ANTERIOR CRUCIATE LIGAMENT

The Anterior Cruciate Ligament (ACL) is the primary restraint to limit anterior translation of the tibia. The ACL also serves as a secondary restraint to tibial rotation and varus/valgus angulation at full extension. Since the relationship between the tibia and femur provides little bony stability, the ligamentous structures must provide stability. When the ACL is injured, a combination of anterior translation and rotation occurs.

What are the signs and symptoms of an ACL injury?

- "Pop" - Many patients, but not all, will hear or feel a "pop" when the ACL tears.
- Immediate onset of swelling - This is an indication that there is bleeding from the injured ligament.
- Pain - Most patients experience quite a bit of pain with an ACL injury.
- Instability - Patients often describe a buckling or unstable sensation in the knee.

The three grades of ACL injury range from mild to severe.

- Grade I - Trauma to the ligament is relatively minor. Some of the fibers are stretched. This is considered a "sprain".

- Grade II - Trauma to the ligament is more severe. Some of the fibers are torn. This is called a "partial tear".

- Grade III - This is the most severe ACL injury. The fibers of the ligament are completely torn. It is referred to as a "complete tear".

How is an ACL injury diagnosed?

Orthopedic surgeons rely on a focused history and physical exam to determine if an ACL injury has occurred. Often a Magnetic Resonance Image (MRI) is ordered to further evaluate the ACL, menisci, other ligaments, bone bruises, tendons and articular cartilage.

Surgical Treatment is generally recommended especially for athletes, active individuals and those with multiple injured ligaments. Dr. Stidham is fellowship trained in sports medicine. He has significant interest and experience dedicated to treating ACL injuries that is reflected by his subspecialty training.

Reconstruction of the Anterior Cruciate Ligament (ACL)

The Anterior Cruciate Ligament (ACL) is a ligament in the center of your knee that becomes damaged when twisted too far, such as in a skiing injury.

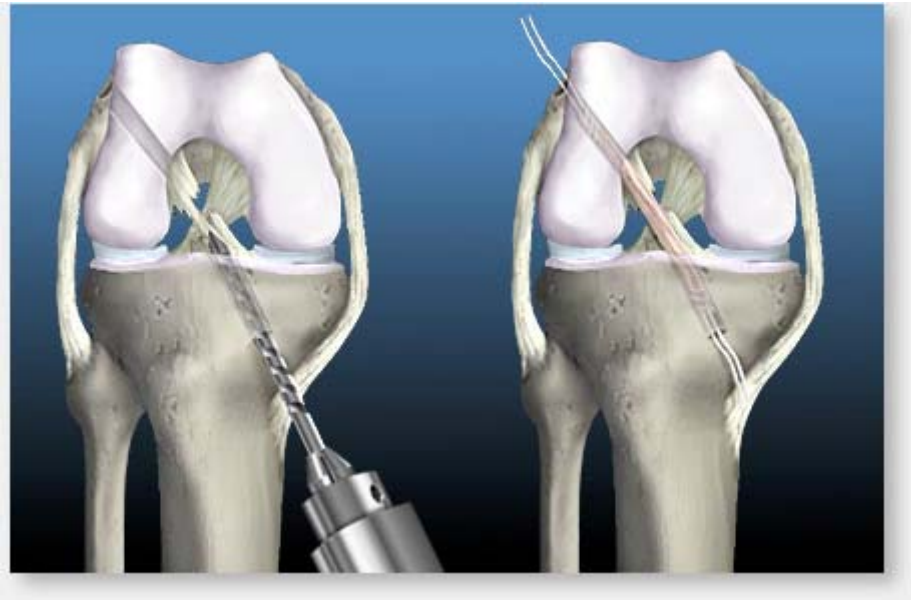
ACL Reconstruction is performed using a combination of open surgery and arthroscopy.

The ACL shown above is healthy and firmly attached to the femur and tibia.

To the right is a badly torn ACL which will need to be reconstructed.

Before the ACL reconstruction process begins, your surgeon will examine your knee arthroscopically, and repair any additional damage to the knee, such as a torn, meniscus or worn articular cartilage.

Reconstruction of the ACL begins with a small incision in your leg where small tunnels are drilled in the bone (below, left).



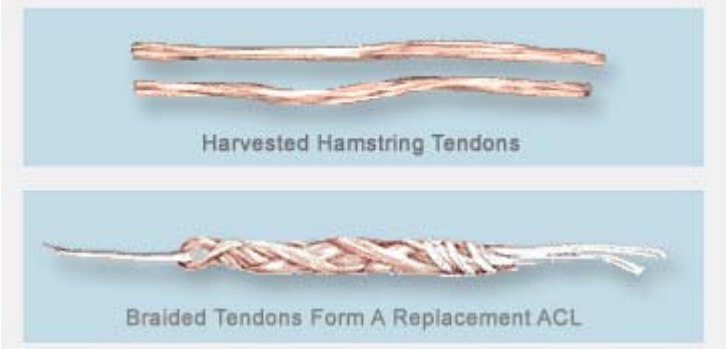
Next your new ACL is brought through these tunnels, and then secured. As healing occurs, the bone tunnels fill in to secure the tendon.

More on ACL Reconstruction

There are three methods of creating a replacement ACL. The first, shown right, uses the patellar tendon, which connects the patella to the tibia.

The middle third of the tendon and a small portion of bone on either end is harvested and used as the new ACL. This is called a patellar tendon autograft, because your own tissue is used.

Another autograft method uses the semitendinosus-gracilis (hamstring) tendons, which connect muscles in the back of the thigh to the lower leg. Two small portions of these tendons are harvested and removed through a small incision in your leg, then they are looped to form a strong new ACL.



The third method of creating a replacement ACL uses an allograft, meaning the tendon comes from a source other than your own body, such as a donated achilles tendon.

Source : SCOI