

ACL Reconstruction: “Technical Advancement Leading to Improved Patient Outcome and Return to Sports in Athletes”

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Opinion

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Years ago Anterior cruciate Ligament (ACL) was a career ending injury in Elite athletes, with advances in technology, surgical procedure, and rehabilitation an Elite athlete has an excellent chance of returning to high quality sports participation.

ACL reconstruction has undergone improvement in techniques and instrumentation over last decade. There has been shift from Trans-tibial to Trans-portal, and further on to advent of ALL INSIDE Technique.

All-Inside” ACL reconstruction is the most advanced, minimally invasive ACL reconstruction technique available today. Being the most minimally invasive technique out there, all-inside technique allows for perfect replication of the patient’s own anatomy by putting the new ACL exactly where it was intended to be. This is not possible with older, more traditional techniques that is still use today.

Technical Note

ACL surgery requires the replacement of the ACL with a tendon graft. These tendon grafts can be harvested from the patients’ knees (autografts) or cadaveric grafts (allografts) can be utilized. Arthroscopic advancements allowed the procedures to become less invasive. But these procedures have still been quite painful and have involved lengthy recuperations. A new procedure brings the promise of less pain and scarring. This most minimally invasive ACL surgery is termed All-Inside ACL Reconstruction.

In order to understand all-inside ACL surgery, a brief discussion of traditional ACL techniques is warranted. To reconstruct ACL with a tendon graft, it has been necessary to drill a socket in the femur at the origin of the ACL. The ACL graft is inserted into this socket and then securely fixed to this origin with a variety of fixation devices. Then, a tunnel has to be drilled in the proximal tibia from the outer tibial cortex and into the knee joint. This requires a small yet formal incision. This tunnel exits at the insertion of the ACL on the tibia. The tendon graft is then tensioned and securely fixed on the tibia.

This full tibial tunnel that is drilled can be related to significant source of pain in ACL surgery. This tunnel violates the tibial cortex by drilling a hole in it that is often seven to nine millimeters in diameter. Great deal of pain is related to the periosteum over the area which is pain sensitive. These issues have been negated by the development of all-inside ACL reconstruction.

With all-inside ACL reconstruction, full tibial tunnel is not created, instead a special reamer has been designed to allow creation of a tibial socket. This socket begins in the joint and stops short of coursing through the tibial cortex. A set of special instrumentation has been developed to accomplish this completely arthroscopic ACL reconstruction. The procedure requires no formal incisions. It requires only four small arthroscopy incisions. These are typically five to seven millimeters in diameter.

Advantages

- Less pain
- Quicker recovery
- Smaller scars – only 4 keyhole sized incisions are needed
- Instrumentation specifically designed facilitate a more predictably anatomic acl reconstruction
- More normal knee motion and function
- Excellent stability

Disadvantages

- Increased costs due to the special instruments
- Technically demanding with learning curve for sugeon

In summary, all-inside ACL reconstruction is a new and advanced arthroscopic technique that provides the least invasive approach to ACL reconstruction. It offers anatomic more predictable and anatomic ACL reconstruction, lesser postoperative pain and great cosmesis.