

The Patellofemoral Joint: Culprit or Victim?

Patellofemoral Pain Syndrome (PFPS) is a common cause of anterior knee pain. Causes of PFPS appear to be multifaceted. Contributing factors may be structural, dynamic, or biochemical.

A common impression of PFPS pathology is that abnormal patellar tracking plays a role in the development of the condition. This role, however, has not been clearly established. In fact, current research suggests more of an ischemic role in the pathogenesis of PFPS.

What they say:

Symptoms usually include retropatellar or peripatellar pain, pain with prolonged sitting (Theatre sign), and pain with activities such as squatting, running and stair climbing. Symptoms are usually insidious in onset, however may also follow an increase in physical loading of the knee or a fall onto the knee.

What we see:

The usual PFPS tests such as Clarke's sign, the Waldron test, Zohler's sign, the passive patellar tilt test, and Q-angle measurements have poor individual reliability. A battery of tests has been suggested by some authors. Grelsamer and Stein suggest that in patellofemoral arthritis, the key clinical finding is medial or lateral patellar facet tenderness.

Patellar facet palpation



Patient has knee extended with quadriceps muscles relaxed. Gentle pressure is placed on the medial and lateral patellar facets as the examiner curls his fingers under the medial or lateral border of the patella. Stress is placed on all tissues between the skin and bone, including the retinaculum and synovium. Thus the source of the pain is debatable.

Biomechanical assessment may reveal one or a number of issues relating to either active or passive control of the pelvis, hip, knee, foot and ankle.

What we do:

Tyler et al. looked at differences between subjects whose PFPS improved and those who did not. They found that the combination of improved hip strength (especially hip flexion) and flexibility (especially the IT Bands and hip flexors), resulted in significant resolution of PFPS.

Three randomized controlled trials support a physiotherapy program that features:

- Taping of the patella for immediate symptom control (including knee osteoarthritis)
- Assessment and correction of biomechanical issues of the pelvis, hip and foot.
- Open and closed chain exercises involving the gluteals, quadriceps, hip flexors and rotators.
- Stretching of the hamstrings, IT Band and hip flexors

References:

1. Tyler TF, Nicholas SJ, Mullaney MJ, McHugh MP. The Role of Hip Muscle Function in the Treatment of Patellofemoral Pain Syndrome. *Am J Sports Med* 2006;34:630-636.
2. Crossley KC, Bennell K, Green S, Cowan S, McConnell J. Physical Therapy for Patellofemoral Pain: A randomized, double-blinded, placebo controlled trial. *Am J Sports Med* 2002;30:857-865.
3. Grelsamer RP, Stein DA. Patellofemoral Arthritis. *J Bone Joint Surg Am.* 2006;88:1849-1860.
4. Naslund J, Walden M, Lindberg LG. Decreased Pulsatile Blood Flow in in Patella in Patellofemoral Pain Syndrome. *Am J Sports Med.* 2007;35(10):1668-1673.