

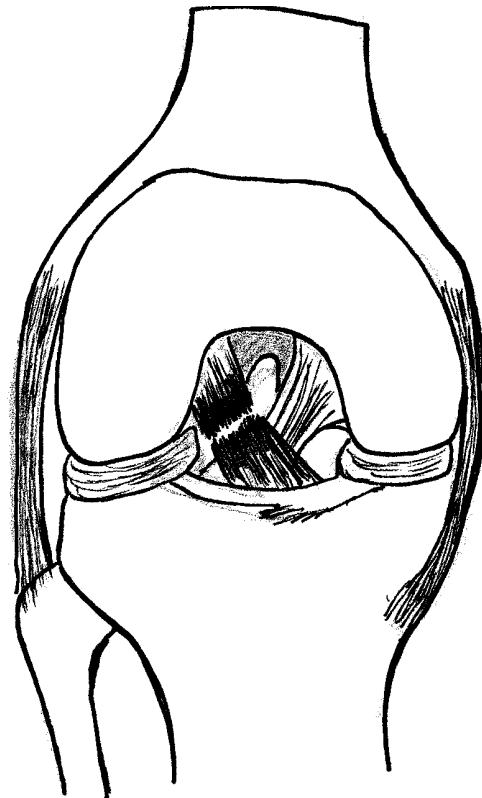
Anterior Cruciate Ligament Sprain

BRIEF DESCRIPTION: The anterior cruciate ligament (ACL) is one of a pair of ligaments that form an “X” running from the front to the back of the knee joint. The ACL connects the tibia to the femur at the center of the knee. Its function is to limit rotation and forward motion of the tibia.

MECHANISM OF INJURY: The ACL is usually torn as a result of a quick deceleration, hyperextension, or rotational injury that usually does not involve contact with another individual. The most common mechanisms of injury for the ACL are changing direction rapidly; stopping suddenly; slowing down while running; landing from a jump; and direct contact or collision, such as in a football tackle causing hyperextension or being hit on the front/lateral aspect of the knee. When hit from the side, injuries to the ACL are often associated with medial meniscus and tibial collateral ligament tears, collectively known as “O’Donoghue’s Unhappy Triad.” In adolescents, the ACL may avulse (tear away) from the tibia instead of rupturing. One of the telling signs of damage to the ACL is the rapid onset of swelling of the knee following the injury.

SYMPTOMS AND SIGNS: Pain is the primary symptom with an ACL tear. The prominent sign is significant swelling that occurs within the first 24 hours.

It is very important to achieve early evaluation of this injury. If the athlete reports an audible “pop” in his/her knee, an anterior drawer test should be performed as soon as possible because of the imminent swelling. This test, known as the Anterior Drawer Test is performed by testing both knees as they are flexed to 90 degrees. With the foot stabilized and in neutral rotation, a firm but gentle grip on the proximal tibia with both hands is achieved. The examiner’s fingers should be in contact with the back of the knee and his/her thumbs on either side of the tibia at the joint line. The examiner then pulls forward as if opening a drawer. If the tibia can be felt to slide forward on the femur, this is considered to be a positive test and



is indicative of damage to the ACL. The non-injured knee should always be examined with the same test first to give the examiner a reading of what is normal for the athlete. If the test is positive, the knee will need to be examined by an orthopedic surgeon specializing in sports injuries.

It is extremely important, if an ACL sprain is suspected based on the signs and symptoms available, to have the athlete’s knee evaluated by an orthopedic surgeon as soon as possible because of the profuse swelling that will occur during the first 24 hours post-injury. This swelling could hamper clinical evaluation test and x-ray evaluation.

In the meantime, treatment with PRICE — Pro-

tection (crutches, knee immobilizer, etc.), Rest, Ice, Compression (ace wrap) and Elevation — to minimize swelling and discomfort.

INJURY MANAGEMENT: A partial tear of the ACL may or may not require surgical treatment. A complete tear is a more serious injury. Complete tears, especially in younger athletes, may require reconstruction. Both nonsurgical and surgical treatment options are available for ACL injury.

Nonsurgical treatment may be used because of an athlete's youth. It may be recommended if the overall stability of the knee is intact. Nonsurgical treatment involves a program of muscle strengthening, often with the use of a brace to provide stability. Activities should be modified to limit cutting or pivoting movements.

Arthroscopic surgery may also be an option for treating this injury. Surgery involves reconstruction of the damaged ligament using a strip of tendon from the patient's knee (patellar tendon) or hamstring muscle. Surgery is followed by an intense exercise and rehabilitation program to strengthen the knee stabilizing muscles and restore full joint mobility.

It is extremely important for the athlete not to try to do

too much too soon as this could weaken the reconstructive repair and either lengthen the healing time or produce a result that is less than originally predicted. The knee must be rested, therapeutically exercised under supervision and activity grossly limited until cleared to return to activity by the physician. Rehabilitation exercises should then be continued on a lifetime basis by the athlete to insure the strongest knee possible.

COURSE OF HEALING: If an orthopedic surgeon deems that the injury does not require surgery, but rather rest and strengthening of the stabilizing muscles around the knee (quadriceps and hamstrings), lost time from activity could be as little as four to six weeks. Some orthopedics recommend the use of a derotation brace for use when returning to activity.

If surgery is performed, lost time from activity and rehabilitation will take up a great deal of the athlete's time for the next six to 12 months. Rehabilitation for a surgically repaired ACL should actually never end as it will be important for the rest of the athlete's life to maintain strength in the secondary stabilizers of the knee. A brace is often required for the athlete upon return to training or competition.