

# Patellar taping will reduce pain but will not provide any measurable changes in patellar position from MRI data or from the caliper

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<b>Registration date</b> 16/11/2015	<b>Overall study status</b> Completed	<input type="checkbox"/> Protocol
<b>Last Edited</b> 15/08/2019	<b>Condition category</b> Musculoskeletal Diseases	<input type="checkbox"/> Statistical analysis plan
		<input type="checkbox"/> Results
		<input type="checkbox"/> Individual participant data
		<input type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

The knee is the largest weight-bearing joint in the body. It is a complex joint where the shin bone (tibia) and thigh bone (femur) meet creating a “hinge”. The kneecap (patella) is a small, triangular shaped bone located in front of the knee joint. It is very important that the patella is in the correct position, as it plays a vital role in helping to bend (flexion) the knee by acting as a “pulley” for the thigh (quadriceps) muscle. Patellar mal-alignment, also known as patellofemoral pain is a common condition in which the patellar does not aligned properly. Normally, when the knee bends, the patellar moves in a small groove in the femur (femoral groove). When the patella is not lined up with this groove, it can travel more to the side, making it rub against the femur. This causes the knee to become overloaded with pressure causing pain when bending the knee. A common treatment for patellar mal-alignment is taping the knee to support the patella (McConnell taping technique). This works by applying the tape to the skin to reposition the patella relative to the femur when the knee is bent up to 30° (30° flexion). It has been found that many patients experience a reduction in pain after this taping is applied, however more research is needed to find out if the tape is actually managing to realign the patella. The aim of this study is to find out whether the McConnell taping technique can realign the position of the patella in an MRI scanner and with a calliper, and whether this will lead to reduced pain during squat activities.

### Who can participate?

Adults with pain at the front and center of the knee with patellar mal-alignment.

### What does the study involve?

All participants begin the study by having measurements taken of their leg in order to look at the position of the patella when the knee is bent at 30°, using MRI scanning and a custom built calliper (device for measuring distance). They are also asked to complete squatting exercises so that their levels of pain can be measured. These measurements are then repeated in order to ensure that the measurements are valid. Participants are then randomly allocated to one of two groups. Those in the first group have their knee taped using the McConnell taping technique, to support the patella in the correct position. Those in the second group have placebo (dummy)

taping applied, which is not designed to have any effect on their patella positioning. For all participants, the tape is worn for about 20 minutes so the measurements of patella position and pain can be repeated. Those in the corrective taping group will then have the placebo taping applied, and those in the placebo group will have the corrective taping applied.

What are the possible benefits and risks of participating?

Participants may benefit from a reduction in pain from the taping. This could help to find better treatments for that individual in future. There are no notable risks of taking part, although participants may feel pain when they are completing the squatting exercises.

Where is the study run from?

London Sports Orthopaedics (UK)

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

January 2016 to April 2018

Who is funding the study?

1. Buckinghamshire New University (UK)
2. Brunel University London (UK)

Who is the main contact?

Mr Kevin Campbell-Karn  
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## Contact information

**Type(s)**

Scientific

**Contact name**

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## Additional identifiers

**Protocol serial number**

N/A

## Study information

## **Scientific Title**

Effects of taping on MRI and a novel caliper measuring patellar mal-alignment and subjective perception of pain in patients with patellofemoral pain (PFP)

## **Study objectives**

1. There will be a reduction in pain during squat activities when patellar taping is applied and when placebo taping is applied when compared to baseline
2. MRI will not display any significant differences in patellar positioning following patellar taping and placebo
3. The MRI patellar positioning will correlate with the patellofemoral calliper data
4. The patellofemoral calliper will have good agreement with the MRI equivalent data
5. The patellofemoral caliper will provide good intratester reliability
6. The patellofemoral caliper will not display any significant differences in patellar positioning following taping and placebo

## **Ethics approval required**

Old ethics approval format

## **Ethics approval(s)**

Research Ethics Committee of the College of Health and Life Sciences, 30/01/2015, ref: RE13-14

## **Study design**

Single-centre randomised controlled trial

## **Primary study design**

Interventional

## **Study type(s)**

Quality of life

## **Health condition(s) or problem(s) studied**

Patellofemoral pain

## **Interventions**

All participants will have baseline measures taken at the start of the visit. These include: MRI of the knee in a fixed 30 degrees of flexion position, VAS measured during a squat activity and measurements taken using the patellofemoral calliper for the location of the knee cap. All participants are then assessed again in order to ensure that no changes occur by chance. Participants are then randomly allocated to one of two groups:

**Intervention group:** Participants will have McConnell taping applied in accordance with the process to alleviate mal-alignment and will have an MRI, a patellofemoral caliper measurement and a squatting movement to assess pain.

**Placebo group:** Participants will have sham tape applied to the front of the knee without any correction to the position of the knee cap, again participants will have an MRI, a patellofemoral caliper measurement and a squatting movement to assess pain.

## **Intervention Type**

Procedure/Surgery

**Primary outcome(s)**

1. Bisect offset, patellar overhang, congruence angle, sulcus angle, patellar shift, and equivalent position measurements are measured using MRI extracted data tested before and after each intervention
2. Pain measured using visual analogue scale (VAS) before and after each intervention
3. Relative positions of the patella and femur are measured using patellofemoral caliper measurements tested before and after each intervention

**Key secondary outcome(s)**

1. Comparisons between the MRI extracted data and the patellofemoral caliper measurements compared after the trials are all completed using MRI data and the mean scores from the caliper
2. Changes in VAS scores measured immediately after interventions correlating to any changes in MRI and caliper measurements

**Completion date**

06/04/2018

**Eligibility****Key inclusion criteria**

1. Aged 18 years or over
2. Symptomatic with anterior knee pain
3. Confirmed as having patellar malalignment by an orthopaedic consultant via X-ray

**Participant type(s)**

Patient

**Healthy volunteers allowed**

No

**Age group**

Adult

**Lower age limit**

18 years

**Sex**

All

**Key exclusion criteria**

1. Vulnerable adults or those unable to make decisions for themselves
2. Under 18 years of age
3. Anyone with metal or other implants containing metals such as pacemakers

**Date of first enrolment**

16/10/2017

**Date of final enrolment**

10/02/2018

## Locations

### Countries of recruitment

United Kingdom

England

### Study participating centre

#### London Sports Orthopaedics

31 Old Broad Street

London

United Kingdom

EC2N 1HT

## Sponsor information

### Organisation

Brunel University

### Organisation

Bucks New University

### Organisation

Brunel University London

### ROR

<https://ror.org/00dn4t376>

## Funder(s)

### Funder type

University/education

### Funder Name

Bucks New University

### Alternative Name(s)

Buckinghamshire New University, School of Science and Art, Wycombe Technical Institute, High Wycombe College of Technology and Art, Buckinghamshire College of Higher Education, Buckinghamshire Chilterns University College, BNU

**Funding Body Type**

Government organisation

**Funding Body Subtype**

Universities (academic only)

**Location**

United Kingdom

**Funder Name**

Brunel University London

**Alternative Name(s)**

**Funding Body Type**

Private sector organisation

**Funding Body Subtype**

Universities (academic only)

**Location**

United Kingdom

## **Results and Publications**

**Individual participant data (IPD) sharing plan**

The datasets generated during and/or analysed during the current study is not expected to be made available. The data will be stored on a secure server drive at Bucks New University.

**IPD sharing plan summary**

Not expected to be made available