

By Scott Gillman/Daily News Correspondent

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## **SPINE AND SPORTS: Patellofemoral knee pain is treatable**

Pain in the anterior knee is especially common in running and jumping athletes. One cause of anterior knee pain is when the kneecap (patella) drags aberrantly over the knee during running and jumping activities. The syndrome may be of pain, giving way, or swelling, all associated with activity. It is termed patellofemoral, relating to the location where the patella contacts the knee at the end of the femur bone, and its function of gliding smoothly and evenly in a groove over the bone.

Running and jumping is a natural activity for us bipeds, and when all parts are healthy and working well, there's no harm in them. Patellofemoral pain can develop as a result of repetitive or accumulative strain to the tendons, ligaments and membranes of the patella caused by faulty joint mechanics.

Research has shown that overpronation (rolling inward) of the arch of the foot will lead to knee pain upon landing after each stride or jump. If you overpronate, meaning that your ankles roll inward and your arches flatten, consider a more stable shoe and pair of quality foot orthotics.

It is presumed that weak quadriceps can cause patellofemoral pain, but the problem really stems from weak hamstrings or hip rotators. The hamstrings attach from your pelvis to the back of the knee by way of the tibia and fibula of your leg. Upon landing, the hamstrings engage and keep the shin from sliding forward on the femur. If not, then the shin glides forward, tugging the patella and tendons. Also, the hip has a "rotator cuff" similar to the shoulder, and if the hip rotator cuff is weak, it will allow the thigh and knee to bow inward during the running cycle every time the foot hits the ground. This causes a tugging of the tendons and ligaments at the front and inside of the knee which drags the patella out of its normal track. When ham and butt muscles are strong, they help stabilize the knee and keep the patella tracking straight.

Two other factors, each predictors of patellofemoral knee pain, are loss of pelvic motion and loss of ankle motion. Knee movement is affected by the movement of the joints above and below, so if the pelvis (above) and ankle (below) gets stiff or stuck, the knee has to make up for it with altered or compensatory movements.

Treatment options may include joint manipulation to the ankles and pelvis, soft tissue mobilization techniques to the knee and surrounding structures such as FAKTR™ or active myofascial release technique, application of kinesiology tape and strength training prescription. Home care strategies include foam rolling the quads, hip, ham and butt muscle exercises, and using a quality foot orthotic, e.g. Power Step or ALINE brands.

Any professional with training in functional joint movement can assess the knee and locate areas of weakness. However, the certified sports chiropractor is best trained to treat the knee, paying close attention to improve the kinetic chain joint-systems affecting the knee such as the pelvis and ankles, and diagnosing and ruling out any other problems.

Find the right provider. Patellofemoral knee pain is treatable and often easy to resolve.

*Scott Gillman is a doctor of chiropractic in Natick, in practice since 1991. He is also a chiropractic sports medicine specialist with a Diplomate from the American Chiropractic Board of Sports Physicians. He can be reached at 508-650-1091 or through [www.drgillman.com](http://www.drgillman.com).*



Scott Gillman