

Doctor Kate E. Webster: anterior cruciate ligament injury in young athletes in Australia

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Kate E. Webster (*Figure 1*) is an Associate Professor in the College of Science, Health and Engineering and Director of the Sport, Exercise and Rehabilitation Research Focus Area at La Trobe University, Melbourne, Australia.

Dr. Webster's primary area of research interest is anterior cruciate ligament (ACL) reconstruction. Her research as it relates to the ACL falls broadly within three categories (I) knee biomechanics following ACL reconstruction (II) surgical techniques and outcomes and (III) return to sports issues, with a focus on the psychological impact of returning to sports participation. Her current research is also focused on the high ACL re-injury rates in younger athletes and return to sports criteria. She was the lead developer of the ACL-Return to Sport after Injury scale. She has received several national and international awards for her research and currently has 145 scientific publications.

We are honored to invite Dr. Kate E. Webster to share her ideas on ACL injury in young athletes in Australia.

AOJ: *How is the ACL injury rate in the young athletes in Australia?*

Dr. Webster: This is something that's been a focus for our group and we have published two recent studies on this topic. The first was a large study where we included over 500 patients and found that when we separated the cohort into age groups that were over and under 20 years old at the time of surgery, the second ACL injury rate in the younger patient group (n=110) was 29% (1). This included both graft ruptures and injuries to the contralateral knee. We had thought our second ACL injury rate was higher in younger patients, but we were certainly surprised at just how high it was. We then looked through the literature and found that another study reported similar rates. Specifically, Tim Hewett's group had also reported a 29.5% second injury rate in a younger group of American athletes (2). It was really interesting to see how well both data sets aligned. Last year, we published a follow up paper



Figure 1 Doctor Kate E. Webster.

that had 316 younger patients and confirmed the high second ACL injury rate in this young group, which for this study was 35% (3). The youngest male patients were found to have the highest rates of graft rupture. So overall, in our Australian sample we found that a third or one in three of our younger patients went on to a second ACL injury which is pretty scary.

AOJ: *What kind of sports are at high risk of ACL injury?*

Dr. Webster: In Australia, we play Australian Rules football which is certainly a high risk sport for ACL injury. I live in the city of Melbourne, in the state of Victoria which is the traditional home of Australian Rules football so we perhaps get a disproportionately high rate of ACL injuries from Australian Rules. For example, of the young male patients who are treated at OrthoSport Victoria about 60% have sustained their ACL injury from participating in Australian Rules. Essentially there are four primary sports which seem to account for about 85% of ACL injuries in our younger patients and these are Australian Rules football, basketball, netball and soccer. In other states, such as New

South Wales and Queensland, rugby would be part of this list.

AOJ: *What are the criteria of returning to sports after the ACL injury? Do you think the time after operation is the standard criteria?*

Dr. Webster: This is an interesting topic, which everyone seems to be currently talking about. We are really moving from a time-based to more criteria-based approach for returning to sport after ACL reconstruction which I think is really sensible. Our patients can resume sports activities when they have no effusion, essentially full range of motion, stable knee and good strength. What physical, functional or sports specific tests and criteria you might consider above and beyond this is highly debatable. There are no clear answers in the current published literature, which overall is rather confusing. Some of the more recent studies include up to 20 different criteria tests. This is probably too much. Tim Hewett, Wendy Hurd and I have actually just published a paper where we propose a 5 factor-maximum model, so please give it a read.

AOJ: *What is the reason why the young athletes having the high second injury rate?*

Dr. Webster: The reasons are obviously multifactorial. I think one of the important risk factors is exposure. For example, in our research we have found that about 88% of younger patients go back to playing strenuous sports compared to only 53% of older patients (1). Therefore there is increased exposure for re-injury in these younger athletes. In our most recent research we have been determining the rates of a third ACL injury in younger patients who have already had revision surgery. We are finding that at least a quarter of those young athletes are having a third ACL injury. So either three ACL injuries on the same knee or a new ACL injury on the contralateral side. This is pretty concerning. The return to sport rate was 83% for the group that had three ACL injuries compared to 62% for those that don't go to a 3rd ACL injury. So, definitely, returning to high-risk sport is a contributing factor.

AOJ: *The young athletes have so high injury risks, so do you care about their psychological issues after the injury?*

Dr. Webster: Yes, the psychological aspect of returning to sport after ACL injury is something that has interested

me for many years. To better understand the psychological sequelae of this injury we developed the Anterior Cruciate Ligament Return to Sport after Injury scale (ACL-RSI) (4), which measures psychological readiness return to sport. We have found that scores on this scale are related to whether athletes return to sport or not (5,6). In younger athletes we have found that males report greater psychological readiness which is interesting. Whether there is a role for risk talking in these younger patients is an area for future research. The most important thing to consider here is that psychological issues are adequately addressed alongside physical recovery.

AOJ: Yes I agree, we have some of those top-level athletes who have done multiple ACL injuries so there's a definite psychological component to that. For example, the famous basketball player, Yao Ming, has suffered 7 times surgeries.

AOJ: *What is the common treatment for the younger athletes with the ACL injury?*

Dr. Webster: At present the main reason for reconstructing the ACL is instability. Sometimes this can be predicted soon after the injury occurs and the decision to operate is made. Other times patients can modify their activities so that instability is not a problem and avoid surgery. In Australia, ACL reconstruction rate tends to be high with many younger athletes who wish to return to sports choosing to have reconstructive surgery.

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