ACL Injuries

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Over the past 25 years that I have been involved in treating sports injuries, I have seen great advancements in the surgical repair of injuries. A good example of this is the repair of the Anterior Cruciate Ligament (ACL).

The tearing of this ligament used to end or severely limit participation in any stop and go sports for both professional and recreational athletes. Thanks to advances in surgery and rehabilitation, this is no longer the case. In fact, most people are now able to return to their previous level of function. Today we will discuss the function of the ACL, and what surgical techniques are available to repair it when injured.

First a little anatomy. Ligaments are tough, relatively inelastic tissue that connects bone to bone. They contribute to the stability of our joints. The ACL ligament is found at the center of the knee joint, and connects the femur (thigh bone) and the tibia (shin bone). It provides the primary stabilization of the knee during active motion. A ligament injury is referred to as a sprain, and is graded from mild (grade 1), moderate(grade 2, partial tearing), to severe (grade 3, or torn) Typically, this ligament is injured with an abnormal twisting motion at the knee.

An example of this is when a lacrosse player goes to change direction, and his foot "sticks" while his body continues to twist. Many times this twist is accompanied by an audible "pop" at the knee. The degree of disability at the time of injury may range from not being able to bear weight on the leg, to in some cases, the person continuing with their activity. In grade 2 or 3 injuries the knee usually becomes very stiff and swollen within 24 hours. A follow up with an orthopedic surgeon is needed to determine the extent of your injury. This will usually include an office examination and possibly an MRI (to determine the grade of injury and identify any other injured structures).

If your ACL is torn, the frayed ends cannot be simply sewn back together. The most common way to repair the ACL is using a graft made from your patella tendon (the tendon just below your knee cap), pieces of bone and screws. The orthopedic surgeon will drill tunnels into the knee joint and place the graft where your old ACL used to be. The pieces of bone and screws are used to secure the graft

Dr. Marc Fineberg at the University at Buffalo's Sports Medicine Institute tells me that one of the most important parts of this process is correct tunnel placement. At UB Dr. Fineberg is investigating the use of a computerized navigation system that may lead to even better outcomes for ACL surgeries.

The other methods of ACL repair are the hamstring tendon graft and a donor graft from a cadaver. Each technique has pluses and minuses, and your orthopedic surgeon will help to guide you through the selection of the right repair for you. After surgery, expect anywhere from 4-6 months of rehab before a return to high-level activities or sports. This time may vary depending on your surgeon, the technique used, your age, fitness level, and severity of your injury.

Initial therapy will focus on regaining range of motion, decreasing swelling, and walking with crutches. Functional exercises including lunges, squats, balance training, hopping and jumping drills, etc, will be utilized to get you ready for sports participation. Don't be surprised that when you first return to playing sports, that your knee doesn't feel completely right. In my experience, it takes people almost a full year to feel completely fit both physically and mentally

Another question that researchers are looking at is how to prevent ACL injuries, especially in our young athletes. Though there is no one general consensus at this time, it seems that athletes will benefit from a training program that includes hopping and jumping type drills, core strengthening, and balance activities, and not just focusing on traditional leg machine exercises.