

## Knee Pain? It Might Be Patellofemoral Syndrome

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### **About patellofemoral syndrome**

Among all sports-related knee injuries, patellofemoral syndrome (PFS) is one of the most common. PFS is a general term for knee pain that occurs around the front of the kneecap, the patella. The word patellofemoral is a hybrid of patello (kneecap) and femur (thigh bone).

The knee pain is the result of soft tissue inflammation under or around the kneecap and is usually at its worst during activities that include exercising, walking down stairs or walking after sitting for a long time. It is also well documented that girls are more likely to experience patellofemoral syndrome than boys but it isn't clear why.

### **Causes of PFS**

The causes of PFS are wide-ranging and can sometimes be challenging to evaluate. Contributing factors may include excessive movement, or hypermobility, of the kneecap, changing its alignment at the joint. Flat feet (arches are flat), weak or tight hamstring muscles (back of thigh), weak or tight quadriceps (front of thigh) or weak gluteal muscles (buttock) may also contribute to this condition. PFS usually does not require surgery.

Research studies have looked at the knee joint itself and the muscles above and below the knee. These muscles stabilize and control the pelvis and thigh bone positions, the foot and arch positions, and their influences on the rotation of the shin bone.

Mounting evidence supports poor pelvis muscle control contributes to knee and leg malalignment and subsequent knee pain. If the pelvis or hip muscles aren't working correctly, the femur (thigh bone) will rotate inward. The body adjusts by rotating the kneecap outward to help the joint move better. As a result, the knee may look "knock-kneed" in a squatting position and the pain may appear at the inside or outside of the knee cap.

### **Treatment**

Often, this condition is best treated by seeing a sports medicine doctor, physical therapist or certified athletic trainer. Depending on the extent of your condition, treatment may include:

- Specific exercises for muscle strengthening of the hip, hamstrings, or quadriceps to correct or improve weaknesses or movement patterns that impact the knee. Best results are noted when athletes specifically strengthen the hip muscles on the side (gluteus medius) and buttock (gluteus maximus). This strengthening can help to correct the faulty inward rotation of the thigh bone.
- Temporary or long-term arch supports and education about proper footwear and training techniques to prevent re-injury. This can help correct the faulty rotation of the shin bone.
- Special taping of the knee cap once its current position is determined, to help improve knee alignment or "tracking"
- Rest and/or ice therapy to reduce swelling
- Assessment of jumping and landing techniques to ensure proper positioning and optimal use of muscles to stabilize joints and protect ligaments
- A home exercise program to continue strengthening and stretching exercises.

To find a qualified health care provider who specializes in sports medicine, visit [www.mnsportsmed.org](http://www.mnsportsmed.org). Minnesota Sports Medicine (MSM) is a network of sports and orthopedic physicians who treat athletes at medical clinics throughout the Twin Cities metro area. For more information about MSM, call 612-273-4800.