

# 15 Year Survival of Endoscopic ACL Reconstruction in Patients Aged 18 and Under

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## INTRODUCTION

Within the young population, the literature examining the short term survival and the variables contributing to ACL injury after primary ACL reconstruction is limited. The long term evidence for the same is non-existent.

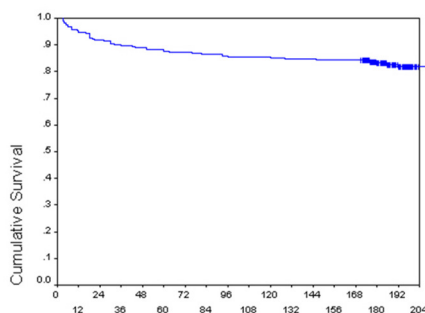
To determine the long term survival of the ACL graft and the CACL after primary reconstruction in those aged 18 years and under, and to identify the factors that increase the odds of subsequent ACL injury.

## METHODS:

Patients having undergone primary ACL reconstruction at age 18 or less between 1993 and 1998, included in a prospective database by a single surgeon were considered. Single-incision endoscopic ACL reconstruction was performed with either autologous bone-patellar tendon-bone graft (BPTB) or hamstring tendon graft (HT). At a minimum of 15 years after ACL reconstruction patients completed a subjective questionnaire regarding current symptoms, further ACL injury, family history of ACL and level of activity.

## RESULTS

288 juveniles, aged 13-18 years, met the inclusion criteria of which 242 (84%) were reviewed at a mean of 16.5 years after ACL reconstruction. 75 (31%) patients sustained a further ACL injury of which 27 (11.2%) suffered an ACL graft rupture, 33 suffered a CACL injury (13.6%) and 15 sustained BOTH an ACL graft and a CACL rupture (6.2%) over 15 years.

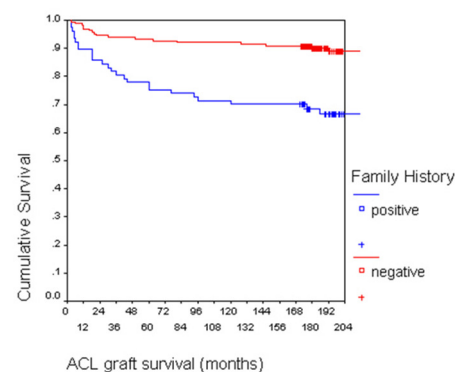


ACL graft survival (months)

A large proportion of ACL graft ruptures occurred within the first two years of ACL reconstruction, as illustrated by the slope of the survival curve in Figure 3. We found one third of the total number of ACL graft ruptures to occur within one year of primary reconstructive surgery, an incidence of 5%.

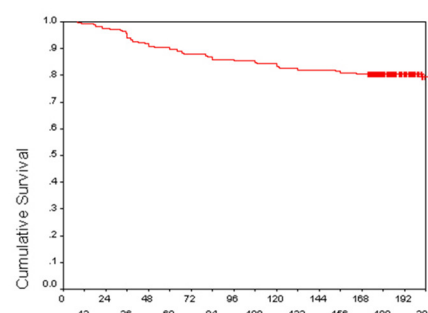
## RESULTS

Survival of the ACL graft was 95%, 92%, 88%, 85% and 83% at 1, 2, 5, 10 and 15 years, respectively. Survival of the CACL was 99%, 98%, 90%, 83% and 81%, respectively. Survival of the ACL graft was less favourable in those with a positive family history (69% versus 90%, HR 3.6,  $p = .001$ ). Survival of the CACL was less favourable in males than in females (75% versus 88%, HR 2.1,  $p = .03$ ) and those that returned to competitive team ball sports (78% versus 89%, HR 2.3,  $p=0.05$ ). Graft



## CONCLUSION

After a minimum of 15 years post primary ACL reconstruction, 69% of adolescents returned to their pre-injury level of activity, however, this was at a significant cost. Approximately one third of this population suffered a further ACL injury during the study period, with an incidence of 20% in the contralateral knee and 17% in the reconstructed knee. Further ACL injury in the adolescent cohort is relatively common with several factors being implicated in contributing to this increased risk.



Contralateral ACL Survival (months)

Family history of ACL rupture significantly increased the hazard for ACL graft rupture and CACL injury was more common in males and those who return to team ball sports. High subjective scores and continued participation in sports were maintained over the long term after ACL reconstruction in the juvenile population.