



Research

Activity preferences, lifestyle modifications and re-injury fears influence longer-term quality of life in people with knee symptoms following anterior cruciate ligament reconstruction: a qualitative study

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KEY WORDS

Return to sport
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Psychological adaptation
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Osteoarthritis



ABSTRACT

Questions: How do people with knee symptoms describe their quality of life and experiences 5 to 20 years after anterior cruciate ligament reconstruction (ACLR)? What factors impact upon the quality of life of these people? **Design:** Qualitative study. **Participants:** Seventeen people with knee symptoms 5 to 20 years after ACLR and high ($n = 8$) or low ($n = 9$) quality of life scores were recruited from a cross-sectional study. **Methods:** Semi-structured telephone interviews were conducted and transcribed. The data obtained from the interventions underwent inductive coding and thematic analysis. **Results:** Four consistent themes emerged from the interviews as common determinants of quality of life following ACLR: physical activity preferences; lifestyle modifications; adaptation and acceptance; and fear of re-injury. All participants described the importance of maintaining a physically active lifestyle and the relationship between physical activity and quality of life. Participants who avoided sport or activity reported experiencing reduced quality of life. Participants who suppressed or overcame re-injury fears to continue sport participation described experiencing a satisfactory quality of life while taking part in sport despite knee symptoms. For some participants, resuming competitive sport resulted in subsequent knee trauma, anterior cruciate ligament re-rupture or progressive deterioration of knee function, with negative impacts on quality of life following sport cessation. Participants who enjoyed recreational exercise often adapted their lifestyle early after ACLR, while others described adapting their lifestyle at a later stage to accommodate knee impairments; this was associated with feelings of acceptance and satisfaction, irrespective of knee symptoms. **Conclusion:** Activity preferences, lifestyle modifications and fear of re-injury influenced quality of life in people with knee symptoms up to 20 years following ACLR. People with a preference for competitive sport who do not enjoy recreational exercise might be at heightened risk of poor quality of life outcomes and could benefit from support to facilitate a transition to a physically active, satisfying lifestyle. [Filbay SR, Crossley KM, Ackerman IN (2016) Activity preferences, lifestyle modifications and re-injury fears influence longer-term quality of life in people with knee symptoms following anterior cruciate ligament reconstruction: a qualitative study. *Journal of Physiotherapy* 62: 103–110]

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Introduction

Anterior cruciate ligament (ACL) rupture most commonly occurs in adolescents and young adults during competitive sport participation.^{1–3} Estimates of the prevalence of ACL reconstruction (ACLR) in Australia are alarmingly high, exceeding other countries with a rate of 52 per 100 000 inhabitants.^{1,3–7} Optimising longer-term quality of life following ACLR is important, considering the potential for persistent physical and psychological difficulties and the high rates of early-onset knee osteoarthritis after ACL injury.^{8–12} As many as one in five people who undergo ACLR require subsequent knee surgery within 6 years.¹³ Furthermore, one in four people who undergo ACLR

experience an ACL graft rupture or contralateral ACL rupture within 15 years.¹⁴ Subsequent knee surgery, including revision ACLR and contralateral ACLR, is associated with worse patient-reported outcomes, including reduced longer-term quality of life.^{15–21} A recent systematic review reported impaired knee-related quality of life 5 to 20 years after ACLR,²² but no studies investigating the impact of return to sport on longer-term quality of life following ACLR were identified. This is despite less than half of non-elite sports participants returning to competitive sport after ACLR,¹¹ which contrasts most patients' expectations of full return to sport within 1 year of surgery.²³ Young, active people undergoing ACLR commonly have unrealistic expectations (including a low likelihood of ongoing pain or instability and a

low risk of developing post-traumatic osteoarthritis)²³ and these may impact on their quality of life outcomes.

Current patient-reported measures of quality of life have limited ability to capture individual expectations and do not specifically evaluate the importance of knee-related impairments to the individual.^{24,25} Despite the breadth of quantitative literature about ACL injury, qualitative studies exploring personal perspectives following ACLR are rare and no qualitative studies have investigated quality of life following ACLR. Previous qualitative studies have focused on return to sport following ACLR.^{26–29} One study identified fear, a change in life priorities, and personality traits as factors that influenced people's decision to return to sport after ACLR.²⁶ Two small studies of five rugby players²⁷ and five elite adolescent alpine skiers²⁸ identified high confidence in the injured knee as a key facilitator and low confidence as a key barrier for returning to sport.^{27,28} Similarly, a study interviewing 17 female handball players described confidence in the capabilities of one's body as a key factor influencing decisions to return to sport after ACLR.²⁹ While several qualitative studies have investigated factors influencing the decision to return to sport after ACLR, it is unclear how these factors affect longer-term quality of life, particularly among people with ongoing knee symptoms or limitations.^{26–29} Qualitative research could enhance the understanding of factors that impact negatively on quality of life after ACLR and provide information with which to guide management strategies in order to optimise outcomes following ACL injury.

Therefore, the research questions for this qualitative study were:

1. How do people with knee symptoms describe their quality of life and experiences 5 to 20 years after ACLR?
2. What factors affect quality of life in people with knee symptoms 5 to 20 years following ACLR?

Methods

Design

Interviews were conducted from August to October 2014, after obtaining informed verbal consent from each participant. Two pilot interviews were conducted to refine the broad themes, structural order and outline of the interview. A single investigator (SRF) performed the semi-structured telephone interviews and transcribed the audio recordings. This interviewer had no involvement with the clinical care of any study participant. All transcripts were de-identified, and each participant was assigned

an alias for use in data transcription and reporting. Interview durations ranged from 16 to 41 minutes.

A standard interview schedule (Appendix 1 on the eAddenda) provided the framework for each interview, which covered four broad areas. Questions about perioperative experiences addressed: ACL injury and initial management; satisfaction with surgery and healthcare providers; ACLR preparation, expectations and experience; and postoperative experiences. Questions about sport and exercise addressed: return to sport; experiences of sport and exercise participation; and physical activity priorities, motives and importance across the lifespan. Questions about psychological impacts addressed emotions, fears and confidence in the injured knee. Questions about current experience addressed: current knee symptoms and function; lifestyle modifications; management strategies; knowledge; and information. Participants were also given the opportunity to contribute any additional information at the end of the interview.

Participants

Participants were purposively sampled from a larger cross-sectional study of 162 people who had undergone ACLR 5 to 20 years previously.³⁰ The eligibility criteria for this cross-sectional study required all participants to be aged 18 to 55 years; have received an ACLR or revision surgery 5 to 20 years previously; and report knee symptoms or functional limitations on the Knee Injury and Osteoarthritis Outcome Score (KOOS), determined by a predefined cut-off criterion.³⁰ This cut-off criterion required reporting less than optimal scores for at least 50% of questions on any two KOOS subscales, corresponding to cut-off values of ≤ 86.1 (pain), ≤ 85.7 (symptoms), ≤ 86.8 (activities of daily living), ≤ 85.0 (sport/recreation), and ≤ 87.5 (quality of life). Recruitment details and participant characteristics for the cross-sectional study have been reported previously.³⁰ These 162 participants completed a battery of questionnaires including the KOOS and the Anterior Cruciate Ligament Quality of Life questionnaire (ACL-QOL), which are valid and reliable for use in people who have undergone ACLR.^{31–33} Demographic, lifestyle and return-to-sport data were also collected and relevant questionnaire responses from the cross-sectional study were presented for each participant (Table 1).

To enable comparisons between people with high and low knee-related quality of life, those with high or low ACL-QOL scores were sampled specifically. The ACL-QOL scores were ranked and the first people selected for the qualitative study were those with ACL-QOL scores in the tenth and ninetieth percentiles, followed by those with the next highest and lowest ACL-QOL scores, respectively. In total, 16 people with high ACL-QOL scores

Table 1
Participant characteristics.

Alias	ACL-QOL score (0 to 100)	Age (yr)	Time since last ACLR (yr)	Gender	Body mass index category	Return to sport	ACLR type
Lucy	25	33	6	female	normal	lower	primary
Flynn	26	44	16	male	obese	no	revision x 2
Sue	26	41	18	female	obese	no	primary
Claire	27	34	6	female	obese	no	primary
Will	27	50	12	male	normal	lower	primary
Kate	28	26	12	female	obese	lower	primary
Jack	29	41	11	male	overweight	lower	contralateral
Nick	29	25	6	male	obese	yes	contralateral
Hugh	30	32	6	male	overweight	lower	revision + contralateral
Zara	83	50	13	female	obese	yes	primary
Ross	83	35	6	male	overweight	yes	primary
Beth	86	49	5	female	normal	yes	primary
Amy	87	28	10	female	normal	lower	primary
Mary	87	42	18	female	normal	yes	revision
Emma	88	23	8	female	normal	lower	primary
Tina	90	33	5	female	normal	lower	primary
Guy	92	38	8	male	overweight	yes	primary

ACL-QOL = Anterior Cruciate Ligament Quality of Life questionnaire (0 = worst, 100 = best), ACLR = anterior cruciate ligament reconstruction.

For 'Return to sport', participants selected one of the following options: *I returned to competitive sport at the same or higher level than before ACL injury* = Yes; *I returned to competitive sport at a lower level than before ACL injury* = Lower; *I did not return to competitive sport after my ACL reconstruction* = No.

The horizontal line separates those with low ACL-QOL scores (above) from those with high ACL-QOL scores (below).

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