

**Victorian Community Foundation - Felice Rosemary Lloyd Trust  
Physiotherapy Scholarships  
Final Report**

**Name of Researcher** : Adam Culvenor

**Position title** : PhD Candidate

**Title of Work** : Does strength and/or function immediately after anterior cruciate ligament reconstruction (ACLR) predict clinical features of knee osteoarthritis (OA) 15-20 years post surgery.

**Date of Grant** : Notified: 7th December 2011

**Travel program**: August 2012 - April 2013

**Project Description** : Eight month research stay in Oslo, Norway, working with an international research group at the Norwegian School of Sport Sciences. The main research project involved the study of individuals who were 15-20 years after their original knee ACLR surgery, a unique cohort of people in Norway. Collecting data on these people including xrays, pain and activity levels, quality of life and strength/stability would enable us to determine if strength and/or function immediately after ACLR was predictive of features of knee OA 15-20 years later.

Other objectives of my research stay were to assist in establishing collaborations between my home university and the institute in Norway, be exposed to a different research environment, attend and present at international conferences and develop networks with leading international researchers for possible future joint initiatives.

Project changes : Whilst I originally had planned to establish the link between early outcomes after ACLR to longer-term OA features, the group I was part of during my stay shifted the focus towards investigating what factors are associated with the progression of OA from 10 years to 20 years after ACLR. The same unique group of individuals were studied.

In addition to the above project, during my time in Norway I led a research project aimed at determining the differences in the way that knee OA is diagnosed and classified. This project was completed as part of a large Norwegian community based investigation into musculoskeletal disorders more generally.

**Project Results** : During my stay in Norway the collection of data on the individuals 15-20 years after ACLR was commenced. I participated

in the fortnightly data collection sessions along with orthopaedic surgeons, radiologists, exercise scientists and other physiotherapists. At the completion of my stay, we had collected full data on 150 people from the cohort of 258. Data collection will continue until August 2013, then the data will be analysed and results will be written up in international publications. I will continue to have regular contact with my colleagues in Norway and assist in the data analysis and be involved in the final drafting of manuscripts for publication.

The other project which I led whilst in Norway involved the scoring of over 600 knee xrays for OA features using two different classification systems used to define knee OA. Data collection has been completed for this project and the results are currently being collated. From preliminary analysis we have found that rates of knee OA on the same population of people can vary greatly depending on the type of classification system that is employed to define OA. These findings have important implications for clinicians and researchers alike. A manuscript for publication in an international rheumatology journal, of which I will be leading author, is currently in the final stages of preparation.

Personally and academically, my stay in Norway was incredibly enriching. I was exposed to an enviable research environment whereby orthopaedic surgeons, physiotherapists and other health care professionals work very closely together to produce high quality research. I have learnt a lot from world-leading experts in my field including innovative ways to develop research projects, different methods of defining and grading knee OA, and ways in which collaborations can be most efficiently established and maintained. These skills will be invaluable in my future research career. I attended and presented at a number of international sports medicine and orthopaedic conferences and seminars in Scandinavia and Europe, which also gave me the opportunity to meet potential future collaborators.

**Knowledge Sharing** : As mentioned, upon completion of the collection of data from the cohort who are 15-20 years after ACLR, I will be involved in the analysis of data and preparation of a number of publications in international peer-reviewed journals. I will also be first author on the other publication we will submit to a high-impact rheumatology journal, which will enable our results to be disseminated internationally. Furthermore, to disseminate the findings of these research projects to health care professionals in Victoria and Australia I will be submitting abstracts to present at the Australian

Physiotherapy Association conference to be held in October 2013 in Melbourne.

**Project Achievements** : In addition to the important findings that have arisen from my research in Norway, the collaboration that I have formed is such that my host supervisor (Professor May Arna Risberg) will be coming to Australia in late 2013 to spend 8 months further building on the work that we have commenced in Norway. Also, because the funding received enabled me to attend conferences and network with a wide array of different professionals from around the world, I was invited and provided with funding assistance to visit an emerging sports medicine facility in the middle east (Aspetar Sports Medicine Centre, Doha, Qatar). Here I was a keynote speaker and conducted a workshop to sports medicine clinicians on results from my PhD and from my research in Norway. Subsequent to this I was invited to, and published, a scientific article in their monthly sports medicine journal which is distributed internationally (Aspetar Sports Medicine Journal). This opportunity has opened doors for me to potentially return to Qatar to conduct further research in the sports medicine field.

**Future Plans** : I have returned to Australia and will complete my PhD, of which my project in Norway will form a part of. The next stage in my research career will be to apply for post-doctoral research positions, and because of the relationships I have formed in Norway, it is likely that I will return to Scandinavia to complete further research as part of my ongoing career.

**Project Impacts** : The projects that I completed in Norway add to the body of evidence in the field of knee OA after ACLR. Understanding the long-term effects of an ACLR and progression of OA after ACLR are vital for future generations to be able to make informed decisions about the treatment of their ACL injury knowing what the long-term consequences are likely to be. Secondly, our findings, demonstrating that the prevalence of knee OA reported in different populations may vary greatly depending on the classification system used to define OA, are not only novel but important for researchers to know when interpreting the results from studies using different OA classification systems.

The optimal treatment of an ACL injury is currently the topic of much international debate. The new findings in Norway will add another piece to this complex puzzle. When our findings do get published I

would be very happy to provide a list of citations of our work to the funder.

**Other Comments** : It was great to be able to meet with members of the board, ANZ trustees, and in particular members of Felice Rosemary Lloyd's family prior to my departure to Norway. I am very grateful for the support that was provided to me through this very generous grant, I certainly would not have been able to do what I have done without it. Thank you.