

Pop Goes the ACL

The ACL, or anterior cruciate ligament, sits deep inside the Knee , and connects the top of the shin bone, the tibia, to the bottom of the thigh bone, the femur. A ligament is a rubbery piece of connective tissue, primarily made up of collagen, that connects one bone to another, and the ACL is about the size of your pinky. Interestingly, ligaments do contain nerves, which are thought to send feed-back signals to the brain, so the brain can "know" where each bone is in relation to one another and to the other structures of the lower extremity. This becomes very important when the ACL is torn, and the "wires" to the brain are cut.

The ACL gives stability to the knee by keeping the tibia and femur in close approximation when the knee flexes and extends (bends and straightens). It prevents the tibia from moving too far forward off the femur, and it also limits the rotation of the knee. At one point not considered an important part of the knee joint, we now know that the ACL is one of the most important ligaments of the body.

Most people who fall and feel or hear a "pop" coming from their injured knee have torn their ACL. Another important clue, in addition to the "pop", is a feeling of instability when they try to put weight on the injured leg. Pain is not always present, particularly after the initial "pop". Swelling usually occurs immediately, and will worsen over the next 24 to 48 hours.

The diagnosis of an ACL tear is made by demonstrating that the injured knee has abnormal motion. Several simple, relatively non-painful tests can be done to easily tell if this is the diagnosis. Putting together the examination with the mechanism of injury, the "pop", any feeling of instability, and the rapidity of onset of swelling helps us correctly make the diagnosis. X-rays are very important to rule out a fracture of the bone, or to document a tell-tale Segond's fracture on the outside of the knee that occurs in conjunction with some ACL tears. Finally, how the knee feels once it is held in a dynamic brace gives the final clue that adds up to a torn ACL.

There are many falls and other types of injury that will tear an ACL. Several of these fall patterns have been studied by a group in Vermont called the Vermont Safety Council, and some important ways of preventing an ACL injury have come out of their observations.

We have a video showing types of falls that tear ACL's. The bottom line is that knowing how to avoid this injury (short of not skiing) is the best thing you can do.

note This article was plagiarized from an article by Dr. Jeff Daniels of Big Sky Mt.*