

Concord Sport & Spine Newsletter



Patellofemoral Pain Part A: Characteristics

Patellofemoral pain (PFP) syndrome is the most common cause of knee pain, and it frequently affects adolescents as young as 10, teenagers, and adults up to any age. The risk of persistent pain is high. In one study of adolescents, 65% still had pain two years after initial presentation. A study in adults showed that around of 40% of PFP sufferers reported an unfavorable outcome at 1 year, and even up to 8 years after initial presentation.

Features of PFP:

The diagnosis of patellofemoral pain is a clinical one, based on key criteria:

1. Pain in the region of the patella
2. Pain is aggravated by at least one activity that loads the patellofemoral joint (PFJ) during weightbearing on a flexed knee including squatting/lunging, running, hopping/jumping, or ascending/descending stairs.

Other features which may be present include:

1. Crepitus or grinding of the PFJ during flexion.
2. Tenderness elicited on palpation of the medial/lateral patella facets.
3. A small effusion.
4. Pain with sitting, rising from sitting, or on straightening the knee after sitting.

Differential Diagnosis:

Other potential sources of anterior knee pain include:

1. Patellar tendinopathy
2. Fat pad syndrome
3. Meniscal pathology
4. Tibiofemoral joint osteoarthritis
5. Referral from the hip or lumbar spine.

The cause of PFP is thought to be stress to pain-sensitive weightbearing surfaces either due to:

1. Reduced PFJ contact area, due to mal-tracking or malalignment. Potential contributors to this could be:
 - a) Altered quadriceps function/strength
 - b) Altered hip mechanics
 - c) Abnormal patellofemoral anatomy
 - d) Impaired soft tissue restraints resulting in stiffness or laxity.
2. Increased PFJ reaction forces, due to:
 - a) Altered tibiofemoral joint kinematics. This can be affected by the hip or foot.
 - b) Quadriceps or hamstrings tightness
 - c) Reduced shock absorption due to walking/running biomechanics.
 - d) Overload. Too much loading too quickly, or resumption of load after periods of rest.

Interestingly, the factors of age, height, weight, BMI, and body fat have not been shown to be features which increase the risk for developing PFP.

Association with future OA

Research in PFJ OA is poor. Most studies in the past have focused on the tibiofemoral joints.

Studies have shown an association between persistent quadriceps weakness and the development of knee OA. There is also a presumed association between persistent PFP and quadriceps weakness.

In one study that examined 83 participants with PFP between the ages of 26 and 50 years, it was found that close to 50% of those aged in their 30's had some evidence of patellofemoral OA.

Association with chronic pain syndromes

It has long been recognized that a proportion of patients with persistent PFP demonstrate features consistent with nociplastic pain states. That is, they have pain out of proportion to the stresses applied to the knee. Features may include pain spreading to other areas over time, hyperalgesia, allodynia (pain elicited by normally non-noxious stimuli), kinesiophobia, and heightened sensitivity to cold. The approach to management of these patients is more complex. It will differ to the physical and load-management approach used for patients with purely mechanical pain (discussed in Part B of this newsletter).

References:

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[Concord Sport & Spine Physiotherapy](#)

[202 Concord Road](#)

[Concord West, NSW 2138](#)

[Sydney, Australia.](#)

Ph (02) 9736 1092

Email: info@cssphysio.com.au

Web: www.cssphysio.com.au

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