

Patellofemoral Pain Syndrome

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ABSTRACT

CLINICAL PRESENTATION & EXAM: Patellofemoral Pain Syndrome (PFPS) can be a result of both malalignment and muscular dysfunction that results in up to 25% of injuries to runners, twice as common in women. Examination of knee begins with taking patient history. Dull, aching pain is usually reported in the anterior of the knee, specifically around or behind the patella. Pain is expressed as increasing during exercise involving knee movement such as: running, jumping, and/or squatting. Less common symptoms may include crepitus and movement restriction. Examination involves palpation of the region, inspection of biomechanics, and measurement of range of motion. **ANATOMY & PATHOLOGY:** The patellofemoral joint is comprised of the patella stabilized directly by the quadriceps tendon and the patellar ligament. The lateral and medial retinaculums, relative to the patellar ligament, connect fibers from the vastus medialis and vastus lateralis to the tibia. They also serve to preserve the position of the patella relative to the femur. The iliotibial band is lateral to the patella and, along with the femoral trochlea, provides static stabilization to the patellofemoral joint. PFPS is a cause for anterior knee pain that stems from imbalance in the forces controlling the patella during movement of the joint. PFPS is usually characterized by the dynamic valgus as a result of weak hip muscles or abnormal rear-foot eversion with pes pronatus valgus leading to patellar maltracking. The childhood development of Sinding-Larsen-Johansson Syndrome or the closely related Osgood-Schlatter disease is linked to PFPS. **DIAGNOSTIC TESTING & CONSIDERATIONS:** When testing for PFPS, multiple examinations are implemented such as the patellar tilt test, patellar mobility test, and lateral patellar tracking to eliminate knee conditions that present in a similar manner. Factors that lead to PFPS include: increased Q angle, poor flexibility of hamstrings, hips, and quadriceps, muscle dysfunction, and femoral rotation. Such factors should be considered in combination with the age of the patient. PFPS is usually diagnosed after various other conditions have been ruled out such as: saphenous neuritis, intra-articular pathologies, patellar tendinopathy, peripatellar bursitis, and patellar stress fracture. Functional performance tests can be performed such as anteromedial lunge, single-leg press, and a balance and reach in order to assess mechanics of the lower extremities, but also to set a base line for rehabilitation. Additionally, X-rays, CT scans, and MRIs are usually utilized to provide a final diagnosis. **TREATMENT & RETURN TO ACTIVITY:** Treatment can be as simple as resting for an extended period of time and treating with ice. Other simple treatment options include: knee braces and sleeves, patellar taping to assist with the malalignment, foot orthotics to help correct rear-foot eversion, and pes pronatus while nonsteroidal anti-inflammatory drugs can help with the pain. Usually though, PFPS requires some form of physical therapy that improves tightness of surrounding muscles and ligaments. Exercises that focus on hip muscles, the iliotibial tract, quadriceps, hamstrings, and trunk stability can help with pain reduction and improved mechanics. When physical therapy has been attempted for at least a year with no improvement and pain management is inadequate, surgical intervention is considered. Such options can include the release or realignment of the lateral retinaculum, but is generally considered a last resort especially amongst younger patients.