

# A 15-year survival analysis of the ACL graft & the contralateral ACL following reconstruction.

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## INTRODUCTION

Anterior cruciate ligament (ACL) rupture is a common injury amongst a young active population. A common question encountered by the surgeon is 'what is the chance of this happening again?' Accurately answering this question is difficult owing to the large number of variables involved. The aim of this study is to look at how different variables affect both the ACL graft and the contralateral ACL (CACL) survival in a large series over a minimum 15-year period.

## METHODS

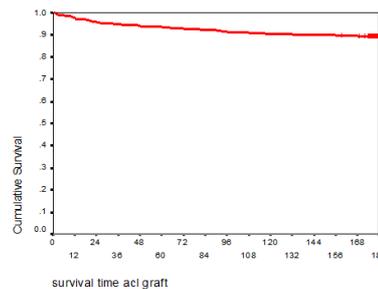
Patients included in the study had primary ACL reconstruction performed by A/Prof Pinczewski between 1993 and 1994 and had an uninjured contralateral ACL. Subjective outcome data was obtained by contacting all patients meeting the inclusion criteria via telephone or email at a minimum of 15 years following the surgery to complete a telephone interview or paper questionnaire, which was returned to us via post or email.

## RESULTS

Of the 755 patients in the study group, 673 (89%) were located and completed the subjective questionnaire at a minimum of 15 years after surgery. BPTB autograft was used in 314 cases (47%) and HT autograft in 359 cases (53%). The mean IKDC score was 85. 65% returned to their pre-injury level of sporting activity. 51% were participating regularly in Level 4-5 sports at 15 years.

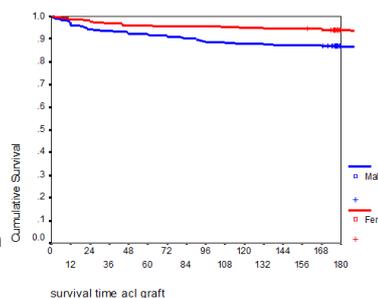
### ACL Graft Rupture

75 patients (11%) sustained an ACL graft rupture. The greatest risk period for this was the first 24 months after surgery. Adjusted annualized rupture rates for these periods are 2.5% per year for the first 2 years and then 0.4% per year after that.



Overall graft survival was 95%, 93%, 91% and 89% at 2, 5, 10 and 15 years.

The odds of ACL graft rupture were doubled in males over females (OR 2.1,  $p=0.007$ ), (Fig 2) and those with a positive family history of ACL injury (OR 1.8,  $p=0.03$ ).

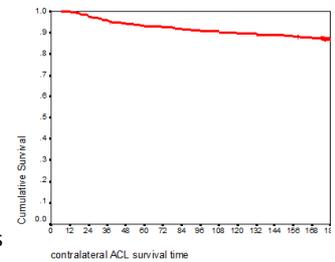


## RESULTS (cont)

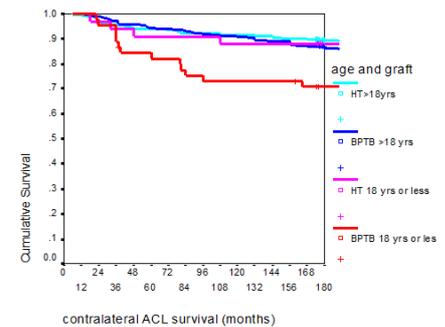
There was no difference in the odds of graft rupture between patients with either HT and BPTB grafts.

### Contralateral ACL rupture

95 patients (14%) sustained a CACL rupture. The most common time for contralateral knee injury was between 1 and 4 years. The adjusted annualized CACL rupture rate for this period was 2.0% per year between 1 and 4 years and then 0.6% after this.



CACL survival was 97%, 93%, 90% and 87% at 2, 5, 10 and 15 years. The odds of CACL rupture were doubled in those < 18 years at surgery (OR 2.0  $p=0.01$ ), and those with a family history of ACL injury (OR 1.7,  $p=0.01$ ), and increased by a factor of 2.5 in those who



returned to their preinjury sport (OR 2.5,  $p=0.003$ ), and those under 18 years with the PT graft (OR 2.5  $p=0.002$ ).

## CONCLUSIONS

ACL rupture is unquestionably a devastating injury to athletes but as reconstruction techniques continue to improve a return to a pre-injury level of activity is now more likely.

ACL reconstruction using this technique is a reliable and reproducible procedure when using either BPTB and HT autograft and allowed 65% of patients a return to their pre-injury sports with a ACL graft rupture rate of less than 1% per year. Males have greater odds of ACL graft rupture than females. BPTB autograft, despite producing good results for graft survival, causes an increased in odds of rupture to the CACL compared to HT. Family history should be a routine screening question when performing this surgery as it doubles the odds of injury to both operated leg and CACL. Male patients, those of a younger age, and those with a positive family history should be counseled carefully and advised of the increased risks.