

Fit Facts™

FROM THE AMERICAN COUNCIL ON EXERCISE®

How to Prevent and Treat ACL Injuries

MENTION AN ANTERIOR CRUCIATE

ligament (ACL) injury to any professional athlete, and he or she is likely to shudder. Athletes with such injuries often spend months on the bench and in the physical therapy room. Jerry Rice suffered an ACL injury in 1998 when he was a wide receiver for the San Francisco 49ers, as did Tony Boselli in 1999, when he was an offensive tackle for the Jacksonville Jaguars.

The ACL is one of four ligaments that serve as a main stabilizer of the knee. It is located between the bottom of the femur or thigh bone, and attaches to the top of the tibia or shin. While you use the ACL for any activity involving your lower extremities, it's most essential for starting, turning and stopping quickly. Squash, basketball, tennis, football, racquetball and downhill skiing all require such movements.

Because the ACL is made of slightly elastic, fibrous tissue, part of this ligament can tear—or completely rupture—if it's overstressed. Generally speaking, you can injure your ACL in one of two ways. Direct trauma to the ligament from a hard fall, a car accident or a tackle in football can cause a serious tear or rupture. You can also injure the ACL in the course of playing a sport or even during day-to-day activities if you rotate your body and twist while your foot is still planted on the ground. For example, you twist quickly to catch a pass in basketball or to grab a child darting out into the street—and injure your ACL in the process.

Females at Greater Risk

National Collegiate Athletic Association injury data show that female athletes injure the ACL more frequently than male athletes. The injury rate for female soccer players, for example, is more than twice as high as that for men. Women basketball players are five to seven times more likely to sustain ACL injuries as men.

Some studies suggest that hormonal factors

may be involved in the higher rate of ACL injury among women. When estrogen levels are higher, the ligaments may be looser and offer less protection. Additionally, a woman's ACL may be smaller than a man's, which may make it more susceptible to fraying or becoming injured. Some suggest that relatively weak hamstrings may also pose problems for women. When the hamstrings contract they help stabilize the knee, so if the hamstrings are weaker or don't activate fast enough, injury may result. Anatomic alignment differences, especially the quadriceps angle (Q-angle), have been cited as the cause of the higher ACL injury rate in women, but this has not yet been confirmed by the research.



Prevention

Unfortunately, no single exercise can prevent injury to the ACL. The good news is that you can give yourself some protection by developing and maintaining strength and endurance in your lower extremities. To promote stability in the knee, perform closed-chain exercises (e.g., leg presses, squats, lunges) as part of your strength-training program. Also, do some cross-training in your cardiovascular workout with the stairclimber, stationary bike, elliptical crosstrainer and the ski machine.

You can also avoid an ACL injury by preparing for your favorite sport in the preseason. Plan for at least four weeks of endurance training before your basketball, tennis, or racquetball league begins, or prior to ski season.

Also: Have fun, but be sensible when playing your sport. Whenever you find that you must stay away from your regular routine for two or three weeks due to travel or illness, ease up for several workouts to give your body time to recondition.

RICE is Key to Treatment

Should you injure your ACL, you'll know it without question. Both the discomfort and the swelling in your knee will be significant. Your knee will also feel unstable, as if it can't hold your weight. The pain you feel is guaranteed to stop you from continuing your activity.

Follow the RICE procedure immediately—Rest the muscle, apply Ice, use an Ace bandage for Compression and Elevate the leg above your heart to prevent or minimize swelling.

See your doctor as soon as possible for a diagnosis and proper treatment. In most cases, he or she will be likely to prescribe anti-inflammatory medication to reduce swelling. If you have suffered a serious tear or a rupture, rehabilitation may take several months, especially if surgery is indicated.

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