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Treatment of knee pain with combined instrument-assisted soft tissue mobilization

Submission date
28/01/2023

Recruitment status
No longer recruiting

Registration date
07/02/2023

Overall study status
Completed

Last Edited
02/05/2025

Condition category
Musculoskeletal Diseases

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[X] Results
[ ] Individual participant data

Plain English summary of protocol

Background and study aims
This study looks at the effects of instrument-assisted soft tissue mobilization (IASTM) therapy on patellofemoral pain syndrome, a common knee condition which causes pain at the front of the knee around the area known as the patellofemoral joint. The study aims to find out if the therapy reduces patellofemoral discomfort, and improves function, strength, and joint mobility.

Who can participate?
Adult patients aged between 18 and 35 years old with patellofemoral discomfort

What does the study involve?
This study lasted for four weeks and was conducted at the Experimental Centre for Sports Rehabilitation of the Wuhan Sports University. To help the trial run smoothly, the study also included resistance training or the use of tui na, a traditional Chinese massage technique.

What are the possible benefits and risks of participating?
The ability to help people with patellofemoral discomfort, reduce or eliminate knee pain, boost lower limb strength, and regain lower limb function is the potential benefit of the project. While there is a danger that the procedure will cause soft tissue damage, this risk is low and the experiment is entirely under control.

Where is the study run from?
Wuhan Sports University (China)

When is the study starting and how long is it expected to run for?
May 2022 to October 2022

Who is funding the study?
Wuhan Sports University (China)

Who is the main contact?
Prof Lianqing Wu, 784389072@qq.com

Contact information

Type(s)
Public

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Study information

Scientific Title
Treatment of patellofemoral joint pain with combined instrument-assisted soft tissue mobilization

Study objectives
Instrument-assisted soft tissue mobilization treatment can improve the symptoms of patients with patellofemoral joint pain, including pain, function and lower limb strength.

Ethics approval required
Ethics approval required

Ethics approval(s)
1. Approved 02/06/2022, Medical Ethics Committee of Wuhan Institute of Sports (No. 461 Luoyu Road, Hongshan District, Wuhan, 430079, China; +86 18935896605; liuyang121795@qq.com), ref: 2022062

2. Submitted 01/09/2022, Medical Human Ethics Review Committee of Wuhan Institute of Physical Education (Wuhan Sports University, Wuhan, 430000, China; +86 18935836605; liuyang121795@qq.com), ref: N202061

Primary study design
Interventional

Study design
Randomized controlled study

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Patellofemoral joint pain

Interventions
Patients with patellofemoral joint pain were randomly divided into an instrument-assisted soft tissue mobilization (IASTM) test group and a control group. The IASTM test group was treated with IASTM combined with resistance training while the control group received only IASTM. Both groups were treated for 4 weeks.

At four time points, before treatment, after the first treatment, after the second treatment and after the third treatment, the visual analog pain score (VAS), the Lysholm score of the knee and the modified Thomas test (MTT) were compared and analyzed.

Before and 4 weeks after treatment, the maximum isometric muscle strength test system of the lower limb extensor was undertaken.

Intervention Type
Procedure/Surgery

Primary outcome(s)
1. Pain measured using the visual analogue pain score (VAS) assessed before the start of the experiment, and in the first and last weeks of the experiment
2. Knee-specific symptoms measured using the Lysholm Knee Scoring System assessed before the start of the experiment, and in the first and last weeks of the experiment
3. Flexibility of the iliopsoas, rectus femoris and tensor fascia latae (hip flexion contracture and hip extensibility) measured using the modified Thomas test (MTT) assessed before the start of the experiment, and in the first and last weeks of the experiment
4. Muscle strength test measured using the maximum isometric muscle strength test system of the lower limb extensor assessed before the start of the experiment and in the last week of the experiment

Key secondary outcome(s)
There are no secondary outcome measures

Completion date
19/10/2022

Eligibility

Key inclusion criteria
1. Aged between 18 and 35 years old
2. Be able to cooperate with rehabilitation physiotherapy, training and follow-up, and will not withdraw from the study without reason

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 Years

Sex
All

Total final enrolment
38

Key exclusion criteria
1. Exogenous injury of knee joint, including bruise, hit, cut, scald, contusion, etc., without external or subcutaneous bleeding due to skin rupture
2. Abnormal natural bone structure
3. Inflammation, patellar dislocation or subluxation, knee ligament injury
4. History of arthroscopic surgery of knee joint within one year
5. Injury or discomfort of other body parts

Date of first enrolment
01/09/2022

Date of final enrolment
18/09/2022

Locations

Countries of recruitment
China

Study participating centre
Wuhan Sports University
No. 461 Luoyu Road
Hubei Province
Wuhan City
China
430079

Sponsor information

Organisation

Wuhan Sports University

ROR
https://ror.org/004je0088

Funder(s)

Funder type
University/education

Funder Name
Wuhan Sports University

Results and Publications

Individual participant data (IPD) sharing plan
The data set generated during this study is not expected to be available because these data relate to the personal privacy of the subjects.

IPD sharing plan summary
Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	Ccomparative study of the efficacy of instrument-assisted soft tissue mobilization and massage techniques	13/11/2023	01/12/2023	Yes	No
Results article	Effect of combined IASTM and blood flow treatment	31/08/2023	02/05/2025	Yes	No