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PATELLOFEMORAL PAIN SYNDROME

What is Patellofemoral Pain Syndrome (PFPS)?

Patellofemoral Pain Syndrome (referred to as Chondromalacia Patella or Anterior Knee Pain Syndrome or Runner's Knee in the past) is a condition where pain is felt behind or around the patella, specifically when doing activities that compress the patellofemoral joint like running, jumping, climbing stairs, and squatting (aka loading while flexed). Both the shape of the patella (kneecap) and weak abductors can be associated with this syndrome.

What are some of the risks and associated factors with PFPS?

A 2012 Systematic review looking at the risk factors of PFPS found that a weak quadriceps muscle increased risk, likely due to patellar instability.

The Q angle (the angle made between the line that ASIS and centre of patella with the line that is made between centre of patella and middle of tibial tuberosity) has been thought to be related to potential PFPS. The greater the Q angle the greater the tendency for the patella to migrate laterally when the quadriceps is activated. This is still demonstrated in recent literature, but the Q angle must be measured with the standardized protocol.

Patellar tilt (specifically laterally) has been said to also indicate PFPS, but analysis of research found that "statistical values did not represent clear evidence"

Crepitus can or cannot be associated with PFPS. We do know that "knee crepitus had no relationship with self-reported clinical outcomes of women with PFPS".

Although studies in the past have found patients with PFPS to have muscle weakness in abduction of the hip, extension of the knee and external rotation of the hip, testing is unreliable. Instead functional testing should include "anteromedial lunge, stepdown, single-leg press, bilateral squat, and balance and reach".

When looking at the 2022 Systematic Review looking at squatting risks with PFPS, it seems that all squatting causes tension overload on the patellofemoral joint, more specifically in the 60-90 deg knee flexion range. The main cause of worsening knee pain during squatting seems to be translation of the knee over the toes during squatting and muscle imbalance in the thigh.

When looking into the impact foot and ankle alignment has on PFPS, the evidence is inconclusive and conflicting due to poor quality.

What treatments are recommended?

Exercise is recommended but should be tailored to each patient based on examination. A mix of core, flexibility, and strength training should be prescribed, 3 times per week for 6 to 8 weeks. Orthotics may be used in combination with exercise. The same goes for taping, which may be more beneficial earlier on, although the research is not clear as far as taping is concerned.

Another study that divided participants into two groups, one with just quadriceps/hamstring strengthening and gastroc/hamstring/glute stretching and the other with added core training. They found the addition of core training to improve functional outcomes even greater than just knee exercises.