

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

29 Jul 2026

### The effect of taping and education of quadriceps strengthening and hamstring stretching on patella-femoral pain syndrome : A Randomized clinical trial

#### Protocol summary

##### Study aim

Determining the Effectiveness of quadriceps strengthening and hamstring stretching exercises on PFPS

##### Design

According to the entry and exit criteria and after obtaining the consent of the individuals, the clients will be acquainted with the objectives of the research in one session and then will be randomly grouped.

##### Settings and conduct

Knee tipping: Once a week, for 8 weeks, by a doctor  
Quadri's strength training then and hamstring pull: For 8 weeks, bilateral, the first week of training is done under the supervision of a doctor in the sports medicine department, and the continuation of training at home is done without supervision.

##### Participants/Inclusion and exclusion criteria

Inclusion criteria: No Allergy to Stripping, No Proof Diagnoses such as Intra-Articular Injury (such as Ligamen and Minsk Ruptures), Lack of Plica Syndrome, Larsen Johnson, Sgood Schlatter, Bursitis, Tendonitis, Norma, Infectious Arthritis, Osteoarthritis and Tumor Trauma, Lack of metabolic diseases associated with calcium and phosphor  
Exclusion criteria: Patient's unwillingness to continue treatment ,Allergy to tape, Patient's absence from follow-up for more than 3 sessions , BMI greater than 30

##### Intervention groups

1- quadriceps strengthening Exercise with taping 2- hamstring stretching with taping 3- quadriceps strengthening plus hamstring stretching exercise 4- quadriceps strengthening , hamstring stretching exercise and taping

##### Main outcome variables

Age, Type of treatment, Education level, Income level, Age at diagnosis, Weight, Height, BMI, Occupation, medication history, VAS, KOOS, A- 6 min walk test

#### General information

##### Reason for update

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20140708018409N2**

Registration date: **2020-05-07, 1399/02/18**

Registration timing: **retrospective**

Last update: **2020-05-07, 1399/02/18**

Update count: **0**

##### Registration date

2020-05-07, 1399/02/18

##### Registrant information

##### Name

Gholamreza Partovi

##### Name of organization / entity

Mazandaran University of medical sciences

##### Country

Iran (Islamic Republic of)

##### Phone

+98 11 3336 6552

##### Email address

ghpartovi@mazums.ac.ir

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2019-07-11, 1398/04/20

##### Expected recruitment end date

2020-04-20, 1399/02/01

##### Actual recruitment start date

empty

##### Actual recruitment end date

empty

##### Trial completion date

|                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| empty                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Scientific title</b>                       | The effect of taping and education of quadriceps strengthening and hamstring stretching on patella-femoral pain syndrome : A Randomized clinical trial                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Public title</b>                           | The effect of taping and education of quadriceps strengthening and hamstring stretching                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Purpose</b>                                | Treatment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Inclusion/Exclusion criteria</b>           | <p><b>Inclusion criteria:</b><br/>Lack of allergy to tape Lack of evidence of intra-articular injury (eg,ligament and meniscuse rupture) Lack of PIIca Syndrome - Larsen Johansson disease, Osgood-Schlatter disease , Bursitis,Tendonitis, Neuroma, Infectious arthritis, Bone fracture's, Tumor, Accident (Trauma) Lack of metabolic diseases associated with Ca and P Grade 2 and grade 3 osteoarthritis based on kellgren lawrence radiography criteria Not used taping for at least 7 days prior to study No exercise training at least 1 month prior to study Don't use painkillers for at least 1 week before the study</p> <p><b>Exclusion criteria:</b><br/>Patient's unwillingness to continue treatment Allergic reaction to tape More than 3 sessions absence in treatment sessions BMI greater than 30</p> |
| <b>Age</b>                                    | From <b>20 years</b> old to <b>50 years</b> old                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Gender</b>                                 | Male                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Phase</b>                                  | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Groups that have been masked</b>           | <ul style="list-style-type: none"> <li>Outcome assessor</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Sample size</b>                            | Target sample size: <b>60</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Randomization (investigator's opinion)</b> | Randomized                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Randomization description</b>              | After obtaining consent from individuals, they will be introduced to the objectives of the research in one session. Then, using 4 blocks, a number from 1 to 4 (identifying the number of the study group) is selected by the patient and the random grouping of patients will be determined.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Blinding (investigator's opinion)</b>      | Single blinded                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Blinding description</b>                   | Since the patient knows which group he is in but the evaluator dose not know so this study is one-way blind                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Placebo</b>                                | Not used                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Assignment</b>                             | Parallel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Other design features</b>                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Secondary Ids</b>             | empty                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Ethics committees</b>         | <p><b>1</b></p> <p><b>Ethics committee</b></p> <p><b>Name of ethics committee</b><br/>Ethics Committee of Mazandaran University of Medical Sciences</p> <p><b>Street address</b><br/>Moalem Street, Moalem Square., Vice chancellor for research, Mazandaran University of Medical Sciences</p> <p><b>City</b><br/>Sari</p> <p><b>Province</b><br/>Mazandaran</p> <p><b>Postal code</b><br/>4817844718</p> <p><b>Approval date</b><br/>2019-07-10, 1398/04/19</p> <p><b>Ethics committee reference number</b><br/>IR.MAZUMS.REC.1398.3552</p> |
| <b>Health conditions studied</b> | <p><b>1</b></p> <p><b>Description of health condition studied</b><br/>Patellofemoral Pain Syndrome</p> <p><b>ICD-10 code</b><br/>M22.2</p> <p><b>ICD-10 code description</b><br/>Patellofemoral disorders</p>                                                                                                                                                                                                                                                                                                                                 |
| <b>Primary outcomes</b>          | <p><b>1</b></p> <p><b>Description</b><br/>Visual Analog Scale for pain - Knee Injury and Osteoarthritis Outcome Score Questionnaire (KOOS) - 6 min walk test</p> <p><b>Timepoint</b><br/>Before and After of 8 weeks intervention</p> <p><b>Method of measurement</b><br/>The VAS and KOOS criteria are based on the questionnaire and the 6-minute walk test is practically determined at a specific location within 6 minutes In meter.</p>                                                                                                 |
| <b>Secondary outcomes</b>        | empty                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Intervention groups</b>       | <p><b>1</b></p> <p><b>Description</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

Intervention group: 1. quadriceps strengthening exercise and taping combination therapy group. Taping: once a week, for 8 weeks by a doctor in the knee by McConnell method, in the middle of the patella, the patient lies down and the knee is extended and relax the quadriceps .The pressure is applied to the posterosuperior. A layer of type is 50 mm wide, flexible, hypo-allergic And it's Ares Godlisha made in South Korea. Quadriceps Strength protocol: In this protocol, 4 exercises were selected so that it is more suitable for the activity of Vastus medialis (VMO) than the rectus femoris muscle and in performing the exercises, the emphasis was on the painlessness of these methods. 1) 1/2 long sit: towel under knee In this exercise, the person is sitting with one knee and the other at 60 degrees of flexion, and the hands are placed next to the body with the elbow is extended. The person puts a folded towel under his knee and has to press it for 10 seconds, 10 times, 3 sets daily, which is a total of 300 seconds of pressure, then will be repeat on other knee. 2) 1/2 long sit: towel under heel: The whole procedure is similar to the previous exercise, only the towel should be placed under the heel and we apply pressure with the heel. 3) 1/2 long sit: heel lift: The patient should be in the Mentioned earlier position and raise his heels of the extended knee so that the extended knee and the flexed knee are facing each other on one level and in terms of time and number of times similar to the previous exercises. 4) 1/4 lie or supine :low leg lift ,only calf touches board-floor: The patient is in the supine position and will be raises his lower limbs to some extension that only the muscles behind the leg are in contact with the ground or the board, and in terms of time and numbers are similar to the previous cases. These 4 exercises are performed for 8 weeks according to the instructions are followed.

#### Category

Treatment - Devices

## 2

#### Description

Intervention group: 2. Taping and hamstring stretching combination therapy group. Because in intervention number 1, the way of typing is described, only here the way of stretching exercise explained. Hamstring stretching training protocol: Hamstring stretching exercises are performed with a large towel. The patient should be in the supine position and pass a towel at his sole of the front half of the foot and with each hand, he took the towel on the same side and while the knee is in extension, bring lower limbs up When pulling on both sides of the towel, while not bending the knee, feel the stretch without causing pain in his hamstring muscle. This exercise is performed in 10 sets of 10 seconds for 3 times a day for 8 weeks.

#### Category

Treatment - Devices

## 3

#### Description

Intervention group: 3. quadriceps strengthening and hamstring stretching exercise combination therapy

group. These protocols were described in Interventions 1 and 2.

#### Category

Treatment - Devices

## 4

#### Description

Intervention group: 4. Tapping , quadriceps strengthening and hamstring stretching exercise combination therapy group. These protocols were described in Interventions 1 and 2.

#### Category

Treatment - Devices

## Recruitment centers

## 1

#### Recruitment center

##### Name of recruitment center

Mostafavian Clinic

##### Full name of responsible person

Dr. Gholamreza Partovi

##### Street address

razi 3

##### City

Sari

##### Province

Mazandaran

##### Postal code

4816633131

##### Phone

+98 11 3336 6552

##### Email

ghpartovi@mazums.ac.ir

## Sponsors / Funding sources

## 1

#### Sponsor

##### Name of organization / entity

Mazandaran University of Medical Sciences

##### Full name of responsible person

Dr. Majid Saeedi

##### Street address

Moallem

##### City

Sari

##### Province

Mazandaran

##### Postal code

4471848178

##### Phone

+98 11 3325 7230

##### Email

pajoooheshi@mazums.ac.ir

#### Grant name

#### Grant code / Reference number

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

No  
**Title of funding source**  
Sari 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**  
Mazandaran University of Medical Sciences  
**Full name of responsible person**  
Gholamreza Partovi  
**Position**  
Assistant professor  
**Latest degree**  
Specialist  
**Other areas of specialty/work**  
Sport Medicine  
**Street address**  
Amir Mazandarani Ave., Emam Khomeyni Hospital  
**City**  
Sari  
**Province**  
Mazandaran  
**Postal code**  
4816633131  
**Phone**  
+98 11 3336 6552  
**Fax**  
+98 11 3336 3754  
**Email**  
ghpartovi@mazums.ac.ir

## Person responsible for scientific inquiries

**Contact**  
**Name of organization / entity**  
Mazandaran University of Medical Sciences  
**Full name of responsible person**  
Gholamreza Partovi  
**Position**  
Assistant professor  
**Latest degree**  
Specialist  
**Other areas of specialty/work**  
Sport Medicine  
**Street address**  
Amir Mazandarani Ave., Emam Khomeyni Hospital  
**City**  
Sari  
**Province**

Mazandaran  
**Postal code**  
4816633131  
**Phone**  
+98 11 3336 6552  
**Fax**  
+98 11 3336 3754  
**Email**  
ghpartovi@mazums.ac.ir

## Person responsible for updating data

**Contact**  
**Name of organization / entity**  
Mazandaran University of Medical Sciences  
**Full name of responsible person**  
Gholamreza Partovi  
**Position**  
Assistant professor  
**Latest degree**  
Specialist  
**Other areas of specialty/work**  
Sport Medicine  
**Street address**  
Amir Mazandarani Ave., Emam Khomeyni Hospital  
**City**  
Sari  
**Province**  
Mazandaran  
**Postal code**  
4816633131  
**Phone**  
+98 11 3336 6552  
**Fax**  
+98 11 3336 3754  
**Email**  
ghpartovi@mazums.ac.ir

## 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**  
No - There is not a plan to make this available  
**Data Dictionary**  
Not applicable  
**Title and more details about the data/document**  
results of statistical analysis and its analysis  
**When the data will become available and for how long**  
Start of access 12 months after printing results  
**To whom data/document is available**  
Health researchers  
**Under which criteria data/document could be used**

view data  
**From where data/document is obtainable**  
corresponding author  
**What processes are involved for a request to access**

**data/document**  
About 2 months  
**Comments**