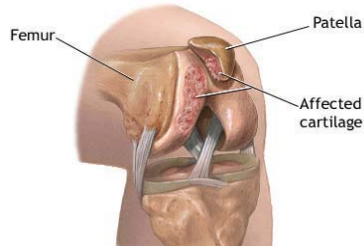


Anterior Knee Pain



Under healthy circumstances, the patella – or knee cap - sits centrally in a groove between the medial and lateral condyles of the femur. Normal knee flexion and extension allows the patella to glide smoothly within this groove.

However, muscular imbalances surrounding the knee joint, direct trauma to the patella, or degenerative changes to the patellofemoral joint can cause malalignment of the patella. This results in unequal pressure distribution between the medial and lateral articular facets of the patellofemoral joint. Ultimately, this altered patellar tracking creates soft tissue inflammation at the surrounding patellar retinaculum or patellar tendon, and degradation of the articular cartilage. The resultant anterior knee pain is broadly categorized as patellofemoral syndrome, patellar tendinitis, or chondromalacia patella.

Individuals experiencing anterior knee pain due to altered patellofemoral mechanics may experience:

- Pain located medial or lateral to the patella
- Pain located at the patellar tendon or infrapatellar fat pad
- Knee discomfort during or after prolonged sitting
- Difficulty climbing and/or descending stairs
- "Clicking" or "catching" at the anterior knee

Physiotherapists who specialize in treatment of patellofemoral disorders have participated in post-graduate training to evaluate and treat biomechanical dysfunction of the lower extremities. They are able to assess the articular mobility of the knee as well as the strength and function of muscles acting to support and stabilize this region.

The patellofemoral region is further influenced by loss of motion, weakness or motor deficits at the hip girdle, foot and ankle. Weakness of the hip abductors and external rotators will allow for excessive internal rotation at the femur during the weight-bearing phase of the gait cycle. As well, weakness of tibialis posterior and/or decreased flexibility at the plantar flexors can cause excessive pronation at the foot and ankle. Both will contribute to increased torsion at the knee joint and lateral tracking of the patella. For this reason, a comprehensive physiotherapy assessment must also incorporate evaluation and treatment directed to these areas.

A recent review of the research literature done by Ontario's Workplace Safety and Insurance Board recognizes physiotherapy as an evidence-based intervention for conditions of anterior knee pain including patellofemoral syndrome and patellar tendinopathy.

Physiotherapy treatment supported by the research literature may include:

- Joint mobilization to improve patellar mobility
- Quadriceps strengthening exercise to improve patellar tracking
- Closed kinetic chain strengthening for improved lower extremity mechanics at the hip, knee, foot and ankle
- Acupuncture for pain management

References:

Heintjes, E., Berger, M. Y., Bierma-Zeinstra, S. M. A., et al., 2003. Exercise therapy for patellofemoral pain syndrome. *Cochrane Database of Systematic Reviews*, Issue 4.

Rowlands, B.W., & Brantingham, J.W., 1999. The efficacy of patella mobilization in workers suffering from patellofemoral pain syndrome. *Journal of the Neuromusculoskeletal System*, 7, 142-149.

Workplace Safety and Insurance Board. February 2008. *Lower Extremity Injuries Program of Care*

For further information about physiotherapy treatment for knee pain or to book an appointment with a registered physiotherapist who specializes in assessing and treating biomechanical disorders of the knee, please contact:

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