

ANTERIOR CRUCIATE LIGAMENT (ACL) SURGERY: AN INTERVIEW WITH SURGEON, ANDY WILLIAMS - PART 2

FEATURE / MR ANDY WILLIAMS INTERVIEW BY DR ELLE TREZISE

This is part 2 of 2 of a transcript of the FMPA Podcast episode that was released in March 2024. It has been edited to improve readability.

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In this podcast episode host Dr Elle Trezise, a medical doctor working in London and a member of the FMPA Education Team, interviews Consultant Orthopaedic Surgeon Mr Andy Williams.



Mr Andy Williams



Dr Elle Trezise

Elle Trezise

It's key to have a graft to reconstruct the ACL and it can be sourced from multiple places such as the hamstring tendon, quadriceps tendon and patella tendon. Where do you personally prefer grafts to be sourced from and why?

Andy Williams

I've got very strong preference for the patient's own tissue (autograft), certainly. Some surgeons are using allograft, i. e. donated tendon from cadavers just in the same way you can donate a kidney or other organ, tendon can be harvested for the purpose of reconstruction. However, the re-rupture rates are very much higher and in young patients probably around 5-7 times higher than autograft.

Synthetic ligaments were tried in the past and they did not do well within the knee joint, although they definitely have a place in extra articular ligaments, such as the medial collateral ligament. I am about to publish very good results on using synthetics there, but my strong preference for the ACL is to use autograft and I vary my graft according to the person's sport and their lifestyle, et cetera.

For the general population, hamstring grafts work extremely well. The patients recover very easily from the harvest of the hamstring and have very good results, but the truth is that the re-rupture rate is a little higher than for patella tendon, in particular. Certainly, I

saw this higher re-rupture rate in data that we published a couple of years ago.

In professional football, a hamstring graft placed in the right position has a re-rupture rate of 10% with hamstring and around 7% with patella tendon. As I mentioned earlier, if you add a tenodesis, this lateral procedure which tightens the IT band up, leaving it attached to tibia and attached to the distal femur. If you add that, it brings the re-rupture rate down to 2% if you're using patella tendon graft.

In professional football, for some reason, patella tendon has a significantly lower re-rupture rate, and it is very obviously the best graft. It has a bit of bone at each end. It has a natural connection of soft tissue to the bone, and it will heal extremely rapidly. But you could argue the price of it is a little more; in that it's more painful for the patient, and the rehab is a little more difficult. Obviously with pro athletes, I'm blessed to operate on really tough, really hard people because they play sports and are used to pain. They also have great physio at the clubs, and great rehab and direction from their medical teams. So, I'm blessed that I can get away with doing big operations that hurt on these people. But for my standard patients, I've used hamstrings.

Interestingly in professional rugby, I've tended to use hamstring. The reason for that is cultural, really. I went to Australia and was taught how to do hamstring ACL reconstruction, and the Australian rugby players tend to get hamstring grafts. In New Zealand, they get patella tendon. Again,



that's cultural because of the big-name surgeon there, Barry Tietjens, who did all the All Blacks, the best team in the world. So, you can't knock a patella tendon graft in rugby in that setting.

You'd think the re-rupture rate in rugby would be greater in such a violent sport, but actually it's greater in football. So, hamstring re-rupture rates are a low in rugby, particularly when a tenodesis is added.

Now, the new kid on the block, if you like, is quad tendon. Quadriceps tendon grafts are really gaining popularity, particularly in North America and in Victoria, Australia. Yet what I would say is we don't yet have concrete data showing efficacy and satisfactory re-rupture rates. We have to watch that space carefully. I think that my ideal patient for a quad tendon graft is a person who kneels. So maybe a floor worker, carpet layer, that sort of person, or a judo fighter who has to be on their knees and has to maintain hamstring power, also dancers. I've routinely been using them in dancers for some time and certainly results have been very good. I believe the recovery is easier than with a patella tendon to some degree. But of course, I should say with patella tendon graft harvest, it is getting better and better, and the operation today is so much less traumatic than it was when I learned it 30 years ago.

Elle

Thank you for explaining that. It's so interesting how the source of the tendon depends a lot on the patient. You're tailoring it to the patient.

Andy

Yeah, I think customising surgery is really the way to go. To get great results from an operation, you have to fine tune and you don't just do the same operation every time. You've really got to think. I know orthopaedic surgeons have a reputation for often not thinking. I was taught that you had to have "the strength of an ox and half the brain", but I promise you that's not true, and I promise you I think a lot before I operate on people. I have a ritual. The night before every surgery, I go through all the notes, all the imaging, and really think about that case.

The fine tuning is what makes the difference. You don't win a football match or a rugby match without doing tactics and thinking about the opposition and nailing it. You also don't just turn up and do surgery. You shouldn't. Occasionally I think some people might do that, but it's all about planning and there's no excuse in orthopaedic surgery and certainly not in knee surgery to have a surprise. There are



The key is that surgery is not undertaken until the knee is quiet.



one or two things that do happen, such as chondral lesions, which aren't always visible on MRI. But you should know that in an ACL reconstruction case that there's the possibility of a peripheral meniscus lesion or there's a root lesion of the lateral meniscus even if not evident on the MRI because you've done the due diligence and you've got a surgical plan to fix all the lesions found at arthroscopy. If you don't do that, the ACL graft takes more stress and it's more likely to fail. So, I think we're in an era now where we've worked out where to put the graft. There's been huge debate over a long period and there was a period where understandably there was popularity for placing the graft in the centre of the so-called footprint on the femur of the ACL insertion, but actually the results were not good and my re-rupture rates in professional football doubled. That was a bad period for me. I went back to the original anteromedial bundle position on the femur. So, I think we know where to put the graft now.

We have to accept there are some limitations with grafts, but we've learned that we also need to deal with the peripheral lesions, the collateral damage e.g. if you leave a loose MCL, or if you leave a loose LCL, or an unstable meniscus tear, that ACL will have to work harder and is more likely to fail. So, we're in an era now of fine tuning and that demands extra bits to the operation. My ACLs now take a lot longer than they used to. My poor anaesthetists have to suffer that, but my results are so much better.

Elle

That's brilliant.

Andy

You did ask me a question earlier on about when to do ACL surgery and I forgot to answer it. The timing of an ACL reconstruction is important, and the terrible error is to do it too soon, and if you add

surgical trauma, and surgery is an injury, to the original injury trauma, the knee is at great risk of being excessively inflamed and scarring up and losing range of motion.

The most common complication of ACL reconstruction is loss of terminal extension, and if you operate on an angry knee as a surgeon, you're asking for trouble. So, there are very few indications for early surgery. The only one really is in the context of an isolated ACL rupture which is a locked bucket handle tear of a meniscus. You want to get in and deal with that meniscus as soon as possible. Usually, I would then delay the ACL reconstruction for a month or two until the knee was quiet, but the key is that surgery is not undertaken until the knee is quiet. Obviously in professional sport, particularly professional football, a footballer may be earning an immense amount of money every week. The pressure from everybody to get on and do the operation is massive. But I think I've been around the business long enough. Most clubs listen to me and also the players. Sometimes it's best to wait a few weeks until the knee is settled.

There are other needs though. In fact, today I operated on a guy who got injured at the weekend. So, it's Wednesday and he did this four days ago, but his knee is quiet. He walked in without crutches. He's got full active and passive extension and a small effusion. His knee was ready so we could crack on, but there are other guys I'll make wait 12 weeks sometimes. Though that's rare. We used to always wait a minimum of three weeks, but that's not necessarily necessary. With many players we can get on with it earlier. My average time is about two weeks which is earlier than it used to be. But particularly with the general population, there is no rush. When I see somebody with a fixed flexion deformity and a surgeon asking me to sort it out, I look back at the history and the problem is almost always that the operation was done too soon.

Elle

Tell us a bit about the importance of post op physiotherapy and how you work with team physios, doctors, and other club staff to optimize outcomes for your patients.

Andy

Well, the first thing is that this is a team game and all of us in our various specialities bring something different to the table. To get a really good result from an operation, I need the help of a number of people who basically make me look good. Over the decades of me doing surgery on professional athletes, 25 years now, I've been blessed to have some amazing people - doctors and physios - who've really made me look alright, which is why I'm still in business, I think! One or two make me look bad and it's not universally good, but in professional sport, usually I'm blessed to have expertise that not everybody has access to. So, it's very important that I communicate properly, and we understand what's going on and all of us have questions answered and we optimise treatments.

Now, the smart-arse answer about rehab is that it starts before the operation. For me to do an ACL reconstruction, I want the knee to have full active as well as passive extension. We used to think of passive being good enough. It's not. You really want a good quad contraction and I want the knee quiet. In other words, little swelling. They need to be bending to at least 100 degrees or so comfortably and the knee isn't as angry as it was. That's when I will do the surgery and then immediately post operatively the absolute drive is twofold. One, to get the knee quiet again after the surgical trauma using various icing devices (we tend to use something called a Game Ready a lot). Also, to get the swelling down and that allows the quadriceps to start firing again and get extensions. The second thing, which is equally important, is to get

full extension as soon as possible. If you don't get extension as soon as possible, scar builds up on the anterior surface of the ACL graft, and then you'll never get straight. Then, the only answer would be a surgical solution which is regrettable.

If the knee won't bend, usually all I need to do is manipulate it under anaesthetic. However, if it won't come straight and manipulation doesn't work, the only answer is to clear out the scar at the front of the knee, usually in the fat pad, and on the anterior graft, which is a so-called cyclops lesion. So, I clear that out and sometimes do a posterior capsule release. I used to do that through a posteromedial incision going right across the back of the knee, stripping the capsule off the bone. These days, quite frequently, I'm able to do that arthroscopically.

So, I want the physiotherapy and the rehab team to first of all understand the importance of those various goals, but then to execute the treatment that's required. Passive stretches such as so-called prone hangs where the knee is on the edge of a couch with the leg below and foot hanging off it - are good ways of using gravity. The problem with a heel prop, where we put your heel up on something watching TV, is that within two seconds the knee tends to, or the limb tends to, externally rotate and you lose the gravitational effect. If you want to do a heel prop then you need to get the foot vertical, pointing upwards.

But all of the passive methods really are very much less important than active extension. You need to get the quad firing ASAP and the quads are grossly inhibited by swelling and pain. So, pain control is really important, and we need to nail that. Also, to reduce swelling. If you've got a big effusion, you can't contract your quad. Then you have a weak quad, which means when you

walk, you have less shock absorbency, and you don't drive the knee straight. All these things come together and work together. So, I want to get the quadriceps working.

One of the tricks is when you ask patients to straighten their knee, you'll see them lift their buttock off the bed. What they're doing is extending the hip with gluteal contraction. They're using the bed to passively extend the knee. That's not good enough. Sometimes the brain is brilliant at compromise. So, if you see that happening, I actually want the patient to lift the heel off the bed with a straight leg lift. Very slowly elevate the foot into dorsiflexion, try to get the quad to contract. If it doesn't happen to contract, ask the patient to slowly lift the heel off the bed. That will stop the glutes working and extending of the hip because you want to flex the hip a bit. The only way of doing that is get your quad to work. So, sometimes an old-fashioned straight leg lift is actually quite important.

The other aspect to reduce the fat pad contribution to stiffness is mobility, and so patellar mobilisations are very important as well.

Elle

Based on your experience, how important is psychology and communication for improving patient outcomes?

Andy

Psychology, I suspect is 95% of my business. I'm a bit of an amateur psychologist, I guess, but showing empathy when you first meet a patient is critical. If they're a professional athlete, they need to know that you get it, and you need to demonstrate that you realize how important this is for them and understand how devastating it is for them because they go through a classic grief type psychological reaction. You have to take them through that journey and if an athlete loses hope early on, it's a disaster and it's essential that I communicate in a very positive way, even if the injury is awful. There are ACLs and there are ACLs, but if you've got a big chunk out of your joint surface, that may be a career ending injury.

Whilst I will never lie and I always get that truth out in the first consultation, I will also explain what we're going to do about this bad injury. I'll say, "look, this could be career ending. However, there is treatment for this problem. I've had this experience many times before, and we've been totally successful in returning athletes to the highest levels of play despite this."

Being positive is very important. You mustn't lie, of course, and the player needs to know the situation in full. But the truth



If you don't get extension as soon as possible, scar builds up on the anterior surface of the ACL graft.





is, we get people back, particularly with excellent physio and amazing people, i. e. the athletes themselves, that as a surgeon, you're astonished they got back from. So, you shouldn't be giving up just now. It's not time to chuck the towel in. So, I hope I generate a very positive atmosphere, but also a very honest one and a very empathic one. That's the beginning.

Then through the journey, the players will have issues. I think about 10 % of my ACLs have a snag along the way that needs an arthroscopy, and you need to explain what's going on and convey confidence that all will be well. Obviously, if it's a very serious problem and you know that they can't recover, you've got to cut your losses and say it. Over the years I've encountered all sorts of problems. Usually, it's pain from the fat pad or limited motion as you mentioned, and over the years you learn the solutions to these.

There are moments when I convey my confidence, although inside I'm thinking, "Christ, I'm not sure I'm going to fix this one." But you have to have a plan and you have to be brave and you have to address the problem, take it seriously and fix it. With the athletes help, and they are amazing people, the physios help and the team physicians help, we usually get the result.

Elle

Lastly, please talk us through your approach to the following scenario. An athlete comes to you and they've had an ACL

reconstruction, but they've now suffered a re injury.

Andy

It would be a lie to say I've never had this scenario from my own surgery. I'm delighted, obviously, to tell you that the majority of such cases have had surgery with other people, but it's a devastating situation for the poor athlete because they've been through the rehab program. They've worked like hell. Usually when there's a re rupture, it occurs in the first 6 - 12 months after return to play. So, they almost get back-to-back injuries. It's awful and they may be out of contract this time around, which is really difficult. So, as I mentioned earlier, you've got to show absolute empathy and you've got to explain what has happened, perhaps why it's happened.

Unfortunately, we do see cases that where the initial operation wasn't a good operation and the technical error from the surgery has led to the re-rupture. But it's very bad to dwell on that. It creates a lot of negative psychology, but I'll explain what's happened why it's happened, if I know. Often there is also bad luck, which is a commodity in professional sport that doesn't seem to exist in most people's opinions, but I promise you there is bad luck, and you have to offer a solution. Because the devastation of the re injury is real and big, and the athlete needs to know what you're going to do to get them back into what they love doing, and ideally at the level that they're happy with.

Thankfully modern surgery is very good. I've published data on revision ACL reconstructions in professional athletes with very high return to play rates. In fact, 90% with a primary ACL reconstruction. The return to play rate overall is just over 90%. Although in young athletes, it's as high as 98%.

You wouldn't get odds at the bookies that good for revisions. So, although it's a devastating blow, thanks to modern revision surgery, most of my players will get back to the same level. So, it's not all over and you have to encourage the right psychologies, as mentioned earlier, to get the athlete through that difficult time.

Elle

Well, that's brilliant. Thank you. Unfortunately, we need to end there, but I found that really interesting. I'm sure the listeners have got a lot out of it as well. Thank you so much for giving up your time and for sharing your expertise with us.

Andy

Absolute pleasure. Thank you.

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