

## No Differences in the Improvement of Subjective Knee Function between Surgical Techniques of Single-Bundle Anterior Cruciate Ligament Reconstruction at Two Years Follow-Up - A Cohort Study from the Swedish National Knee Ligament Register

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### Summary:

Surgical techniques of primary single-bundle ACL reconstruction did not demonstrate clinically relevant differences in subjective knee function as measured with the KOOS two years after surgery in a cohort of patients from the Swedish National Knee Ligament Register.

### Abstract:

#### Introduction

Patient-reported outcome measures (PROMs) are a mainstay of evaluation during follow-up after anterior cruciate ligament (ACL) reconstruction and highlight the patient's perspective on treatment outcome. The anatomic anterior cruciate ligament reconstruction scoring checklist (AARSC) is a tool utilized to evaluate anatomic ACL reconstruction and surgical technique. The AARSC has not yet been associated to PROMs.

#### Purpose

The purpose of this study was to investigate how different techniques of single-bundle ACL reconstruction affects subjective knee function via the Knee Injury and Osteoarthritis Outcome Score (KOOS) evaluation two years after surgery.

#### Material and Methods

This cohort study was based on data from the Swedish National Knee Ligament Register during the 10-year period of January 1, 2005 through December 31, 2014. Patients who underwent primary single-bundle ACL reconstruction with hamstrings tendon autograft were included. Details on surgical technique were collected using a web-based questionnaire comprised of essential AARSC items, including utilization of accessory medial portal drilling, anatomic tunnel placement, and visualization of insertion sites and landmarks. A repeated measures ANOVA and an additional linear mixed model analysis was used to investigate the effect of surgical technique on the KOOS4 from the pre-operative period to two-year follow-up.

#### Results

A total of 13,636 patients who had undergone single-bundle ACL reconstruction comprised the study group for this analysis. A repeated measures ANOVA determined that mean subjective knee function differed between the pre-operative time period and at 2 years follow up ( $p < 0.001$ ). No differences were found with respect to the interaction

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between KOOS4 and surgical technique or gender. Additionally, the linear mixed model adjusted for age at reconstruction, gender, and concomitant injuries showed no difference between surgical techniques in KOOS4 improvement from baseline to two years follow-up. However, KOOS4 improved significantly in patients for all surgical techniques of single-bundle ACL reconstruction ( $p < 0.001$ ); the largest improvement was seen between the pre-operative time period and at 1-year follow-up.

### Conclusion

Surgical techniques of primary single-bundle ACL reconstruction did not demonstrate differences in the improvement of baseline subjective knee function as measured with the KOOS4 during the first two years after surgery.