



COMMON INJURIES:

PATELLOFEMORAL PAIN SYNDROME

AUTHOR'S BIO



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↑ Pain in the anterior aspect of the knee is a frequent complaint for patients consulting physiotherapists, sports physicians and personal trainers. Some reports indicate that pain in this area accounts for nearly 20 per cent of all sports injury consultations and a full 50 per cent of all consultations of the knee itself. Pain and discomfort in this region can be due to conditions such as fat pad impingement, patellar tendinopathy or the topic of this article, patellofemoral pain syndrome.

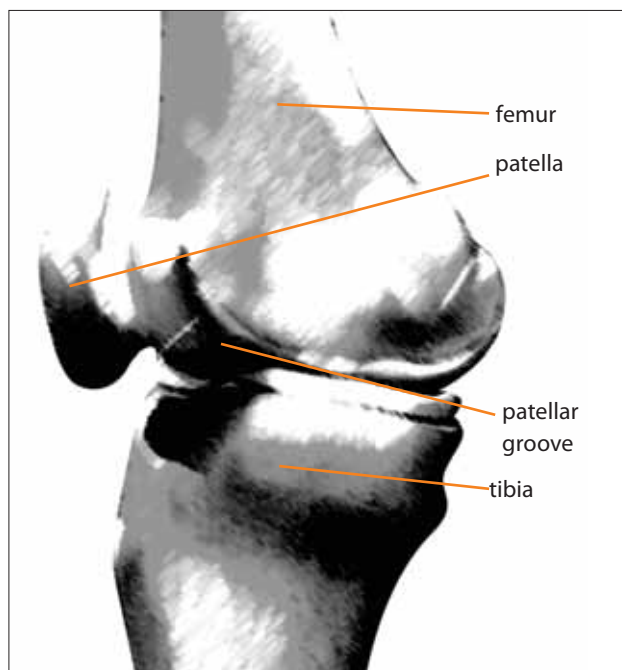
TERMINOLOGY AND ETIOLOGY

Patellofemoral pain syndrome has previously been called 'chondromalacia patellae' in reference to the belief that there was generalised softening of the undersurface of the patella. However, the prevalence of symptoms in patients without obvious changes to the patella surfaces has led to the more general term of patellofemoral pain syndrome being preferred, though the condition is occasionally simply called 'anterior knee pain'.

There is still considerable controversy as to the exact cause of patellofemoral pain syndrome – with the more established theory being that irritation is caused by incorrect alignment of the patella as it sits and slides along its femoral groove. This alignment problem, it is believed, leads to changes in the structure of the articular cartilage of the patella, which ultimately leads to pain.

There is also a theory that the pain associated with patellofemoral pain syndrome is due to a chemical irritation and inflammation of the extremely pain-sensitive synovium of the patella, which becomes repeatedly aggravated with continued use of the knee in both exercise and day-to-day activities, thus explaining the longstanding nature of anterior knee pain in some patients.

To confuse the issue, a large number of patients have extremely poor alignment and multiple biomechanical issues that do not have any signs or symptoms of patellofemoral pain;



equally some pain sufferers have excellent patella alignment. The answers to some medical issues are not always clear.

SIGNS AND SYMPTOMS

The typical patellofemoral pain patient presents with a history of a generalised ache, placing the palm of the hand directly over the patella to indicate the region of pain. There is often no real 'cause' identified by the patient, with the pain aggravated by running (especially downhill), stairs and sitting for prolonged periods with the knee bent. This is termed a positive 'theatre sign' or 'movie sign' with patients preferring to sit in the aisle seats to allow them to keep the knee extended during the performance.

There may be some tenderness in or around the edges of the patella and occasional swelling, as well as clicking and

grinding of the patella when it moves on the femur. Wasting or weakness of the vastus medialis obliquus is often observed during testing – tape is often used to reposition the patella and function is then retested, with a reduction in symptoms when the tape is applied usually indicating that there is certainly some element of patellofemoral pain involvement in the patient's symptoms.

MANAGEMENT

As with all episodes of pain it is essential the client is examined by a physiotherapist or sports physician. The medical professional will evaluate the extent of the injury, determine an accurate diagnosis and chart the most appropriate management strategy to return the client to full function. An accurate and rapid diagnosis is especially important in cases of patellofemoral pain as this condition can become a long term issue and greatly impact on the patient's quality of life and ability to participate in many sporting and social activities.

Effective management of patellofemoral pain syndrome is a complex process as many issues need to be addressed to prevent flare ups while leading the patient back to full function. The initial stage, as with most overuse injuries, is to actively control pain and inflammation. This is best achieved with a combination of ice, rest from aggravating activities, anti-inflammatory medication and the use of patellofemoral taping to reduce pressure on the injured joint.

An important component of the rehabilitation process is the need for an effective strengthening program to restore pre-injury function. The majority of exercises should be performed pain-free with close attention being paid to any post-exercise pain and particularly to increased pain the morning after a rehabilitation session. The need for appropriate strengthening must be balanced with possible aggravation of symptoms.

The exact exercises chosen will depend on the severity of symptoms, but the majority of programs initially focus on isolating the vastus medialis obliquus to contract prior to the activation of the rest of the quadriceps group. Once effective vastus medialis obliquus control is achieved, the patient is guided through a series of predominantly closed-chain (foot in contact with a fixed surface) exercises such as small range lunges, step downs and single leg squats.

Other important components of a successful patellofemoral pain rehabilitation program will include specific stretching of the iliotibial band, hamstrings, calves and quadriceps, as well as effective (and sometimes uncomfortable) deep tissue massage of the ITB – this can also be augmented by the patient using a foam roller to 'self massage' the lateral structures of the knee.

Many patients with patellofemoral pain have issues relating to excessive subtalar pronation (flat feet) which can act to increase internal rotation of the lower limb, contributing to alignment issues. These patients are often best treated with an individually moulded orthotic device placed in their shoes to assist in controlling foot function. 



Photo 1. Diagonal lunge

This lateral lunging exercise allows the patient to train the quadriceps in different positions and angles, and is also useful in increasing control of the pelvis which assists lower limb alignment. Use different foot positions, keep the knee in line with the second toe and maintain a level pelvis.



Photo 2. Combination lunge/row

This exercise allows the patient to incorporate a closed-chain lunging movement with an upper body rowing movement. Again, ensure the knee is in line with the second toe, with the pelvis level and the core activated.



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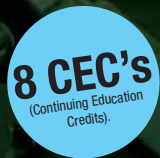
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