

# 20 Yr Outcomes of ACL Reconstruction with Hamstring Tendon Autograft. The Catastrophic Effect of Age & Posterior Tibial Slope.

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## INTRODUCTION:

The aim of this study was to compare the prospective longitudinal outcome of 'isolated' ACL ruptures treated with anatomical endoscopic ACL reconstruction using hamstring tendon autograft over 20 years in adolescent and adult cohorts, and the examine factors for repeat ACL injury.

## METHODS:

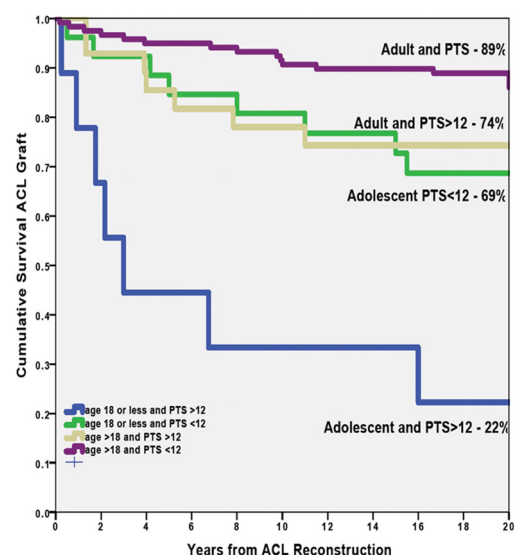
A single surgeon series of 200 consecutive patients undergoing isolated primary ACL reconstruction with hamstring tendon autograft were prospectively studied. Subjects were assessed pre-operatively and 2, 7, 15 and 20 years post-operatively. Outcomes included: IKDC Knee Evaluation, IKDC subjective scores, KT1000 Instrumented laxity testing and radiological evaluation of degenerative change and medial tibial slope. 20 year outcomes were compared between those who underwent surgery at the age of 18 years or less (adolescent group n=39) and those who underwent surgery >18 years (adult group n=161).

## RESULTS:

At 20 years 179 of 200 subjects were reviewed (89.5%). Outcomes were not statistically different between adolescents and adults for the variables of IKDC subjective score ( $p=0.29$ ), return to preinjury activity level ( $p=0.84$ ), current activity level ( $p=0.69$ ) or degree of radiological degenerative change at 20 years ( $p=0.51$ ). The adolescent group had a higher proportion with grade 1

laxity testing compared to the adult group ( $p=0.003$ ).

Overall ACL graft survival at 20 years was 86% for adults and 61% for adolescents (HR 3.3;  $p=0.001$ ). The hazard for ACL graft rupture was increased by 4.8 in adolescent males and 2.5 in adolescent females, compared to adults. At 20 years the ACL survival for adolescents with a PTS of >120 was 22%. The hazard for ACL graft rupture was increased by 11 in adolescents with a PTS of >120 ( $p=0.001$ ), compared to adults with a PTS <120.



## CONCLUSIONS:

Isolated ACL reconstruction using this technique was associated with good long term outcomes with respect to patient reported outcomes and return to sports, regardless of age. However, mild ligament laxity and ACL graft rupture after ACL reconstruction is significantly more common in the adolescents, especially adolescent males, compared to adults. PTS of 12 degrees or more is the strongest predictor of repeat ACL injury, and its negative effect is most pronounced in adolescents.

