

##### Name of organization / entity

##### Country

Iran (Islamic Republic of)

##### Phone

+98 81 3254 4587

##### Email address

m.ahmadi01@phe.basu.ac.ir

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2019-12-20, 1398/09/29

##### Expected recruitment end date

2021-01-08, 1399/10/19

##### Actual recruitment start date

empty

**Actual recruitment end date**  
empty

**Trial completion date**  
empty

**Scientific title**  
The Comparison Of Effectiveness Sensory Motor With Neurofeedback Training Effectiveness On Pain, Balance, Proprioception, and Index Valgus Dynamic Knee in Male With Patellofemoral Pain Syndrome

**Public title**  
The Comparison Of Effectiveness Sensory Motor With Neurofeedback Training Effectiveness On Pain, Balance, Proprioception, and Index Valgus Dynamic Knee in Male With Patellofemoral Pain Syndrome

**Purpose**  
Treatment

**Inclusion/Exclusion criteria**  
**Inclusion criteria:**  
Report of Pain Greater Than 3 Month Duration Pain Located Specifically Around The Patellofemoral Articulation (3 out of 10 on a Visual Analog Scale) Increase Knee Pain When Performing Activities: Sitting For Prolonged Time, Squatting, Kneeling, Running, Ascending and Descending Stairs, Jumping and Landing No Treatment Within The Previous 12 Months No Previous Knee Surgery No Neurological Disorders  
**Exclusion criteria:**  
History of Surgery in Any Lower Limb Joint History of Patellar Subluxation or Meniscal Injury or Ligament Instability, Neurological Involvement That Would Influence Gait Knee Effusion

**Age**  
From **18 years** old to **35 years** old

**Gender**  
Male

**Phase**  
N/A

**Groups that have been masked**

- Care provider
- Outcome assessor

**Sample size**  
Target sample size: **45**

**Randomization (investigator's opinion)**  
Randomized

**Randomization description**  
The Sample Size of The Present Study Was Randomized By Random Number Generator Software and Then Divided Into Groups of Motor Sensory, Neurofeedback and Control Based on SNOSE Allocation Concealment.

**Blinding (investigator's opinion)**  
Double blinded

**Blinding description**  
Sports Rehabilitation Laboratory Specialist in Patient Evaluation Sports Rehabilitation and Clinical Psychology as a Therapist

**Placebo**  
Not used

**Assignment**

Parallel

**Other design features**

## Secondary Ids

empty

## Ethics committees

1

### Ethics committee

#### Name of ethics committee

National Committee of Ethics in Biomedical Research

#### Street address

Andisheh Apartments, Block 2, Class 2, Danesh Amoz Square, Farhangian Town, Hamedan

#### City

Hamedan

#### Province

Hamadan

#### Postal code

6519955189

### Approval date

2019-08-27, 1398/06/05

### Ethics committee reference number

1398.001

## Health conditions studied

1

### Description of health condition studied

Patellofemoral Pain Syndrome

### ICD-10 code

M00-M99

### ICD-10 code description

بیماری‌های سیستم اسکلتی عضلانی و بافت همبند

## Primary outcomes

1

### Description

Pain

### Timepoint

The Timing of The Primary Outcome Measure Will be Performed Before The Intervention and 8 Weeks After The Intervention.

### Method of measurement

The For Evaluate be Will Use Visual Analogue Scale For Pain.

## Secondary outcomes

1

### Description

Balance, Proprioception and Dynamic Knee Valgus Index.

### Timepoint

Secondary Outcome Variables Will be Measured Before

Treatment and 8 Weeks After Intervention.

#### **Method of measurement**

The For Evaluate be Will Use Biodex Instrument For Balance, Goniometer From Proprioception, Dynamic Valgus Index From Camera and Muscle Strength From Handel Dynamometer.

### **Intervention groups**

#### **1**

##### **Description**

Intervention Group: Sensory Motor Training, Twenty Four Sessions, Each Session 1 Hour, 3 Days a Week

##### **Category**

Rehabilitation

#### **2**

##### **Description**

Intervention Group: Neurofeedback Training, Twenty Four Sessions, Each Session 30 Minute, 3 Days a Week

##### **Category**

Rehabilitation

#### **3**

##### **Description**

Control group: Control Group: No Intervention

##### **Category**

Diagnosis

### **Recruitment centers**

#### **1**

##### **Recruitment center**

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

Orthopedic clinics of Hamadan Province

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

Mohamadreza Ahmadi

###### **Street address**

Andisheh Apartments, Block 2, Class 2, Danesh Amoz Square, Farhangian Town, Hamedan

###### **City**

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###### **Province**

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###### **Postal code**

6519955189

###### **Phone**

+98 81 3254 4587

###### **Email**

m.ahmadi01@phe.basu.ac.ir

### **Sponsors / Funding sources**

#### **1**

##### **Sponsor**

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

Hamedan University of Medical Sciences

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

Dr. Gholam Hossein Majzoubi

##### **Street address**

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##### **Grant name**

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

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

No

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

Bu Ali Sina University

##### **Proportion provided by this source**

90

##### **Public or private sector**

Private

##### **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**

Hamedan University of Medical Sciences

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

Ali Yalfani

###### **Position**

Professor

###### **Latest degree**

Ph.D.

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

Physical Medicine

###### **Street address**

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## Person responsible for scientific inquiries

### Contact

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Hamedan University of Medical Sciences

**Full name of responsible person**

Ali Yalfani

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## Person responsible for updating data

### Contact

**Name of organization / entity**

Hamedan University of Medical Sciences

**Full name of responsible person**

Mohamadreza Ahmadi

**Position**

Collegian

**Latest degree**

Master

**Other areas of specialty/work**

Physical Medicine

**Street address**

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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**

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 Completion of Interventions And Final Evaluation, The Data Will Be Shared Through The Articles To Provide a Comprehensive Treatment Process.

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

The Results of This Study Will Be Available In Journals 9 Months After Publication.

**To whom data/document is available**

The Results of The Studies Will Be Accessible to All Individuals in The Community Without Any Restrictions

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

The Documentation Provided Can Be Applicable to Many Musculoskeletal Pain Syndromes as a Comprehensive Treatment Intervention That Considers Several Factors. These Interventions Are Applicable If Prescribed And Monitored By Physicists And Neurologists.

**From where data/document is obtainable**

Individuals Can Refer to The Bu Ali Sina University Bookstore And Scientific Research Journals For Gaining Results.

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

The Refer To The Bu Ali Sina University Bookstore

**Comments**