

Psychological outcomes during rehabilitation after ACL reconstruction and implications for second ACL injury

Akademisk avhandling

Som för avläggande av medicine doktorsexamen vid Sahlgrenska akademien, Göteborgs universitet kommer att offentligens försvaras i hörsal Arvid Carlsson, Medicinaregatan 3, Göteborg, den 2024-05-17, klockan 13:00

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Avhandlingen baseras på följande delarbeten

- I. Piussi R, Krupic F, Senorski C, Svantesson E, Sundemo D, Johnson U, Hamrin Senorski E. Psychological impairments after ACL injury - Do we know what we are addressing? Experiences from sports physical therapists. *Scand J Med Sci Sports*. 2021.
- II. Piussi R, Bergdahl T, Sundemo D, Grassi A, Zaffagnini S, Sansone M, Samuelsson K, Hamrin Senorski E. Self-Reported Symptoms of Depression and Anxiety After ACL Injury: A Systematic Review. *Orthop J Sports Med*. 2022.
- III. Piussi R, Beischer S, Thomeé R, Thomeé C, Sansone M, Samuelsson K, Hamrin Senorski E. Greater Psychological Readiness to Return to Sport, as Well as Greater Present and Future Knee-Related Self-Efficacy, Can Increase the Risk for an Anterior Cruciate Ligament Re-Rupture: A Matched Cohort Study. *Arthroscopy*. 2022.
- IV. Piussi R, Simonson R, Högberg J, Thomeé R, Samuelsson K, Hamrin Senorski E. No Effect of Return to Sport Test Batteries with and without Psychological PROs on the Risk of a Second ACL Injury: A Critical Assessment of Four Different Test Batteries. *Int J Sports Phys Ther*. 2023.
- V. Piussi R, Simonson R, Högberg J, Thomeé R, Samuelsson K, Hamrin Senorski E. Psychological Patient-reported Outcomes Cannot Predict a Second Anterior Cruciate Ligament Injury in Patients who Return to Sports after an Anterior Cruciate Ligament Reconstruction. *Int J Sports Phys Ther*. 2022.
- VI. Piussi R, Krupic F, Sundemo D, Svantesson E, Ivarsson A, Johnson U, Samuelsson K, Hamrin Senorski E. 'I was young, I wanted to return to sport, and re-ruptured my ACL' - young active female patients' voices on the experience of sustaining an ACL re-rupture, a qualitative study. *BMC Musculoskeletal Disord*. 2022.

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Abstract

An anterior cruciate ligament (ACL) injury is one of the most common knee joint injuries and is most often treated with surgical reconstruction of the ligament and rehabilitation. During rehabilitation patients experience an ongoing interplay between the body and mind, that is, physical and psychological factors.

This thesis investigated psychological outcomes in patients undergoing anterior cruciate ligament ACL reconstruction and studied the association between psychological outcomes and secondary ACL injury.

Study I explored sports physiotherapists' experiences of working with psychological impairments in patients after ACL reconstruction, and highlighted a reliance on experience and need for more formal psychological training. Studies II-V assessed the prevalence and severity of self-reported symptoms of depression and anxiety, as well as psychological factors influence on second ACL injury through a systematic review and analysis of rehabilitation registry data. There was a large heterogeneity in how self-reported depression and anxiety symptoms were reported, and the severity of symptoms peaked in the period around ACL reconstruction. Patients who suffered a second ipsilateral ACL injury scored higher on patient-reported outcome measures (PROs) 8-12 months after ACL reconstruction. In addition, the use of results from PROs in test batteries were not able to identify patients who went on to suffer a second ACL injury. The best scores to differentiate between patients who would and would not experience a second ACL injury did not function as intended. Study VI examined the emotional journey of young women who suffered two ACL injuries, with emphasis on the impact on identity. Collectively, this thesis underscores the complex interplay between physical and psychological recovery in ACL rehabilitation, highlighting a need for integrated approaches to enhance patient outcomes.

Keywords: knee, sports, sport injury, orthopaedics, psychology