

ACL Reconstruction

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Why you probably shouldn't have a LARS graft

I was recently consulted by a 23 year old athlete who was 9 months post ACL reconstruction using a LARS (artificial ligament) graft. He had completed his rehab elsewhere & was looking to return to competition. He had been advised the LARS was the best option for him, & he had invested a lot of time in his rehab. He was undertaking a programme to assist his return to sport. One day during training, while simply running in a straight line, he ruptured his LARS graft. After several months of hard work, he was back to square-one.

Background

The Ligament Augmentation Reconstruction System (LARS) is a synthetic material made of polyethylene terephthalate (PET). Artificial ACL grafts originated in France in the 1970's, but high failure & complication rates led to the International Knee Society recommending against their use in 1992. They have remained in common use in France, particularly for posterior cruciate ligament reconstruction, but with reported high failure rates. The LARS is a more recent innovation, and has been used quite extensively in Australia and other parts of the world over the past 10 years. Those who recommend it claim the following advantages:

1. High strength from the time of implantation.
2. Because a graft isn't harvested from another part of the body, there isn't the need to also recover from the graft donor site trauma.
3. Earlier return to sport (minimum of 3 months compared to 6 months for reconstruction using a human tendon graft).

Until recently, the medium to longer-term follow-up

results of LARS procedures were not available. However (not surprisingly) the evidence is now starting to mount against use of this artificial material. Disadvantages of its use include:

1. Being a man-made material, it is destined to failure. Current evidence is that the best expected life of this substance is 7-10 years. In many instances re-rupture occurs much earlier.
2. Several complications have been reported including:
 - a. Extensive inflammation of the joint lining due to reaction from the artificial material.
 - b. Early osteoarthritis as a result of cartilage softening from chronic low grade inflammation.
 - c. Persistent swelling & / or stiffness.
 - d. Significant & persistent pain*.
3. Being artificial & non-absorbable by the body, the unavoidable wear particles produced amount to foreign bodies in the joint which result in inflammation & accelerate degeneration.
4. The inevitable graft failure (re-tear of the ACL) will mean another significant traumatic episode, with further joint damage and earlier onset of osteoarthritis.

*Several years ago, I treated a keen skier in her 60's whose surgeon had convinced her to have a LARS reconstruction. From the 1st post-operative day to around 12 months later, she suffered severe & sometimes disabling lower leg pain, the source of which the surgeon could not explain. Mercifully, her LARS ruptured at 2 years, leading to a revision

procedure using human tissue with an excellent result – not-surprisingly performed by a different surgeon.

If an athlete is nearing the end of their career, and desires early return to sport, there may be a place for LARS reconstruction. It has been used somewhat successfully in AFL – Nick Malceski being one notable example. However he is already on his 2nd LARS, having ruptured his 1st after just a few years. If an athlete is young, and hoping for a career lasting several years or more, there is really no place for the LARS. Natural reconstructions using your own hamstring or patellar tendon have demonstrated excellent results over more than 30 years. Donor human grafts are now being used commonly, and early results are also very good. Human tissue grafts effectively re-build the native ligament, so the result is much closer to a normal knee. For the 23 year-old gentleman with his 2nd ACL injury in less than 12 months, I have no hesitation in telling him what I think of the procedure that was recommended to him. And I recommend a revision performed by a good surgeon, with the most suitable natural material, which should put him on track for a successful and hopefully enduring return to his favored sport.

after use of the LARS ligament – a case series. Australian Knee Society Annual Meeting, NZ, October.

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