

## Supplementary Appendix

### Description of patient reported outcome measures

Outcome measure	Description and scoring	Psychometric properties
Knee Self-efficacy Scale (K-SES) [1]	<p>Twenty-two items evaluating self-efficacy for current (e.g. “How certain are you about jumping sideways from one leg to the other?”) and future knee function (e.g. “How certain are you that your knee will not get worse than before surgery?”).</p> <p>Possible scores range from 0 to 10.</p> <p>A higher score indicates higher self-efficacy.</p>	<p>High internal consistency (Cronbach’s <math>\alpha</math>: 0.78 to 0.94).[1]</p> <p>Good test re-test reliability (ICC = 0.75).[1]</p> <p>Evidence of construct validity demonstrated by low correlation with MHLC-C (<math>r</math>-0.18 to 0.03) and KOOS (<math>r</math>-0.11 to 0.25),[1] and high correlation with ACL-RSI (<math>r</math> 0.71) in people with ACL reconstruction.[2]</p>
Multi-dimensional Health Locus of Control C-form (MHLC-C) [3]	<p>Twenty-four items across four domains – Internal (8 items), Chance (8 items), Doctors (4 items), Others (4 items).</p> <p>Possible scores for the Internal and Chance domains range from 6 to 36, and for Doctors and Others domains range from 6 to 18.</p> <p>For all domains, a higher score indicates a stronger contribution to the overall health locus of control.</p>	<p>Evidence of known-groups validity:</p> <p>After ACL reconstruction, people with high internal health locus of control had higher sports activity level, and better self-reported knee function than people with low internal health locus of control.[4]</p> <p>People with lower perceived functional limitations before ACL reconstruction had a more internal health locus of control.[5]</p> <p>More internal health locus of control associated with greater psychological readiness to return to sport measured with ACL-RSI.[2]</p>
Anterior Cruciate Ligament-Return to Sport after Injury scale (ACL-RSI) [6]	<p>Twelve items assessing confidence, emotions, and risk appraisal related to returning to activity after ACL reconstruction (e.g. “Are you confident that you can perform at your previous level of sports participation?”).</p> <p>Possible scores range from 1 to 10.</p> <p>A higher score indicates greater psychological readiness to return to activity.</p>	<p>High internal consistency (Cronbach’s <math>\alpha</math> 0.95 ).[2]</p> <p>High reproducibility (ICC 0.89).[2]</p> <p>Evidence of known-groups validity (scores discriminated between people who did and did not return to preinjury physical activity after ACL reconstruction.[2 ,6 ,7]</p>
Tampa Scale for Kinesiophobia (TSK) [8]	<p>Seventeen items evaluating fear of injury due to movement and physical activity (e.g. “My injury has put my knee at risk for the rest of my life”).</p> <p>Possible scores range from 17 to 68.</p> <p>A higher score indicates greater fear of re-injury.</p>	<p>Evidence of known-groups validity (scores discriminated between people who did and did not return to preinjury sport after ACL reconstruction. [7 ,9])</p>
Knee Injury and Osteoarthritis Outcome Score (KOOS) [10]	<p><i>Sport Domain</i></p> <p>Five items that assess functioning in activities including squatting, running, and jumping.</p> <p>Possible scores range from 0 to 100.</p> <p>A higher score indicates better function in sport and recreational activities.</p>	<p>High internal consistency (Cronbach’s <math>\alpha</math> 0.85 to 0.89).[11]</p> <p>Moderate to high test re-test reliability (ICC 0.61 to 0.89).[11]</p> <p>Convergent and divergent validity demonstrated for all KOOS domains in a range of knee injuries, including ACL injury and reconstruction.[11]</p>

Outcome measure	Description and scoring	Psychometric properties
Knee Injury and Osteoarthritis Outcome Score (KOOS) [10]	<p><i>Quality of Life Domain</i></p> <p>Four items that assess the impact of a knee injury on daily functioning.</p> <p>Possible scores range from 0 to 100.</p> <p>A higher score indicates a higher knee-related quality of life.</p>	<p>High test re-test reliability (ICC 0.83 to 0.95).[11]</p> <p>Moderate to high internal consistency (Cronbach's <math>\alpha</math> 0.64 to 0.90).[11]</p>
Anterior Cruciate Ligament-Quality of Life scale (ACL-QoL) [12]	<p>Thirty-two item scale evaluating quality of life in relation to symptoms and physical complaints, work-related concerns, recreational activities and sports participation, lifestyle, and social and emotional functioning.</p> <p>Possible scores range from 1 to 10.</p> <p>A higher score indicates a higher knee-related quality of life.</p>	<p>Average error in test re-test reliability of 6%.[12]</p> <p>Content validity demonstrated by at least 80% agreement by expert orthopaedic surgeons on all questions.[12]</p> <p>Appropriate responsiveness to change demonstrated, based on change in clinical condition.[12]</p> <p>Strong correlation with ACL-RSI (<math>r</math> 0.82) in people with ACL reconstruction demonstrating evidence of construct validity.[2]</p>

## References

1. Thomeé P, Währborg P, Börjesson M, et al. A new instrument for measuring self-efficacy in patients with an anterior cruciate ligament injury. *Scand J Med Sci Sports* 2006;**16**:181-187.
2. Kvist J, Österberg A, Gauffin H, et al. Translation and measurement properties of the Swedish version of ACL-Return to Sports after Injury questionnaire. *Scand J Med Sci Sports* 2013;**23**:568-575.
3. Wallston KA, Stein MJ, Smith CA. Form C of the MHLC Scales: A condition-specific measure of locus of control. *J Pers Assess* 1994;**63**:534-553.
4. Nyland J, Cottrell B, Harreld K, et al. Self-reported outcomes after anterior cruciate ligament reconstruction: An internal health locus of control score comparison. *Arthroscopy* 2006;**22**:1225-1232.
5. Nyland J, Johnson DL, Caborn DN, et al. Internal health status belief and lower perceived functional deficit are related among anterior cruciate ligament-deficient patients. *Arthroscopy* 2002;**18**:515-518.
6. Webster KE, Feller JA, Lambros C. Development and preliminary validation of a scale to measure the psychological impact of returning to sport following anterior cruciate ligament reconstruction surgery. *Phys Ther Sport* 2008;**9**:9-15.
7. Ardern CL, Taylor NF, Feller JA, et al. A systematic review of the psychological factors associated with returning to sport following injury. *Br J Sports Med* 2013;**47**:1120-1126.
8. Kori SH, Miller RP, Todd DD. Kinesiophobia: A new view of chronic pain behaviour. *Pain Manag* 1990;**3**:35-43.
9. Kvist J, Ek A, Sporrstedt K, et al. Fear of re-injury: A hindrance for returning to sports after anterior cruciate ligament reconstruction. *Knee Surg Sports Traumatol Arthrosc* 2005;**13**:393-397.

## Supplementary Appendix

10. Roos EM, Roos HP, Lohmander LS, et al. Knee Injury and Osteoarthritis Outcome Score (KOOS)--development of a self-administered outcome measure. *J Orthop Sports Phys Ther* 1998;**28**:88-96.
11. Collins NJ, Misra D, Felson DT, et al. Measures of knee function. *Arthritis Care Res* 2011;**63**:S208-S228.
12. Mohtadi N. Development and validation of the quality of life outcome measure (questionnaire) for chronic anterior cruciate ligament deficiency. *Am J Sports Med* 1998;**26**:350-359.