

## Patellofemoral Arthritis: Diagnosis and Treatment

Patients experiencing patellofemoral knee arthritis will have pain and stiffness in the front of their knee that typically worsens when walking on inclined terrain, going up and down stairs, squatting or rising from a seated position.

Patellofemoral arthritis is diagnosed when there is significant loss of cartilage from the joint surfaces of the patella and/or the trochlea (groove). The diagnosis is restricted to arthritis seen only in this compartment of the knee; if the medial and lateral compartments are also affected, the condition is called generalized osteoarthritis of the knee. (As with other disorders of the patellofemoral joint, the former is more frequently seen in women.)

People who develop patellofemoral arthritis generally receive one of three diagnoses:

- **Post-instability arthritis:** the result of cartilage damage that occurs with multiple dislocations or subluxations in the joint
- **Post-traumatic arthritis:** cartilage damage that results from a fall or other traumatic injury to the knee that then progresses over time to arthritis, or
- **Overload osteoarthritis:** a condition that occurs due to malalignment wearing out the cartilage on the lateral side of the patella.

### Non-surgical Treatment for Kneecap Pain

Treatment for patellofemoral arthritis often begins with non-operative measures. These include adaptations in activity, such as avoiding stairs, limiting squats and lunges, and decreasing impact sports; physical therapy to stretch and strengthen surrounding muscles; and use of medication such as acetaminophen or non-steroidal anti-inflammatory drugs (NSAIDs) to relieve pain.

For patients with mild to moderate arthritis who are experiencing an acute flare of their condition with swelling, steroid injections, which reduce inflammation, can be effective. Good results are also being seen with viscosupplementation, in which a substance, called hyaluronan or HA, that mimics naturally occurring synovial fluid is injected into the joint to help lubricate it and minimize friction. In patients who are overweight, weight loss can help reduce the amount of stress applied to the knee. Bracing the knee is generally not helpful in people with patellofemoral arthritis.

## Surgery for Patellofemoral Arthritis

People with patellofemoral arthritis who do not respond to nonsurgical treatment may be candidates for a partial knee replacement, also called a patellofemoral joint replacement or unicompartmental knee replacement. This procedure allows the orthopedic surgeon to replace only the affected area of the knee, the patellofemoral joint, and to leave the healthy medial and lateral compartments intact. (Unicompartmental surgeries to address arthritis in each of those compartments are also an option for patients with arthritis in those portions of the knee.)

During this procedure the orthopedic surgeon removes the damaged cartilage and a small amount of bone from the joint surface of the patella and replaces it with a cemented high-density plastic button or patella implant. Damaged cartilage and a small amount of bone are also removed from the joint surface of the trochlear groove, which is replaced with a very thin, metal laminate which is cemented in place. The goal is to eliminate friction and restore a smoothly gliding motion in the joint.

Orthopedic surgeons are now achieving excellent results with patellofemoral joint replacement, results that are comparable to those achieved with a total knee replacement.

In addition to partial knee replacement, patients with post-instability arthritis due to malalignment may also require soft-tissue procedures and/or osteotomy or tibial tubercle transfer surgery (described in the section on patellar instability) to realign the knee. This mitigates the possibility of subsequent dislocations. Patients who require more than one procedure may have them done either in stages or during a single operation.

## Patellofemoral Arthritis Treatment at HSS

Determining whether the arthritis is the result of an alignment issue, or whether it is the beginning of an ongoing process that will eventually affect the entire knee is extremely important. Patients who do best with patellofemoral joint replacement are those in whom the arthritis is not expected to progress: those with post-instability arthritis and those with post-traumatic arthritis. These patients are unlikely to ever need a total knee replacement.

Many patients without a history of instability or trauma have isolated patellofemoral arthritis where it is likely the first or early presentation of osteoarthritis may progress at some point to involve the rest of the knee. These are typically women in their 50s or 60s who experience pain and stiffness during certain activities and transitioning from sitting to standing. The knee is not painful with all activities and they are able walk on level surfaces without discomfort. While the symptoms are restricted to the patellofemoral compartment



at the time of diagnosis, some arthritic changes may be observable in images of the rest of the knee.

Regarding surgery in these patients, although a patellofemoral knee replacement will address their symptoms, it cannot be known with absolute certainty whether they will eventually require a total knee replacement. However, there are numerous advantages to the partial knee replacement, including a much faster recovery, and the sensation that the knee still feels 'normal.'

For many of these patients, the promise of a decrease in pain and an improvement in function for years to come is acceptable. If a total knee replacement becomes necessary, their partial knee replacement will not compromise the results of this subsequent surgery.