Knee & Hip Surgeon

PATELLOFEMORAL PAIN REHABILITATION

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We follow a well-defined treatment pathway with surgery as a fall back for patients

Your knee cap (patella) and femur form your patellofemoral joint. Patellofemoral pain (PFP) (pain around, behind or under the knee cap) is one of the most common knee conditions. It is particularly prevalent in younger people who are physically active. In addition, females are reported to be at higher risk for the development of PFP. The vast majority of individuals with this condition have recurrent or chronic symptoms.

Pain in front of the knee is typically associated with activities that load the patella, such as going up or down the stairs, jumping, running, and squatting. Other symptoms often associated with PFP are crepitus and swelling.

Factors contributing to PFP include patella maltracking, leg mal-alignment (i.e. valgus), muscular weakness, foot disorders and psychological factors.

The current treatment recommendations for PFP are as follows:

1. Exercise-therapy to reduce pain and improve knee function
2. Combining hip and knee strengthening exercises to reduce pain
3. Combined interventions are recommended to reduce pain in adults with PFP in the short and medium term.
4. Foot orthoses are recommended to reduce pain in the short term.

Our PFP clinic is coordinated by Ms. Bláithín Brady, Clinical Specialist Physiotherapist. In our clinic we follow a clear treatment pathway with surgery as a fall back for patients who despite conservative interventions fail to improve.

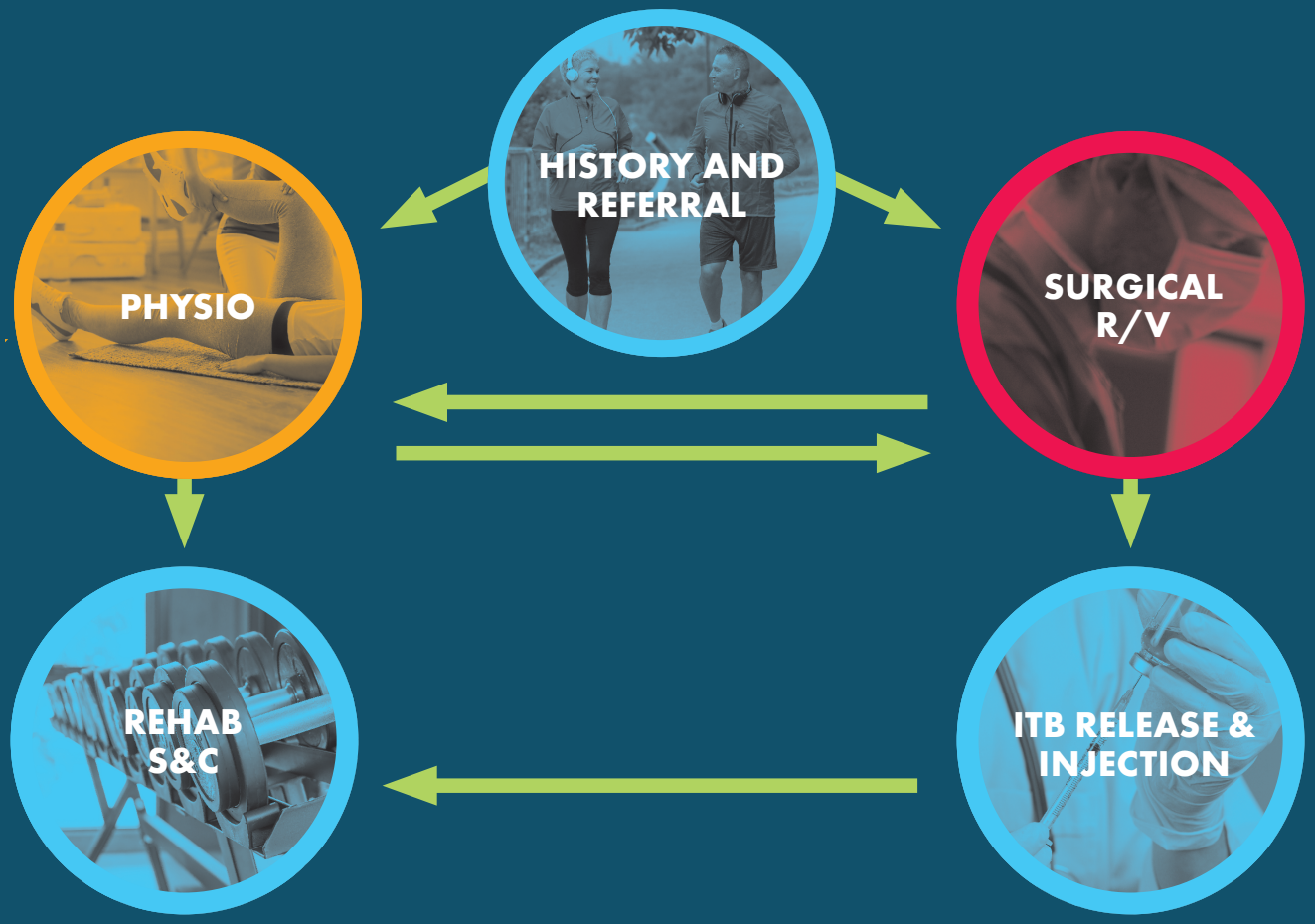
We emphasis that exercise and following a specific strength & conditioning program is the most common treatment for PFP. Patients with more severe presentation and who are resistant to conservative measures often need anti-inflammatory medication, an injection or a surgical procedure called an ITB release.

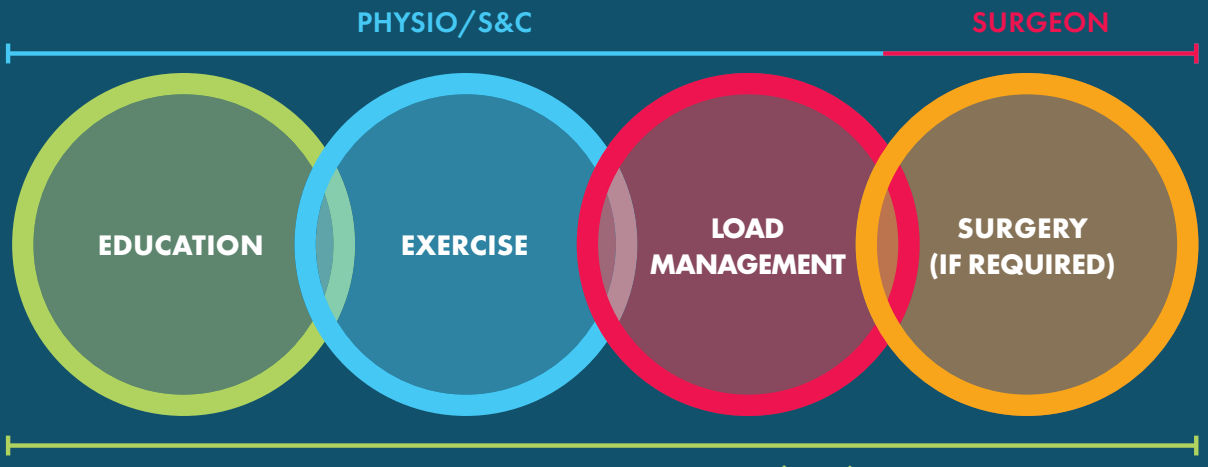
ITB release is a simple and effective day case surgical procedure that releases the pressure off your patellofemoral joint and by doing so it helps with the pain in front of your knee. Surgery provides a window of opportunity to engage in the rehabilitation and required strengthening exercises.

To ensure the best chance of success (i.e. returning to desired activity/ sporting level) it is imperative that all our patients/athletes, guided by their physiotherapists, adhere to these rehabilitation guidelines.

Ms. Bláithín Brady,
Clinical and Research Physiotherapist

ANTERIOR KNEE PAIN PATHWAY





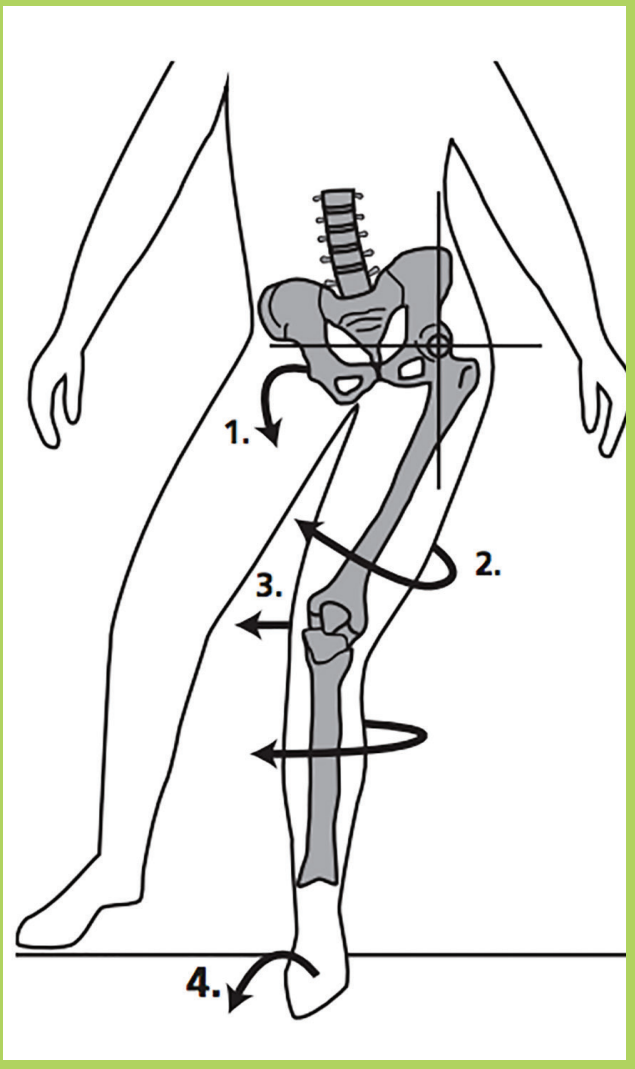
The patient will be guided through their PFP Rehabilitation by their Physiotherapist and perhaps Strength & Conditioning Coach. Mr Vioreanu encourages direct communication between Physio, S&C, Knee Rehabilitation Specialist (Bláithín Brady) and Surgeon to ensure a multidisciplinary approach to care.

BIOMECHANICAL FACTORS CONTRIBUTING TO PATELLOFEMORAL PAIN

KNEECAP OUT OF ALIGNMENT

KNEECAP IN NORMAL ALIGNMENT

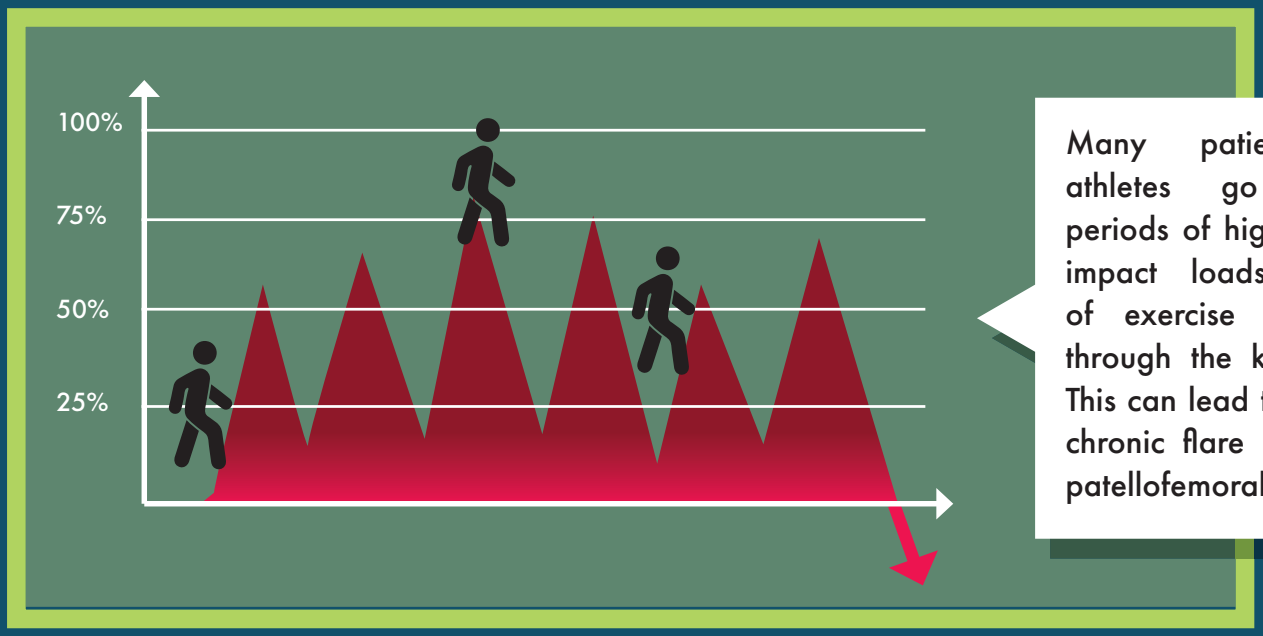
1. Pelvis drops on the opposite side. This puts extra tension on the leg pulling the knee cap outwards
2. Weakness in the hip causes the femur to internally rotate inwards leading to the knee cap sitting more outwards relative to the femur
3. As well as the weakness in the hip, there is weakness further down the chain in the muscles surrounding the knee (quadriceps, hamstring, calf). This is due to perhaps pain, biomechanical factors or fear avoidance
4. The foot falls inward (pronates) causing the tibia to internally rotate, again causing the knee cap to lie laterally causing pressure and pain in the knee



Based on understanding the biomechanical factors that lead to increased patellafemoral forces and PFP, we recommend initiation of a specific strength and conditioning program aimed at gluteal and core muscles initially.

This program is best initiated with non-loading activities activities such as guided strength work, cycling, cross-trainer, aqua-gym, pilates and yoga at the recommendation of your Physiotherapist.

REHABILITATION CONSIDERATIONS



Many patients and athletes go through periods of high and low impact loads (amount of exercise and load through the knee joint). This can lead to acute or chronic flare ups of the patellofemoral joint

We follow a progressive loading model as too much load too soon leads to flare ups and just as important, too little load does not see significant changes.

Patellofemoral joints react best to gradual but progressive loading of the knee joint. Following a slow and controlled training or exercise plan can help the patellofemoral joint build it's tolerance for carrying out the activities which you want to do

PHASE 1: EDUCATION AND EXERCISE

Timeline: 2-6 weeks

2 — 6

CRITERIA TO PROGRESS

- Improvement in knee pain
- No fear avoidance of active range of knee movements
- Improvement in endurance for gluteal work
- Patient reports exercises are progressively getting easier

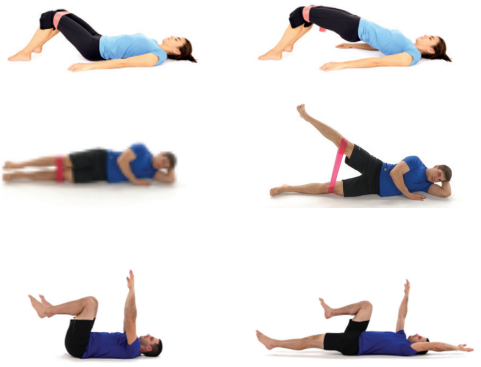
PHYSIOTHERAPY GUIDELINES:

- Encourage patient to stop high impact sporting activities (i.e. running, jumping, high intensity interval training, heavy strength training, hill or prolonged walking etc.)
- Education regarding foot placement/footwear, dynamic valgus awareness and strength deficits
- Avoid load based strength program (i.e. squats, lunges, jumps etc.)
- Initiate resistance based strength program targeting hip external rotators, hip abductors and core muscles
- Encourage patient to stay active with low loading exercises (i.e. cycling, cross-trainer, rowing, aqua-aerobics, Pilates, Yoga etc.)
- Dependent on pain levels and load tolerance begin open kinetic chain exercises, posterior chain work and non-weight bearing quadriceps strength
- Encourage the use of resistance bands/ankle weights and isometric exercises
- Patellar taping can be performed on the patient as a form of pain relief to facilitate exercise. We recommend McConnell taping technique. This technique has been recommended for athletes during training and competition

GOALS:

1. Differential diagnosis from Consultant / Specialist Physiotherapist
2. Patient to understand PFP and its cause
3. Patient to understand the concept of 'joint loading'
4. Patient to be aware of pain triggers and knows how to avoid them
5. Assess and begin to target hips, gluteal & core muscle weakness

EXERCISE EXAMPLES



PAIN MANAGEMENT

Pain can be relieved by:

- Icing the knee
- Modifying exercises accordingly
- Reducing/Adjusting load
- Anti-inflammatories if required

If pain is still persisting patient may be a candidate for injection or ITB release surgery

PHASE 2:
INCREASED STRENGTH AND FUNCTIONAL WORK

Timeline: 4-8 weeks

4 — 8

CRITERIA TO PROGRESS

- Improvement in knee pain
- Confident with functional and weightbearing work
- Improvement in gluteal, hamstring, quadriceps and calf strength
- Ability to perform sport related strength and cardio work at expected standard

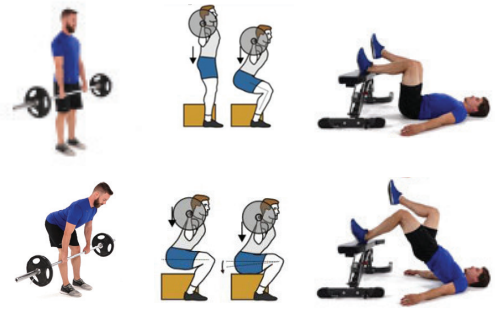
GOALS:

1. Comfortably perform a squat and deadlift based on patient's abilities
2. Comfortably use stairs
3. Comfortably walking
4. Improve exercise tolerance
5. Introduce sports specific exercises

PHYSIOTHERAPY GUIDELINES:

- Continue to educate the patient regarding progressive loading of exercise
- Ensure patient is aware of possible acute flare ups of pain and understands how to manage those (i.e rest, load reduction, activity modification etc.)
- Introduce and progress with half-squat and deadlift based exercises
- For patellar tendinitis patients should initiate leg press, leg extensions and back squats/hack squats as early as tolerable into the program
- Rehabilitation program will be focused on gym based work for 6-12 weeks
- Initiate aerobic/fitness activities: short runs, progressive hill work throughout walks, cycling, rowing or cross-trainer
- Initiate open kinetic chain and weightbearing quadriceps work. This may begin with a modified wall squat and progress to single leg knee extensions or single leg sit backs in time; patient & sport/activity dependent
- Progressively increase the load on the joint so it can tolerate what patients need it to withstand day to day or in their sport

EXERCISE EXAMPLES



PAIN MANAGEMENT

Pain can be relieved by:

- Icing the knee
- Modifying exercises
- Load adjustment
- Anti-inflammatories (orally or topical)
- Foot orthoses may be an option

If pain is still persisting patient may be a candidate for injection or ITB release

PHASE 3: RETURN TO ACTIVITY AND SPORT

Timeline: 8-12 weeks

8 — 12

GOALS:

1. Patient comfortably returns to sport
2. Patient maintains good core, hip and knee strength
3. Patient has the knowledge & confidence to manage their own flare ups
4. Patient is aware of importance of continuous, regular strength & conditioning

PHYSIOTHERAPY GUIDELINES:

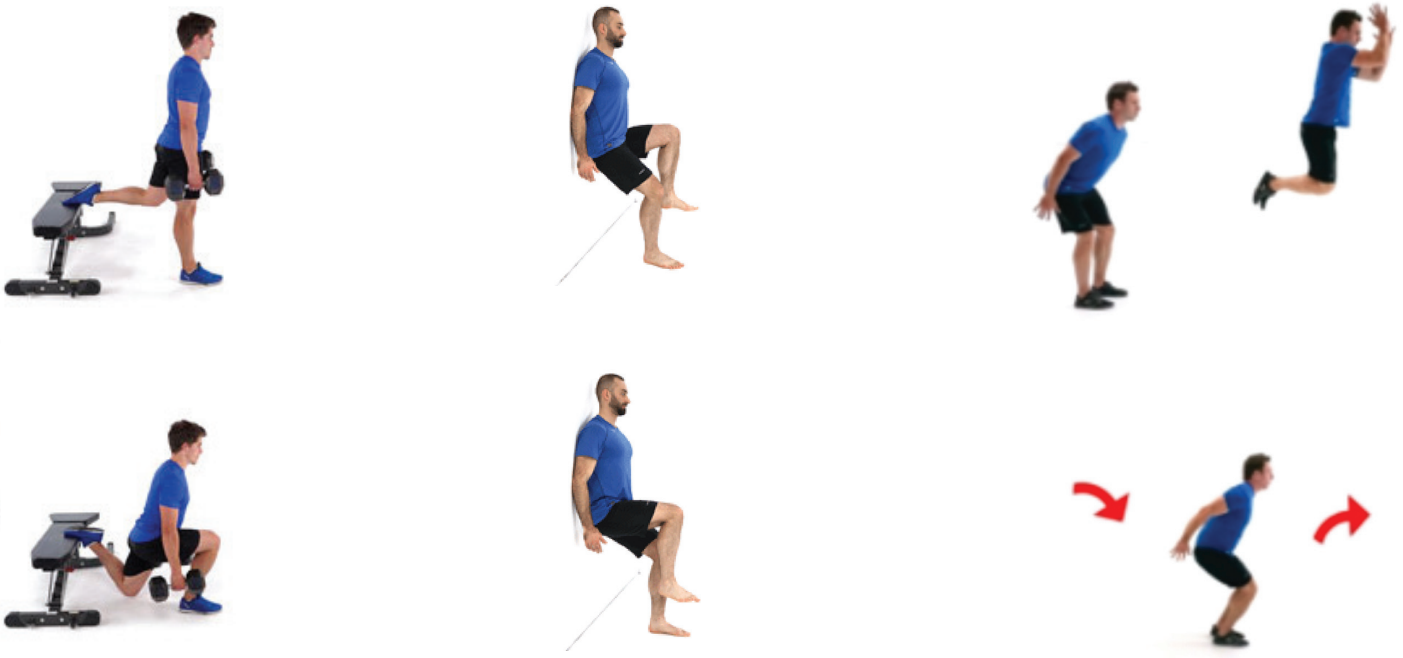
- Ensure the patient is progressively loading the strength work
- Retest any strength deficits & ensure there is an improvement in strength and endurance ability
- Test for limb strength symmetry. A good guideline is less that 10% difference between lower limbs
- Educate patient regarding possible flare ups - the key is to manage them accordingly
- Progressive return to running
- Backward running is a useful tool to bridge the gap between walking and forward running
- Rowing is a good way to transition from cycling to jogging
- Gait and running retraining may be required. Increasing cadence and adopting a forefoot strike may help to reduce PFP
- Using an app technology where appropriate (i.e. 'Couch to 5K app')
- For field & court based athletes address their sprint/acceleration/deceleration/turning needs progressively
- Introduce slow & progressive plyometric program prior to returning to field sports
- Educate patients on how to adjust load during training in keeping with PFP
- For patellar tendinitis athlete should be able to tolerate the high load demands on the knee before returning to field sports
- Introduce progressive return to sports. For example, if they are returning to GAA they would have completed their running and basic plyometric drills in the weeks beforehand. Athletes will then participate in training for 2 weeks to continue to improve their confidence, fitness and sporting ability. If the knee continue to flare up after training or competitive play then the athlete is not ready to return to sport

PHASE 3:
RETURN TO ACTIVITY AND SPORT

Timeline: 8-12 weeks

8 — 12

HIGH LEVEL EXERCISE EXAMPLES



CRITERIA TO PROGRESS

- No or minimal knee pain
- Knee tolerates and recovers fast after sports participation
- Adequate strength in lower limb and trunk.
- Athlete is adept with an injury prevention warm up.

PAIN MANAGEMENT

Pain can be relieved by:

- Icing the knee
- Modifying exercises accordingly
- Reducing/managing load
- Anti-inflammatories if required (orally or topical)
- Foot orthoses may be an option for the patient should they continue to have pain

If pain is still persisting patient may be a candidate for injection or ITB release

PHASE 4:
LONG TERM MANAGEMENT OF PATELLOFEMORAL PAIN

Timeline: Ongoing

PHYSIOTHERAPY GUIDELINES:

- Continue to adhere to a specific, routine strength and conditioning program tailored specifically for the patient.
- Ensure patient adequately warms up if participating in high level sport.
- Ensure patient understands how the knee can react to sudden changes in load
- Progressively increasing exercise load is the key component to managing PFP
  For example, a patient who is not used to hiking suddenly does a 3-4 hour hike; this may cause a slight flare up in pain but once managed accordingly should settle ok
  Another example may be a period of unloading; a patient may have an injury or if not exercising for 2-3 weeks. The patient may find that their knee pain flares up with less exercise and if this patient then tries to return to training/activity at the level they were at pre injury then they could have a flare up in pain
- It can be a good suggestion to link in with your physiotherapist once every 6 or 12 months to ensure you are maintaining strength and adhering to your long term management plan. This is another way of trying to prevent flare ups

GOALS:

1. Adequate self-management of pain flare ups
2. Maintain good strength in the lower limb
3. Patients are aware of when they need to liaise with their physio or surgical team if a flare up is not settling

PAIN MANAGEMENT

Pain can be relieved by:

- Icing the knee
- Modifying exercises accordingly
- Reducing/managing load
- Anti-inflammatories if required

If pain is still persisting the patient may link in with their physiotherapist or surgical team sooner

TESTIMONIALS

KNEE ARTHROSCOPY & ITB RELEASE

FERGAL - Intercounty GAA player

On reflection on the treatment received by Mihai & Bláithín it was absolutely top class and professional. From the first meeting Mihai was very informative on how exactly the surgery would work and confident it would be a success. Post-operative meetings with Mihai were excellent and gave me great confidence that I would come back stronger, which I most definitely have. The postoperative care and guidance I received was excellent. Each meeting I was given clear goals and exercises to work on and was never in confusion of what needed to be done to maximise the gains from the surgery outlined by Bláithín and the work she put in to my rehabilitation was to the highest degree.

KNEE ARTHROSCOPY & ITB RELEASE

RICHARD - GAA player

I would highly recommend Mihai to anyone with troublesome patellofemoral pain. I was experiencing pain and swelling in my knee during and after training/games. From the first time I met with Mihai I felt like I was in safe hands. In terms of the post-operative physiotherapy, Bláithín was absolutely excellent in this regard. I was able to work through the rehab exercises, always ensuring I was completing my rehab safely and correctly etc.. Bláithín kept me on track throughout with a clear plan at all times. Following the surgery and the block of rehab, I am fully confident that I am in a good place to go back to competitive sport. I would highly recommend the services of Mihai and Bláithín to anyone.

PFP CONSERVATIVE MANAGEMENT

SARAH- Keen gym goer

Over the last few years I have suffered with both of my knees but in particular my left. After years of playing GAA and doing strength training in the gym I was getting to the point that I could not train without both knees swelling up and being sore for a few days. I attended Mr. Vioreanu's clinic and from the first day I met him I was reassured about my diagnosis of patellofemoral pain due to the wear under my kneecap and the position of my knee cap and I understood what the treatment options were. I began a course of treatment under the guidance of Bláithin and immediately I started to see a difference. Bláithin and Mihai both explained that it would take a few months for me to return to training in the gym but with their guidance and continuously increasing my rehab I am back training now and feel stronger and more stable than ever. I understand how to manage the load through my knees now and am no longer in pain.

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