Patellofemoral Pain Syndrome

(Runner’s Knee)

Pronounced: Pa-tell-O-fem-or-al

by Maria Borowski, MA

En Español (Spanish Version)

Definition

Patellofemoral pain syndrome is a condition in which pain is felt under the kneecap of the knee joint. This pain occurs during exercise or movement, particularly during weight bearing activities such as running. It is often increased by going down stairs or down hills.

The pain is caused by abnormal movement of the patella, the kneecap. As the leg extends and flexes, the patella normally moves both up and down, and tilts slightly without touching the other bones of the knee.

In people with patellofemoral pain syndrome, the patella painfully rubs against the thighbone (femur) which forms the upper part of the knee joint. If you experience knee or joint pain during activity, call your doctor to determine what therapy is appropriate.

The Kneecap

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Causes

There is no single cause for patellofemoral pain syndrome. Rather, it can be due to a number of different factors or conditions. These conditions include:

- Malalignment of the knee joint—Malalignment of the knee joint is often caused by dysfunction in the feet. Patients who pronate (roll their feet out) when they walk pull the kneecap outward and out of line, causing painful rubbing of the kneecap against the bones of the knee. Rarely, malalignment occurs because the
Patella is located too high or too low in the knee joint.

- Weak anterior thigh muscles—The anterior thigh muscles, also called the quadriceps muscle, help to hold the kneecap in place as it moves. If these muscles are weak, they cannot hold the kneecap in the correct position and it can rub against the thighbone during movement.
- Overuse and overloading the knee joint—Overuse of the knee joint, especially from high-impact sports or activities can cause patellofemoral pain syndrome.

**Risk Factors**

A risk factor is something that increases your chance of getting a disease or condition.

The following factors increase your chance of developing patellofemoral pain syndrome:

- Any condition that causes misalignment of the knee joint, such as:
  - Flat feet
  - High arches
  - Hip dysfunction
  - Pronation when walking
  - External rotation of the lower leg
  - Knock knees
  - Participation in high-impact sports, such as running

**Symptoms**

The first symptom of patellofemoral syndrome is pain around or under the kneecap. The pain may first occur during high-impact activities, such as playing sports or going down stairs. As the condition worsens, the pain may be triggered by long periods of sitting. This is sometimes called “movie-goer’s sign” and it is thought to be caused by the pressure on the kneecap while the leg is flexed. Other symptoms include:

- Swelling of the knee
- Popping or grinding sounds in the knee joint during activity
- A snapping sensation in the knee

These symptoms may be caused by other, less serious health conditions. If you experience any one of them, see your physician.

**Diagnosis**

Your doctor will first ask about your symptoms and medical history. To rule out other disorders, your doctor may want you to have the following tests:

- X-ray of the knee joint
- CT or MRI scan of the knee joint

Your primary care physician may refer you to a specialist in bone and joint disorders, called an orthopedic surgeon. Since orthopedic surgeons are familiar with the development and injury of joints, they will be able to diagnose the cause of the pain.
Treatment

The initial treatment for patellofemoral syndrome is resting the knee. High-impact activities, such as running, should be exchanged for lower impact exercise, such as swimming.

Your physician may suggest that you apply ice to the painful kneecap after activity. Longer term treatment for patellofemoral syndrome involves a number of different strategies, including physical therapy, pharmacological agents to manage the pain, and external devices. Your doctor will help you decide which treatment or combination of treatments is best for you.

Exercise and Physical Therapy

Most people with runner’s knee benefit from strengthening the muscles around the knee. This includes the quadriceps muscle which runs down the front of each thigh. Physical therapists can recommend specific exercises that the patient performs each day to strengthen this muscle. While this treatment is very helpful, it can take 6 to 12 weeks to see an improvement in pain symptoms.

Pharmacological Treatment

Some people may benefit from nonsteroidal anti-inflammatory agents (NSAIDs). These agents, which include Motrin and Advil, may be helpful in relieving the pain, although it is often recommended that they are taken in conjunction with other strategies, such as physical therapy.

External Devices

Many people say that they find relief from knee braces or knee sleeves. These devices typically have a cut-out in the knee cap area, and are designed to hold the kneecap in place during activity. Some are designed to hold the patella from going too far laterally. Certain methods of taping the patella in position have also been helpful to many patients. Special shoe inserts, called orthotics, may also be helpful when the condition is due to dysfunction in the foot (as in flat feet or excessive pronation).

Surgery

In rare cases, people who do not respond to other forms of treatment may be recommended for surgery to correct malalignment of the patella.

Prevention

It may not be possible to totally prevent the development of patellofemoral pain syndrome, however, there are steps you can take to reduce your risk and avoid making the syndrome worse. These measures include:

- Proper warming up before exercising as well as stretching after warm-up and post-activity to prevent sports-related injuries.
- Varying the types of activities that you participate in; for example, rather than running or jogging every day, alternate between running and swimming if possible.
- Taking care of injuries immediately; this includes obtaining adequate first aid as well as resting the injury until it is healed before beginning an activity again.

RESOURCES:

American Academy of Family Physicians
http://www.aafp.org

American Academy of Orthopaedic Surgeons
REFERENCES:


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