

# ACL Injury

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## Why we should advise our patients against a LARS reconstruction

I was recently consulted by a 23 year old Rugby League front-rower who was 9 months post ACL reconstruction using a LARS graft. He had completed his rehab elsewhere & was looking to return to competition. On examination he had a grade 2+ Lachmann's with firm end-feel, and a concerning 'click' on his pivot shift, but without obvious rotary instability. I had reservations about the stability of his knee for contact sport, but he had been advised the LARS was the best option for him, & he had already invested a lot of time in his rehab. I designed a programme to assist his return to sport. He continued with his training, and 2 weeks later while simply running in a straight line, he ruptured his graft.

### 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 PCL 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. The purported advantages of its use are:

1. Early strength at implantation
2. No harvest site morbidity
3. Earlier return to sport (minimum of 3 months compared to 6 months for hamstring or bone-

patellar 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 synovitis 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 produce foreign bodies in the joint which result in inflammation & accelerate degeneration.
4. The inevitable graft failure will amount to another significant traumatic instability 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 1<sup>st</sup> 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 2<sup>nd</sup> LARS, having ruptured his 1<sup>st</sup> 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. Autograft reconstructions (use of the patient's own hamstring or bone-patellar tendon) have demonstrated excellent results over more than 30 years. Allografts (donor human graft) are now being used commonly, and early results are also very good. Human tissue grafts effectively re-build the native ligament. For my 23 year-old aspiring league player, I reserved my opinion on his initial presentation. But after his graft failure, I have no hesitation in telling him what I think of the procedure that was recommended to him. A revision performed by a good surgeon, with the most suitable natural material, should put him on track for a successful and hopefully enduring return to his favored sport.

#### References:

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