

The BJSM PhD Academy Awards

Dr Stephanie Filbay

What did I do?

My PhD aimed to generate a detailed picture of longer-term quality of life (QOL) following anterior cruciate ligament (ACL) injury and reconstruction.¹ I wanted to summarise everything that was known on the topic before exploring QOL in greater detail and identifying factors related to poor QOL 5-20 years after ACL reconstruction. I also wanted to speak with people who have had an ACL-reconstruction to find out from their perspective, how ACL injury has impacted their QOL and whether it continues to do so 5-20 years after ACL reconstruction.

Why did I do it?

When I first ruptured my ACL as a 17 year-old, I (like a majority of people who rupture their ACL) expected to return to sport with minimal difficulties after completing rehabilitation. What I now know is that return-to-sport rates are low, re-injury fears are widespread and many young people develop knee osteoarthritis within ten years of injury. This mismatch between expectations and outcomes has great potential to impact longer-term QOL. Yet improving QOL after ACL reconstruction was rarely seen as a priority, there was a scarcity of studies in this field and factors impacting QOL after ACL rupture were poorly understood. This was the overarching rationale for my PhD studies.

How did I do it?

First, to gain a thorough understanding of all studies evaluating QOL 5-20 years after ACL-reconstruction a systematic review was performed.² A second systematic review compared longer-term QOL between ACL-reconstructed and non-reconstructed groups using meta-analysis.³

Following this, 162 people with knee difficulties 5-20 years after ACL reconstruction completed a range of patient-reported measures (including four QOL measures).⁴ Regression analysis was used to identify factors explaining variability in QOL. Knee radiographs were performed in a subsequent study to explore the impact of osteoarthritis on QOL in these individuals.⁵

Finally, to delve deeper into QOL after ACL reconstruction, seventeen qualitative interviews were performed with individuals reporting high or low QOL scores.⁶ This was the first qualitative study to explore QOL following ACL reconstruction.

What did I find?

On average, QOL is impaired more than five years following ACL rupture and similar in ACL reconstructed and non-reconstructed groups.^{2,3} However, a number of biases may mask more favourable QOL outcomes for ACL ruptured people managed with exercise-therapy.³ For example, only non-reconstructed patients were advised to modify activity levels and any form of lifestyle modification (even those that don't negatively impact QOL) result in a worse QOL score.³ Further high quality studies are needed in this area.

Individuals who did not return to sport after ACL-reconstruction reported worse QOL 5-20 years after reconstruction, compared to people who returned to pre-injury sport. Higher BMI, subsequent surgery and radiographic osteoarthritis were also related to worse QOL in these individuals.^{1,4}

The qualitative study revealed that maintaining a physically active lifestyle, fear of re-injury, acceptance and lifestyle modifications were critical determinants of longer-term QOL after ACL reconstruction.⁶ Individuals with a strong preference for competitive sport over recreational exercise were at risk of becoming inactive and experiencing prolonged periods of poor QOL. Furthermore, participants provided unique insights into the trajectory of QOL over time that allowed identification of key points of transition, where intervention to facilitate positive lifestyle modifications could be most beneficial.⁶

What is the most important clinical impact / practical application?

Despite potential for ongoing knee difficulties and impaired QOL, it is common practice to discontinue ACL treatment within one-year of ACL rupture. Individuals may benefit from ongoing periodical follow-ups to prevent new knee concerns causing prolonged periods of poor QOL. A greater focus on QOL by considering what matters most to the patient, establishing a sustainable and enjoyable physically active lifestyle that can be adapted to accommodate knee issues, managing re-injury fears and promoting acceptance and positive lifestyle modifications may prove effective in improving longer-term QOL after ACL reconstruction.¹

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