

Knee pain

Frequently I see patients whose major complaint is knee pain. When they ride a bicycle or walk on stairs, or stand up from a chair their knee(s) hurts a lot. Their leg muscles feel so weak that they will be unable to walk. They are sure their knees have developed severe arthritis since there is grating and popping as they walk or bend their knees. In medical terms the problem is patella-femoral syndrome or chondromalacia patella, a form of arthritis. However, the problem is due to an *imbalance in the quadriceps muscle*.

The knee cap or patella connects by a thick ligament to the bony knob on the front of the shin-bone (tibia). There are four strap muscles (the quadriceps) on the front of the thigh. They attach to the top of the knee cap. When activated they pull on the knee cap which in turn pulls on the shin bone straightening the lower leg.

On the underside of the knee cap is a ridge that lines up with the shin and thigh bones. This ridge runs in the valley between the two knobs at the thigh bone lower end. Straightening the bent knee works smoothly and well as long as the knee cap ridge rides centered. The underside of the knee cap will rub if the knee cap tracks toward the inside or outside during straightening. Over time the cartilage under the knee cap wears down. It's roughening produces popping, grating, and pain whenever the knee is straightened. This is the patellofemoral syndrome or chondromalacia patella. The source is a muscle imbalance in the four muscles of the quadriceps. If the middle two strap muscles are stronger than the lateral straps, the knee cap will move inward toward the other leg. If the knee cap moves toward the outside, the lateral strap muscles are stronger.

It is easy to correct this knee problem. The fix is at least semi-permanent. We use an exercise that rebuilds the weaker part of the quadriceps. If your knee cap rides to the outside of the leg:

1. Place a one or two pound weight on your foot (a shoe weighs at least a pound).
2. Sit on a surface high enough so that your feet are off the floor.
3. Roll your thigh outward so your ankle is closer to your other leg.
4. Holding this position, swing your foot and lower leg back and forth.
5. The target is fifty swings a day for two weeks. After two weeks the quadriceps muscle should be balanced and the knee cap should track properly.

If your knee cap tracks toward the other knee start in the position given in steps 1 & 2 above:

1. Roll the thigh inward so the ankle is outside of the thigh.
2. Do fifty front to back swings a day for two weeks.

Do not continue the exercise longer than two weeks or the knee cap may start to swing to the opposite direction. In more than twenty years of medical practice this strategy has been successful in dealing with this type of knee pain virtually every time.



Richard L. Van Buskirk D.O., Ph.D., FAAO

Specialist in Neuromusculoskeletal Medicine