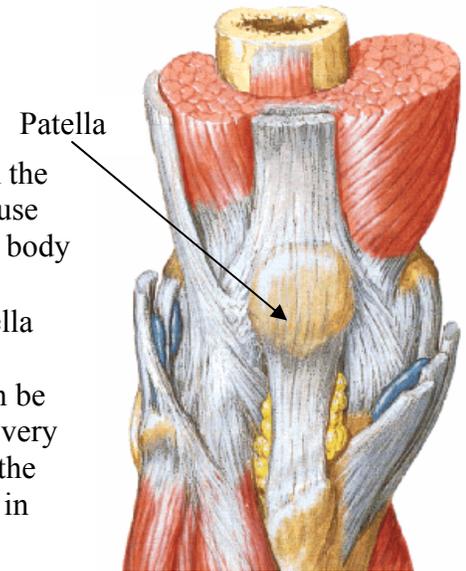


PATELLOFEMORAL PAIN SYNDROME (KNEECAP PAIN – “RUNNER’S KNEE”)

◆ What is it?

- ◆ Patellofemoral pain syndrome (PFPS) is pain that occurs between the patella (kneecap) and the femur (thigh bone). It occurs with overuse or when there is more pressure on the patella (kneecap) than your body can tolerate.
- ◆ As the knee bends and straightens, the thigh muscles pull the patella into its groove on the femur. The articular cartilage covering the surfaces of the back of the patella and the groove of the femur can be rubbed and irritated to the point that the bone beneath it becomes very painful. The more compression from movement with resistance, the greater the pressure that develops at this joint. With this increase in pressure, there is an increase in friction at this joint.



◆ Signs and Symptoms of this Condition

- Pain under, around, or on sides of patella.
- Pain and stiffness under the patella after sitting for a while then getting up to walk.
- Grating, grinding, cracking, popping, “Rice Crispies” feeling under the patella with knee motion.
- Pain in the patella area with running, climbing stairs, deep knee bending, or kneeling.
- Feeling like the knee locks or catches.
- Occasional swelling.

◆ Causes

- **Overuse** – too much, too often... long distance running, stair climbing, repetitive squatting, or kneeling.
- **Prolonged Pressure** – prolonged sitting with bent knees (office, car seat, plane seat)
- **Large Amounts of Force** – exercise that requires the knee to bend against a large force or weight such as knee extension machine / leg extension machine at the gym, deep/full squats at the gym, direct blow to the knee or a fall on the knee.
- **Type of Force** – pounding or jumping activities, downhill running.
- **Muscle Imbalance** – tight muscles (hamstring and calf) will cause decreased flexibility while walking/running forcing the patella to rub over a small area of the femoral groove leading to pain from excessive friction in a focal area. Weak or poorly toned muscles may not be able to adequately control the patella, allowing one area of the patella to be overused and get painful.
- **Improper Footwear** – running shoes that are not designed for long distance running (court shoes, cross trainer shoes) or running in shoes that are worn out. Running shoes need to be changed every 300-500 miles or 6-9 months. The first thing that should be done prior to returning to running after recovering from this type of knee problem is to get a new pair of running shoes.

- **Flat feet / Excessive foot pronation** – this alters the joint mechanics and contributes to patellofemoral pain.

◆ **What Can I do to Prevent Patellofemoral pain?**

- Appropriately warm up and stretch before exercise, practice, or competition.
- Allow time for adequate rest and recovery between exercise bouts, practices and competition.
- Maintain appropriate conditioning:
 - Cardiovascular fitness
 - Thigh and knee strength
 - Flexibility and endurance

◆ **Prognosis**

Acute patellofemoral pain will normally resolve in 6-8 weeks given sufficient rest from prolonged walking, running, jumping, and other aggravating activities. It will not improve by continuing to play, run, or work through the pain while continuing to run, jump, and perform the aggravating activities. Chronic patellofemoral pain (cases in which athletes continue to push through the pain with symptoms lasting longer than 6-8 weeks) can take 6 months or longer to heal.

Anti-inflammatory medication can also help in resolving this condition.

◆ **Treatment**

- Rest – NO running, jumping, knee/leg extension machine, stair machine, or biking for exercise.
- Anti-inflammatory medication (aspirin, ibuprofen, etc) may be helpful in reducing both pain and inflammation.
- Calf and hamstring stretching (hold each stretch 30 seconds, repeat 2-3 repetitions, 2 times per day).
- Quadriceps strengthening through isometric quadriceps setting 10-15 reps every hour throughout the day (see below), straight leg raises 3 sets of 10 reps twice a day (see below), PAINFREE partial squats (45 degree knee bend going down quickly [in 1 second] and up slower [2 seconds], 3 sets of 10 reps once to twice a day (see below).
- Change to a new pair of running shoes if indicated.
- SLOWLY progress back into jogging by alternating between walking and jogging every other day with a gradual increase in jogging distance and decrease in walking distance until performing straight jogging. See Walk-to-Jog program on this same website for instructions.

