



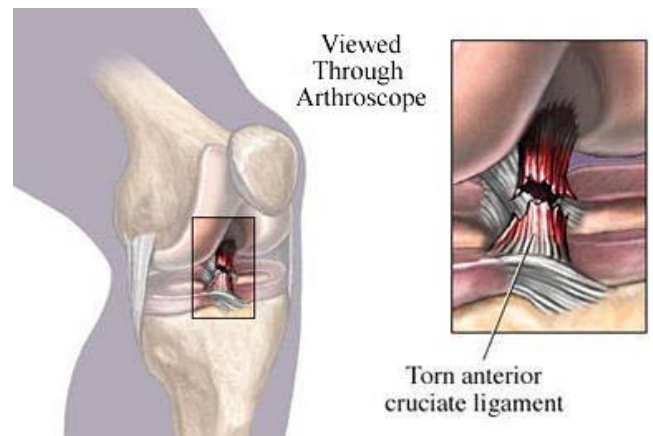
Patellar Tendon Autograft vs. Hamstring Autograft in ACL Reconstruction Surgery

Marisa Gulizia, DPT, PT

The Anterior Cruciate Ligament is also known as the ACL. When this ligament is tested, violated and torn secondary to a trauma, direct contact, quick change in direction or an awkward landing, sometimes the only way to fix it is by surgery.

Two of the main techniques to surgically fix an ACL rupture are: The Patellar Tendon Autograft and The Hamstring Autograft. The “gold standard” is using a graft of the patient’s patellar tendon (tendon that starts at the kneecap and runs down to connect to the front of the tibia). The graft consists of the middle third of the patellar tendon which is then cut down from the patella to the tibia (bone to bone) on the injured, ACL deficient knee. Next they attach the tendon strip using bone “plugs” in the appropriate position that would mimic the old ACL.

The other procedure uses the patient’s semitendinosis/gracilis tendons (located in the inside and back compartment of the knee) as the ACL graft. The surgeon will make an incision along the medial side on the tibia (this incision will be used later for tunneling the graft into the appropriate position) to cut and pull out the tendons. Next, the surgeon will use bone “plugs” to fixate the graft in the natural position for an ACL.



There are pro’s and con’s to each technique. The “gold standard” patellar tendon graft has been known to exhibit the highest tensile force (how much load it can handle prior to tearing) at approximately 2900 Newton versus the normal ACL at approximately 1725 Newton and the semitendinosis graft at approximately 1200 Newton. However, the trade-off is increased risk of anterior knee pain, knee extension deficits and osteoarthritis. This could pose a problem for athletes or any active individual.

On the flip side, with the hamstring autograft there is a potential for hamstring weakness (however some evidence suggests that these tendons can regenerate). Research has shown that using four strands of the hamstring autograft demonstrates very similar strength and stability as the patellar tendon autograft. Research results have shown less knee pain and range of motion deficits with the hamstring autograft.

A final note, the outcomes of surgery depend on the individual, the surgeon’s technique, the quality of the graft and physical therapy results.