The effect of supplemental tibial fixation in Anterior Cruciate Ligament Reconstruction: A randomized controlled study

Eivind Inderhaug
Allan Larsen
Torbjørn Strand
Eirik Solheim

Haraldsplass Deaconess Hospital, Aleris Hinna Park
University of Bergen
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Introduction

• Hamstrings autograft is the most common replacement of the torn anterior cruciate ligament

• A small residual laxity, often found at early follow-up evaluation, poses a risk for later graft failure.

• Some studies have identified the use of a single interference screw in tibia as a risk of micro-motions allowing gradual residual laxity.
Is there an additional effect of a supplementary tibial fixation in anterior translation after anterior cruciate ligament reconstruction
Methods

• Prospective randomized controlled trial (N=75)
  • Hamstrings autograft
  • Cortical fixed-looped femoral fixation
  • Tibial fixation either:
    1. Bioabsorbable interference screw
    2. Bioabsorbable interference screw + suture anchor

• Follow-up 12 months postoperatively
  • IKDC Subjective score + Tegner Activity Scale
  • Rollimeter I-N measurement
  • Pivot shift testing
  • Anterior knee pain
Insertion of additional tibial suture anchor illustrated in cadaveric specimen
Results

- 91% available for follow-up at 12 month assessment
  - Right knee in 56%
  - Male gender in 57%
  - Mean age at surgery 31.4 (SD 11.7)
• Mean IKDC Subjective score improved from 51.4 baseline to 69.6 at 12 months (P<0.01).
• No difference between standard group and additional fixation group in:
  • Anterior translation; mean 1.6mm (SD 2.5) versus 1.1 mm (SD 1.9), (N.s).
  • Pivot shift (N.s)
  • IKDC subjective score; mean 72 (SD 16) versus 68 (SD 18).
Conclusion

• No significant benefit of additional tibial fixation to biodegradable interference screw in hamstrings autograft ACL-reconstruction.

• Tendency towards improved anterior translation might protect against further injuries, longer term-follow-up needed.

• No local symptoms of additional tibial suture anchor supports this as a safe back-up fixation in selected patients.
References


Thank you!