STEVEN CHUDIK MD
SHOULDER, KNEE & SPORTS MEDICINE

# Patellofemoral Pain Syndrome

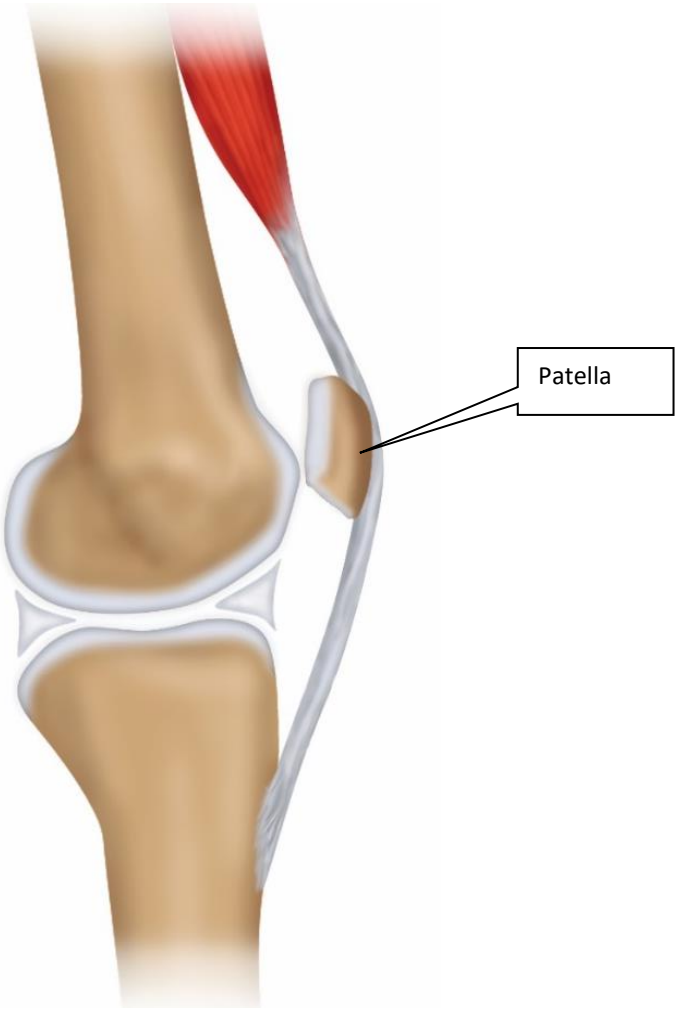
General pain located around the front of the knee is often referred to as patellofemoral pain, which relates to the patella (kneecap) and femur (thigh bone). This pain may be caused by overuse, excessive force, or instability of the patella due to weak and/or tight musculature. This condition is commonly found in young athletic females. Damage to the cartilage under the patella or soft tissues around the front of the knee may also cause a similar onset of symptoms. Patellofemoral pain most commonly results from improper hip and quadriceps strength, causing the patella to experience abnormal forces that result in pain and limitations.

## Frequent Signs and Symptoms

- Knee pain, usually in the front of the knee or behind the kneecap
- Pain that worsens with sitting for long periods, arising from a sitting position, going up or down stairs or hills, kneeling, squatting, or wearing shoes with heels
- Pain with jumping
- Giving way, catching of the knee
- Rarely associated with swelling after activity

## Etiology (Causes)

This condition commonly occurs in the young, athletic population. Mechanical abnormalities or poor patella tracking can occur in individuals with extreme leg malalignment. Injury to the cartilage surfaces from patella dislocation or other trauma also can lead to patellofemoral joint pain.




Lateral (side) view of the knee

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630-324-0402 ● contactus@chudikmd.com
stevenchudikmd.com

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## Risk Factors

- Age, growth, obesity, chronic instability, high riding patella or poor patella tracking
- Overuse in sports that involve running, jumping, or squatting
- Poor alignment of the legs (knock knees-kneecaps that point toward each other when the feet are straight ahead), poorly formed trochlea (something you are born with), flat feet
- Previous injury or surgery to the knee including patella fracture, dislocation, or cartilage injury
- Muscle weakness from incomplete rehabilitation following surgery or injury.

## Prevention

- Avoid activities with high shear stress or compressive force to kneecap
- Maintain appropriate conditioning:
  - Thigh, knee, and calf flexibility
  - Muscle strength and endurance
- Surgical options are available for patients with inherently poor patella position/alignment

## Outcomes

Patellofemoral pain generally responds well to conservative treatment with activity modification and a bout of formal physical therapy. The physical therapy focuses on improving mechanics, as well correcting muscular imbalances of the hip and quadriceps. This has been shown to offer relief for a considerable amount of time, allowing patients to return to most normal activities.

## Potential Complications

- Recurrent pain symptoms
- Impaired sense of balance and strength may lead to falls and or other injuries
- Increased swelling
- Weight gain and deteriorated health due to decreased knee function

## Treatment Considerations

Conservative treatment of the knee includes activity modification, physical therapy, medications, and injections. While it is important to use and move a painful knee, patients are

cautioned to avoid overuse. Keeping the activity level below the threshold of pain and aggravation will help to improve the symptoms and avoid further irritation. This process is often aided by attending formal physical therapy to learn how to maintain range of motion, strength and promote proper mechanics. Some patients also find it beneficial to wear a compressive knee sleeve to reduce swelling and comfort.

## Modalities (Heat and Cold)

- Cold is used to relieve pain and reduce inflammation for acute and chronic cases. Cold should be applied for 10 to 15 minutes every two to three hours for inflammation and pain and immediately after any activity that aggravates your symptoms. Use ice packs or an ice massage.
- Heat is used to increase blood flow, decrease joint stiffness, and reduce pain. Heat may be used before performing stretching and strengthening activities prescribed by your physician, physical therapist, or athletic trainer. Heat should be applied for 10-15 minutes. Use a moist heat pack.

## Notify my office if symptoms worsen