

# Clinical Dossier

## MTF Allograft Tendons for ACLR

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PEER-REVIEWED CLINICAL REFERENCES



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# MTF Clinical Dossier

**Title:** Revision Rates After Anterior Cruciate Ligament Reconstruction Using Bone-Patellar Tendon-Bone Allograft or Autograft in a Population 25 Years Old and Younger

**Author:** F. Alan Barber, M.D., Courtney H. Cowden III, M.D., and Eric J. Sanders, B.S

**Source:** *Arthroscopy*. 2014 Apr;30(4):483-91. doi: 10.1016/j.arthro.2013.12.022.

- Key Takeaways:**
- There were no differences in failure rates or subjective scores between MTF allograft and autograft
  - The use of MTF allograft resulted in positive clinical results in patients 25 years and younger

## STUDY OBJECTIVE

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To compare clinical outcomes and revision rates for anterior cruciate ligament (ACL) reconstructions using bone-patellar tendon-bone (BPTB) allografts versus BPTB autografts in a population of patients aged 25 years and younger.

## METHODS

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- 81 patients were enrolled (28 allografts and 53 autografts)
- Patients were given the choice between allograft and autograft
- All Allografts were sourced by MTF
- Minimum follow-up was 24 months

## RESULTS

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- The allograft group showed a 7.1% failure rate and autograft showed a 9.4% failure rate
- Using a patient-choice ACL graft selection program after appropriate counseling and using graft specific rehabilitation programs, not chemically processed or irradiated BPTB allograft reconstructions have no greater failure rate than autografts in patients aged 25 years and younger at a minimum 2-year follow-up

**Title:** Analysis of Outcomes of Anterior Cruciate Ligament Repair With 5-Year Follow-up: Allograft Versus Autograft**Author:** F Gary G. Poehling, M.D., Walton W. Curl, M.D., Cassandra A. Lee, M.D., T. Adam Ginn, M.D., Julia T. Rushing, M.Stat., Michelle J. Naughton, Ph.D., Martha B. Holden, A.A.S., David F. Martin, M.D., and Beth P. Smith, Ph.D.**Source:** *Arthroscopy*. 2005 July; 21(7): 774–785. doi: 10.1016/j.arthro.2005.04.112**Key Takeaways:** • The use of MTF allograft resulted in positive clinical results compared to autograft at 5 year follow up

## STUDY OBJECTIVE

To prospectively compare outcomes of primary anterior cruciate ligament (ACL) reconstruction with either Achilles tendon allograft with soft-tissue fixation or standard bone patellar tendon–bone autograft with interference screw fixation.

## METHODS

- 159 patients (41 allografts, 118 autografts) were included in the study
- Patients were evaluated preoperatively and postoperatively at 1 to 2 weeks, 6 weeks, 3 months, 6 months, and then annually for 5 years
- All Allografts were sourced by MTF

## RESULTS

- At five-year follow-up both groups achieved similar long-term outcomes
- Allograft patients reported less pain than autograft patients at 1 and 6 weeks after surgery
- Allograft patients reported better function than autograft patients at 1 week, 3 months, and 1 year, and fewer activity limitations throughout the follow-up period

**Title:** Failure rate of Achilles tendon allograft in primary anterior cruciate ligament reconstruction

**Author:** Anup Ajit Shah, M.D., Patrick Callaghan McCulloch, M.D., and Walter Richard Lowe, M.D

**Source:** *Arthroscopy*. 2005 July; 21(7): 774–785. doi: 10.1016/j.arthro.2005.04.112

- Key Takeaways:**
- The use of MTF allograft resulted in positive clinical results compared to autograft at 2 year follow up
  - There was no difference in failure rates between patients 25 years and younger or over 25 years old

## STUDY OBJECTIVE

This study was performed to determine the failure rate of patients undergoing primary anterior cruciate ligament (ACL) reconstruction with an Achilles tendon allograft by a single surgeon with the same surgical technique, graft fixation, and postoperative rehabilitation. The Achilles tendon allograft was obtained from a single source.

## METHODS

- 144 patients were followed up at a mean of 40 months and a minimum of 24 months
- The results of those 144 allograft patients were compared against historic autograft results as a control
- Evaluation included a questionnaire at serial follow-up visits, physical examination, and return to play
- All Allografts were sourced by MTF

## RESULTS

- The failure rate for Allograft was 5.6%. This is comparable to historic autograft failure rates which range from 5%-13%
- A  $X^2$  contingency test was performed comparing patients aged 25 years or younger and those aged over 25 years with a resulting P value of 0.5811. No statistically significant difference between the groups of failures was seen



**Title:** Anterior Cruciate Ligament Reconstruction Using Patellar Tendon Allograft: An Age-Dependent Outcome Evaluation

**Author:** F. Alan Barber, M.D., Jorge Aziz-Jacobo, M.D., and Fernando Barrera Oro, M.D.

**Source:** *Arthroscopy*. Vol 26, No 4 (April), 2010: pp 488-493. Doi:10.1016/j.arthro.2009.08.022

**Key Takeaways:**

- There was no clinical difference when using allograft in patients over or under 40 years old

## STUDY OBJECTIVE

To compare the outcomes of a consecutive series of non revision bone–patellar tendon–bone (BPTB) allograft anterior cruciate ligament (ACL) reconstructions in patients aged 40 years or older and patients aged younger than 40 years.

## METHODS

- 32 patients were followed up at a mean of 40 months and a minimum of 24 months
- Preoperative and postoperative outcome assessments included Cincinnati, Lysholm, and Tegner scores and International Knee Documentation Committee (IKDC) activity scores. Lachman test, pivot-shift test, and KT arthrometer (MEDmetric, San Diego, CA) measurements were obtained at a minimum of 24 months after surgery

## RESULTS

- The outcomes of BPTB allograft ACL reconstructions were not different both subjectively and objectively for patients aged 40 years or older and patients aged younger than 40 years. BPTB allograft ACL reconstruction provides consistent results for patients of all age groups

**Title:** Allograft Compared with Autograft Infection Rates in Primary Anterior Cruciate Ligament Reconstruction

**Author:** David D. Greenberg, Michael Robertson, Santaram Vallurupalli, Richard A. White and William C. Allen

**Source:** *J Bone Joint Surg Am.* 92:2402-2408

**Key Takeaways:** • There was no statistical difference between Allograft and Autograft infection rates for ACLR

## STUDY OBJECTIVE

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The purpose of this study was to compare infection rates between procedures using allograft or autograft tissue in primary anterior cruciate ligament (ACL) reconstruction.

## METHODS

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- 221 autograft patients and 640 allograft patients were included in this study
- A combined prospective and retrospective multicenter cohort study was performed over a three-year period
- Graft selection was determined by the individual surgeon
- Inclusion and exclusion criteria were equivalent for the two groups (allograft and autograft tissue) Our primary outcome was intra-articular infection following anterior cruciate ligament reconstruction

## RESULTS

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- The rate of superficial infections in the entire study group was 2.32%. We did not identify a significant difference in the rate of superficial infections between autograft and allograft reconstruction in our study group
- While the theoretical risk of disease transmission inherent with allograft tissue cannot be eliminated, we found no increased clinical risk of infection with the use of allograft tissue compared with autologous tissue for primary anterior cruciate ligament reconstruction

**Title:** Anterior Laxity, Slippage, and Recovery of Function in the First Year After Tibialis Allograft Anterior Cruciate Ligament Reconstruction

**Author:** Conrad K. Smith, PhD, Stephen M. Howell, MD, and Maury L. Hull, PhD

**Source:** *AJSM*, published on October 7, 2010 as doi:10.1177/0363546510378652

**Key Takeaways:** • There was no increase in anterior laxity or slippage at 1 year when using MTF allograft

## STUDY OBJECTIVE

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When slippage-resistant fixation is used with a soft tissue graft, early recovery of function does not result in a clinically important increase in anterior laxity and slippage.

## METHODS

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- Nineteen subjects were treated with a single-tunnel, single-looped, MTF tibialis allograft with slippage-resistant, cortical fixation
- An examiner, different from the treating surgeon, used stereophotogrammetric analysis to compute the increase in anterior laxity at a 150 N anterior force and slippage between the day of surgery and each monthly follow-up interval, and determined recovery of function and motion

## RESULTS

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- Early recovery of function after ACL reconstruction with an MTF soft tissue allograft did not result in a clinically important increase in anterior laxity and slippage at 1 year

**Title:** Effect of Graft Choice on the Outcome of Revision Anterior Cruciate Ligament Reconstruction in the Multicenter ACL Revision Study (MARS) Cohort

**Author:** The MARS Group

**Source:** *Am J Sports Med* 2014 42: 2301 as DOI: 10.1177/0363546514549005

**Key Takeaways:**

- This study demonstrates that MTF allografts can have a 95% success rate in revision anterior cruciate ligament (ACL) reconstruction

## STUDY OBJECTIVE

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The purpose of this study was to compare revision rates of Allograft and Autograft to see if autograft would result in decreased failure rates 2 years after revision ACL reconstruction.

## METHODS

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- 1205 patients were enrolled in the study; half of the patients received an autograft and half received an allograft for their reconstruction. All surgeries were performed by members of the AOSSM
- The study used only MTF tissue and all patients were followed up with at 2 years post operation

## RESULTS

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- The Autograft group had a 97.8% Success rate (520 out of 542)
- The Allograft group had a 95.6% Success rate (516 out of 540)



# Summary of MTF Clinical Studies

STUDY	RESULTS
<p><b>Barber et. al. – Arthroscopy 2014</b> Revision Rates After Anterior Cruciate Ligament Reconstruction Using Bone Patellar Tendon Bone Allograft or Autograft in a Population 25 Years Old and Younger</p>	<p><b>7% Failure rate for MTF Allograft.</b> <b>9% Failure rate for Autograft.</b></p>
<p><b>Poehling et. al., Curl et. al – Arthroscopy 2005</b> Analysis of Outcomes of Anterior Cruciate Ligament Repair With 5-Year Follow-up: Allograft Versus Autograft</p>	<p><b>5-year follow-up.</b> <b>No difference MTF Allograft vs. Autograft.</b></p>
<p><b>Shah et. al., Lowe et. al – Arthroscopy 2010</b> Failure Rate of Achilles Tendon Allograft in Primary Anterior Cruciate Ligament Reconstruction</p>	<p><b>MTF Allograft 5.6% failure rate.</b> <b>Historic autograph control 5%-13% failure rates.</b></p>
<p><b>Barber et. al., Aziz-Jacobo et. al – Arthroscopy 2010</b> Anterior Cruciate Ligament Reconstruction Using Patellar Tendon Allograft: An Age-Dependent Outcome Evaluation</p>	<p><b>2-year follow-up.</b> <b>Patients over/under 40 years old had similar outcomes.</b></p>
<p><b>Greenberg et. al. – JBJS 2010</b> Allograft Compared with Autograft Infection Rates in Primary Anterior Cruciate Ligament Reconstruction</p>	<p><b>No increased clinical risk of infection with MTF Allograft vs. Autograft.</b></p>
<p><b>Howell et. al. – AJSM 2010</b> Anterior Laxity, Slippage, and Recovery of Function in the First Year After Tibialis Allograft Anterior Cruciate Ligament Reconstruction</p>	<p><b>No clinically significant increase in anterior laxity and slippage at one year.</b></p>
<p><b>MARS study group – AJSM 2014</b></p>	<p><b>MTF allograft 95.6% Success rate.</b> <b>Autograft 97.8% Success rate.</b></p>

**If you have any questions,  
we'd love to hear from you!**

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