

# CLINICAL AND RADIOGRAPHIC EVALUATION AFTER ACL RECONSTRUCTION WITH THE EMPHASIS ON SURGICAL TECHNIQUE AND TIME OF RECONSTRUCTION

## AKADEMISK AVHANDLING

som för avläggande av medicine doktorsexamen vid Sahlgrenska akademien, Göteborgs universitet kommer att offentligens försvaras i Hörsal Aulan, R-Huset, Mölndals sjukhus, Göteborgsvägen 31, 431 80, Mölndal, fredagen den 25 maj 2018, klockan 09:00 av Ioannis Karikis Leg. läkare

## FAKULTETSOPPONENT

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## AVHANDLINGEN BASERAS PÅ FÖLJANDE DELARBETEN

- I. The long-term outcome after early and late anterior cruciate ligament reconstruction**  
Karikis I, Åhlén M, Sernert N, Ejerhed L, Rostgård-Christensen L, Kartus J  
*Arthroscopy. 2018 March 6; e-published ahead of print*
- II. Comparison of anatomic double- and single-bundle techniques for anterior cruciate ligament reconstruction using hamstring tendon autografts: a prospective randomized study with 5-year clinical and radiographic follow-up**  
Karikis I, Desai N, Sernert N, Rostgard-Christensen L, Kartus J  
*Am J Sports Med. 2016 May;44(5):1225-36*
- III. Radiographic tibial tunnel assessment after anterior cruciate ligament reconstruction using hamstring tendon autografts and biocomposite screws: a prospective study with 5-year follow-up**  
Karikis I, Ejerhed L, Sernert N, Rostgård-Christensen L, Kartus J  
*Arthroscopy. 2017 Dec;33(12):2184-2194*
- IV. Comparison of outcome after anatomic double-bundle and antero-medial portal non-anatomic single-bundle reconstruction in ACL-injured patients**  
Karikis I, Ahldén M, Casut A, Sernert N, Kartus J  
*Knee Surg Sports Traumatol Arthrosc. 2017 Apr;25(4):1307-1315*

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## ABSTRACT

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The overall purpose of this thesis was to assess the short-, mid- and long-term clinical and radiographic results after anterior cruciate ligament (ACL) reconstruction, in relation to different surgical techniques, such as the anatomic and non-anatomic single-bundle (SB) and anatomic double-bundle (DB) techniques. Furthermore, the aim was to evaluate the influence of the time between the injury and ACL reconstruction on the postoperative outcome. In Study I, the long-term clinical and radiographic outcomes were compared between patients undergoing either early surgery, at a median of three months after injury (30 patients), or late surgery, at a median of 30 months after the injury (31 patients). The early reconstruction group required significantly fewer meniscectomies at the index operation than the late reconstruction group and displayed significantly less medial compartmental osteoarthritis (OA), ten years after reconstruction. Study II was a prospective, randomised, controlled trial comprising 105 patients with the aim of comparing the outcome of the anatomic SB and the anatomic DB techniques. At the five-year follow-up, statistically significant differences could not be demonstrated between the SB and DB groups in terms of subjective and objective clinical outcomes, as well as in terms of knee laxity measurements and the presence of OA. In Study III, the tibial tunnel was assessed up to five years after anatomic SB ACL reconstruction using hamstring tendon autografts and biocomposite interference screws in 51 patients. Standardised digital radiographs with weight-bearing anteroposterior and lateral views of the knee were obtained in the early postoperative period, at two and at five years postoperatively. In the majority of patients (83%), the width of the tibial tunnel had decreased on one or both radiographic views at five years compared with the early postoperative period. In Study IV, the clinical outcome after the anatomic DB (45 patients) and non-anatomic SB (49 patients) techniques was compared, in a prospective consecutive series. At the two-year follow-up, there were no significant differences between the groups in terms of subjective and objective assessments, including knee laxity measurements.

*Keywords: Knee, Anterior Cruciate Ligament, Reconstruction, Double Bundle, Single Bundle, Biocomposite, Interference Screw, Osteoarthritis*

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