

Patellofemoral Syndrome

Pain in the front of the knee due to patellar dysfunction is a common problem. Normal patellar tracking is controlled by a balanced pull of the quadriceps muscle and the supporting ligaments around the patella. Patellar pain is often produced by abnormalities in patellar tracking. The result is an abnormality in the magnitude and direction of contact stress on the patellar cartilage, resulting in pain.

Patellofemoral syndrome is a common condition in persons who engage in repetitive activities such as running and cycling. This syndrome is not related to the development of osteoarthritis.

The common causes of abnormal patellar tracking are:

- Improper muscle strength, endurance, flexibility and balance
- Tightness of the supporting ligaments around the patella
- Numerous muscles around the knee are involved, but the most common combination is weakness of the quadriceps, tightness of the hamstring muscles and tightness of the lateral patellar retinaculum.
- Anterior pelvic tilt, hip flexor tightness -> need to improve hip extensor strength, hip external rotation, hamstring strength, and abdominal strength.

Goals of treatment:

- Establish an accurate diagnosis. Radiographs should be taken to rule out other concomitant knee pathology
- Identify any precipitating factors. These may include:
 - A recent increase in running or cycling mileage
 - Change in shoe type
 - Change in running surface
 - Deficits in muscle strength or flexibility

The initial phase of treatment will aim for control of pain and inflammation.

The second phase will be restoration of muscle strength, flexibility and balance

The final phase will be gradual return to activity

PHASE 1 (WEEK 0-8)

- Diminish Offending Activity
- Comprehensive strengthening and flexibility program. This is usually a home exercise program.
- Over the counter non-steroidal anti-inflammatory medications (Aleve, Motrin, Advil)

PHASE 2 (WEEK 8-14)

If pain persist following Phase I, the next phase of treatment will entail:

- Formal physical therapy
- Patellar tracking knee sleeve
- Consideration for orthotics if there are abnormalities in hindfoot alignment (“pronation”)

PHASE 3 (> 14 WEEKS)

If pain persist following Phase I and Phase II treatment:

Consider further imaging studies (MRI, CT scan)

- Consider Protonics device. This is a special brace worn during exercise which as a cam system which produces increasing resistance during knee flexion, thus serving to augment hamstrings and quadriceps co-contraction. The increased resistance allows a decrease in quadriceps muscle firing, which can diminish patello femoral contact stresses.
- Consider intra-articular injection.

Further treatment will be undertaken based on the results of further examination and imaging studies.