

Why Does My Knee Hurt? A Look at Anterior Knee Pain in Young Athletes

Anterior knee pain, or pain near the front of the knee, is one of the most common types of knee pain in athletes of all ages. For young athletes this is no exception, and there are some unique causes to know about. One thing that all of these causes of anterior knee pain have in common is that they are usually **OVERUSE INJURIES** and can be treated and prevented without surgery.

Apophysitis. The apophysis is one of the areas of growth cartilage in the bone. During times of growth, the apophysis becomes very active. At the same time, there are increasing imbalances between the rapidly growing bone, and the tighter and more inflexible muscles and tendons that attach onto the apophysis. This scenario, combined with a child who is active, makes the knee more susceptible to inflammation or injury.

The two most common apophyseal areas to become inflamed and cause "growing pains" are at the tibial tuberosity, or the bump at the front and top of the shinbone or tibia, and at the bottom edge of the kneecap or patella. When the tibial tuberosity becomes inflamed, and sometimes even becomes enlarged, it is called Osgood-Schlatter Disease. It is usually tender to touch or to kneel on the knee. In addition, activities that require forceful running and jumping or squatting cause pain. When the apophysis at the bottom of the patella becomes inflamed, it is called Sinding-Larson-Johansson, or SLJ syndrome. SLJ is also tender to touch, and hurts with jumping, running and kneeling.

Patellar and Quadriceps Tendinitis. These two types of tendinitis also occur in the setting of repetitive, forceful contractions of the quadriceps or thigh muscles. Erratic exercise, poor conditioning and flexibility, or over-aggressive training all contribute to this problem. Some examples might include doing certain exercises before good baseline conditioning, strengthening and flexibility have been achieved. Some of the more common offenders include squats, plyometrics, and hill or stair running. For patella tendinitis, a patella tendon strap can provide relief of symptoms while healing and rehabilitation is taking place.

Patellofemoral syndrome (PFS). PFS is one of the most common causes of anterior knee pain in all ages. It is felt to be caused by subtle maltracking of the patella as the knee moves from flexion (bent) to extension (straight). There are several other risk factors associated with PFS, although recent research is challenging some previous notions about this problem. Thus, it remains a very common, somewhat misunderstood, but treatable cause of anterior knee pain.

Many times, athletes complain of painful "crunching" around or beneath the patella. Pain may also be associated with running, stair climbing or after prolonged sitting. Treatment is directed toward improving patellar tracking by strengthening the inner thigh muscle. There are some knee braces available for especially symptomatic patients but this is no substitution for proper rehabilitation.

SO WHAT CAN I DO ABOUT IT?

Stretch, stretch, stretch! Often times one of the major factors contributing to overuse injuries is inflexible muscles. Athletes need to pay particular attention to stretching the muscles surrounding the knees and hips; specifically, hamstrings, quadriceps, hip flexors, piriformis, and calf muscles. Hold each stretch steadily for 30 seconds and repeat each 3 to 4 times.

There are also some basic strengthening exercises that can help decrease anterior knee pain:

1. **4 Way Straight Leg Raises:** Lie on back, tighten thigh muscles and straighten injured leg. Slowly raise straightened leg 12 to 18 inches and lower down to starting position.

Rotate onto one side and repeat the straight leg raise in that position. Rotate to lying on stomach and repeat, then to other side and repeat straight leg raise. Perform 3 sets of 10 to 15 repetitions in each of the four positions.

2. **Wall Slides:** With your back against the wall and feet placed approximately 2 1/2 shoe lengths away from the wall, place a ball (soccer, basketball, volleyball) between the knees and slide down the wall until knees are bent at a 90 degree angle. Hold for 5 seconds, and perform 3 sets of 10 to 15 repetitions.
3. **Step Downs:** Stand on a 3 to 4 inch high step (i.e. Columbus Yellow Pages) on the injured leg. Slowly bend (squat) injured knee until opposite heel touches the ground, and then return to the original position (injured knee straight). Perform 3 sets of 10 to 15 repetitions.

Performing these exercises one to two times per day can help to reduce symptoms and get you back in the action. Flexibility and strength will improve faster with a little persistence and dedication to preventing and treating overuse injuries.

Consult your primary care physician for more serious injuries that do not respond to basic first aid. As an added resource, the staff at Children's Sports Medicine is available to diagnose and treat sports-related injuries for youth or adolescent athletes. Services are now available in four locations, to make an appointment, call 614-355-6000.