



MIDWEST  
ORTHOPAEDICS  
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# Midterm Outcomes of Meniscal Allograft Transplantation in the Adolescent Population

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Poster # 77



**I (and/or my co-authors) have  
something to disclose.**

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# Objectives



- **Background**

- *Youth meniscus injuries are increasingly common.*
- *Meniscal preservation is key, especially in adolescents.*
- *When repair is not an option in adolescents, what to do?*
- *Prior case series demonstrated promising clinical results in 32 patients at short-term 2-year follow-up*

- **Study Purpose**

- *To report midterm outcomes following MAT with fresh-frozen allografts implanted using the bridge-in-slot technique in adolescent patients.*
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# Materials & Methods



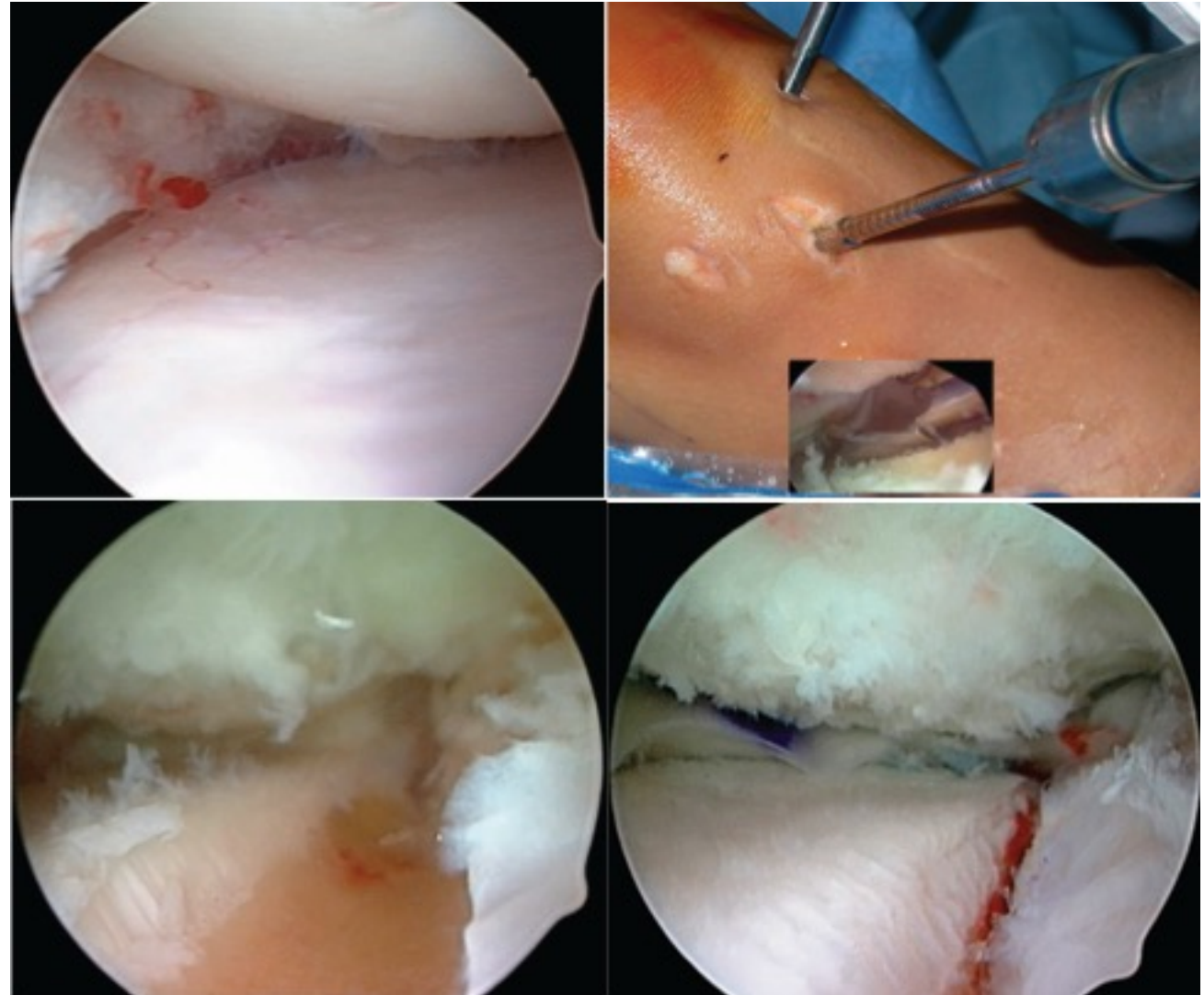
- **Retrospective review of a prospectively maintained database from 1999-2017.**
  - **Inclusion criteria: Fresh-frozen, primary MAT using the bridge-in-slot technique; age 18 years or younger; minimum 5-year follow-up.**
  - **Evaluation of patient-reported outcome measures (PROs), meniscal reoperations, and failure (revision MAT).**
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# Materials and Methods



## Bridge-in-Slot Surgical Technique

- Anterior and posterior horn attachments.
- Secure bony fixation.
- Feasible to perform in the setting of concomitant procedures.
- Contained completely within the proximal tibial epiphysis.



# Results

## Patient Demographics



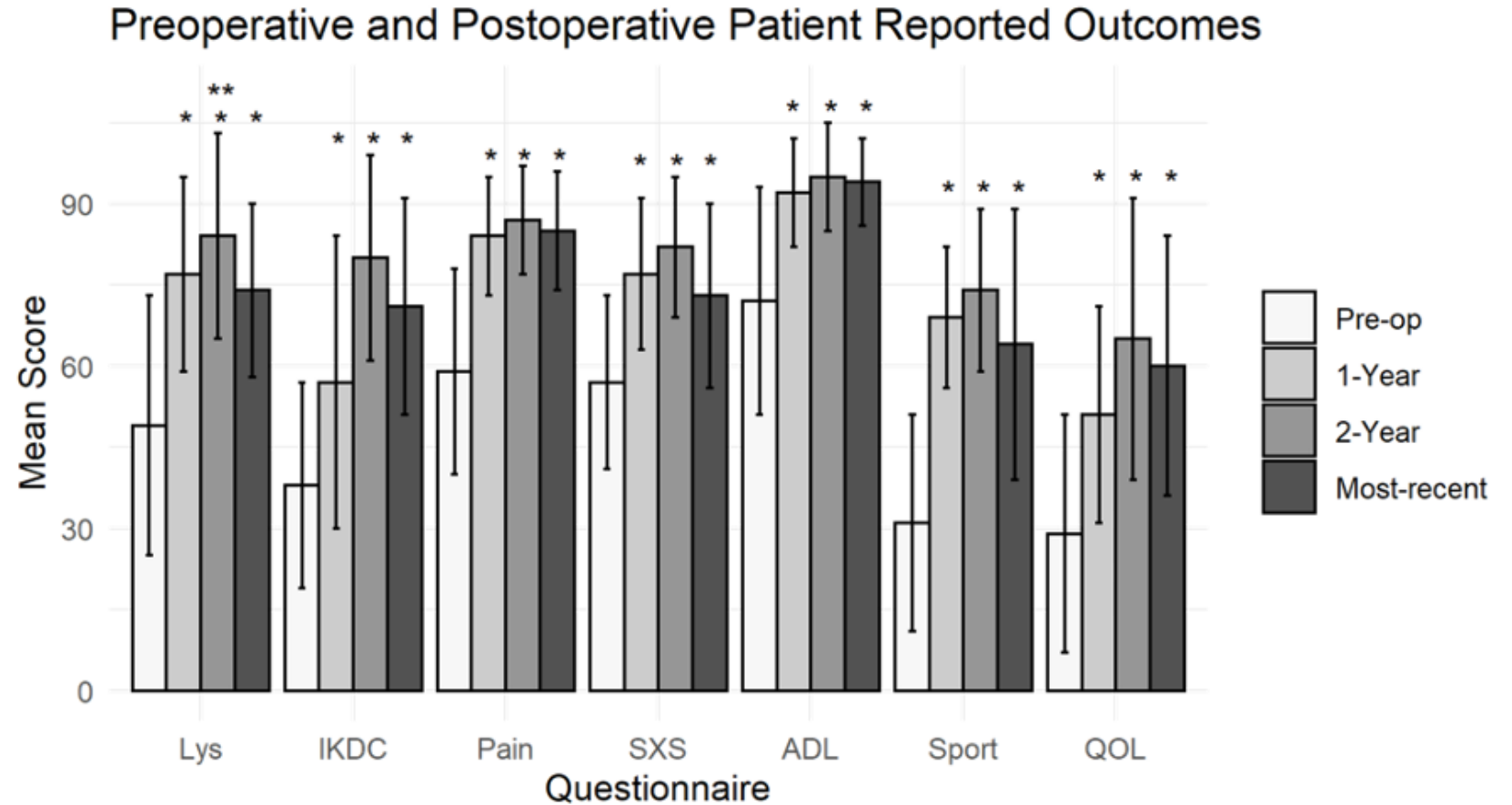
Variable	No (%) or Mean $\pm$ SD
<b>Eligible Patients</b>	62
<i>Met all Inclusion Criteria</i>	44 (71%)
<i>PROMs at 5-years</i>	33 (53%)
<b>Sex</b>	
<i>Female</i>	33 (75%)
<i>Male</i>	11 (25%)
<b>Age at Surgery</b>	16.1 $\pm$ 1.9 years
<b>Laterality</b>	
<i>Lateral</i>	35 (80%)
<i>Medial</i>	9 (20%)
<b>Concomitant Procedures</b>	27 (61%)
<i>OCA</i>	14 (32%)
<i>ACI</i>	8 (14%)
<i>ACLR</i>	6 (14%)
<i>DFO/HTO</i>	5 (11%)
<i>MFX</i>	3 (7%)

# Results



## Patient-Reported Outcomes

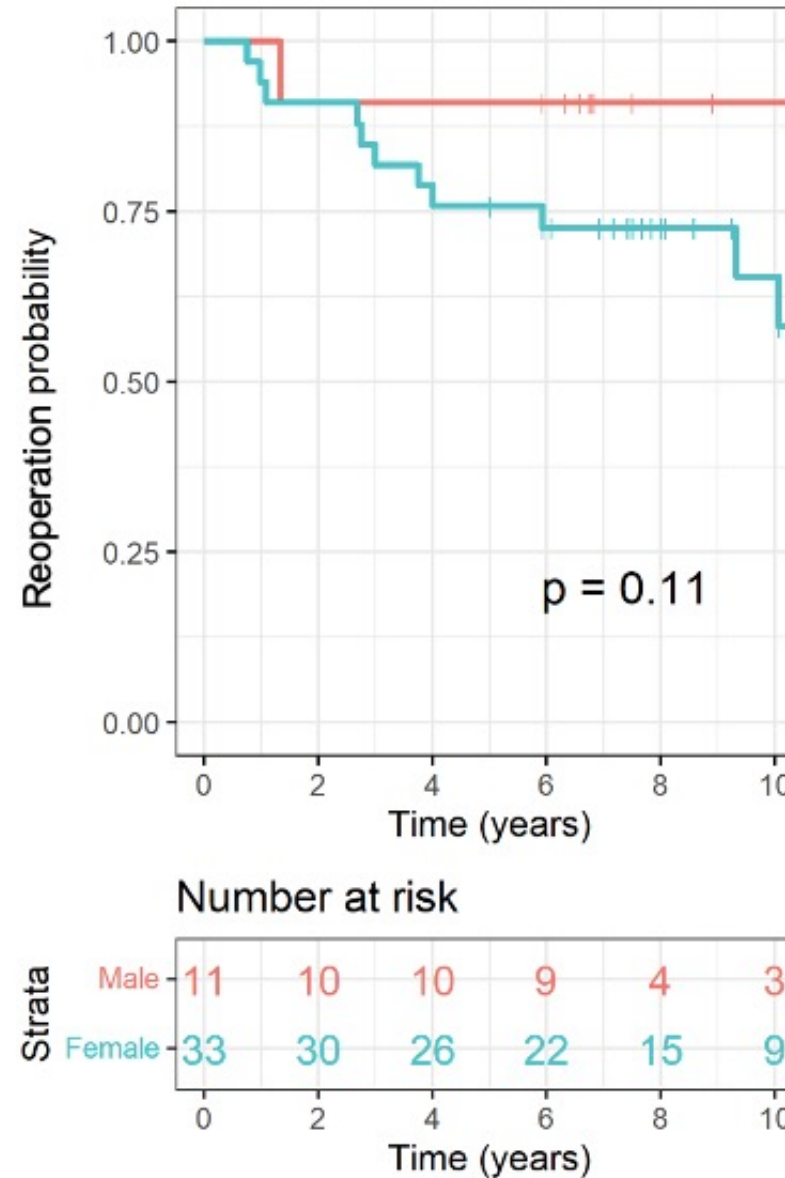
- Avg follow-up: 9.5 ± 3.8 years (range: 5.0-17.7)
- Improvements in all PROs
- 90% patient satisfaction



# Results

## Reoperations

- 11 (25%) reoperations at an avg  $5.9 \pm 4.5$  years (range: 0.8 - 14.0) post-MAT
- Female patients were more likely to undergo a reoperation ( $p = 0.039$ )

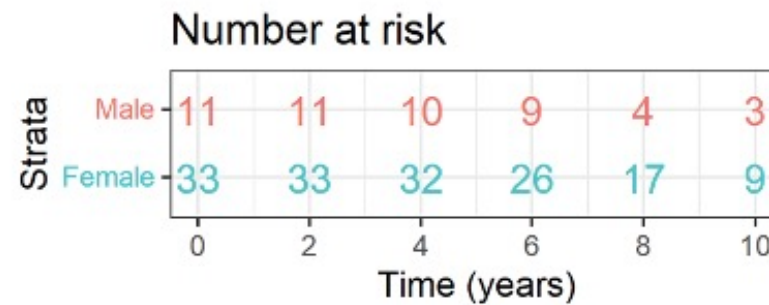
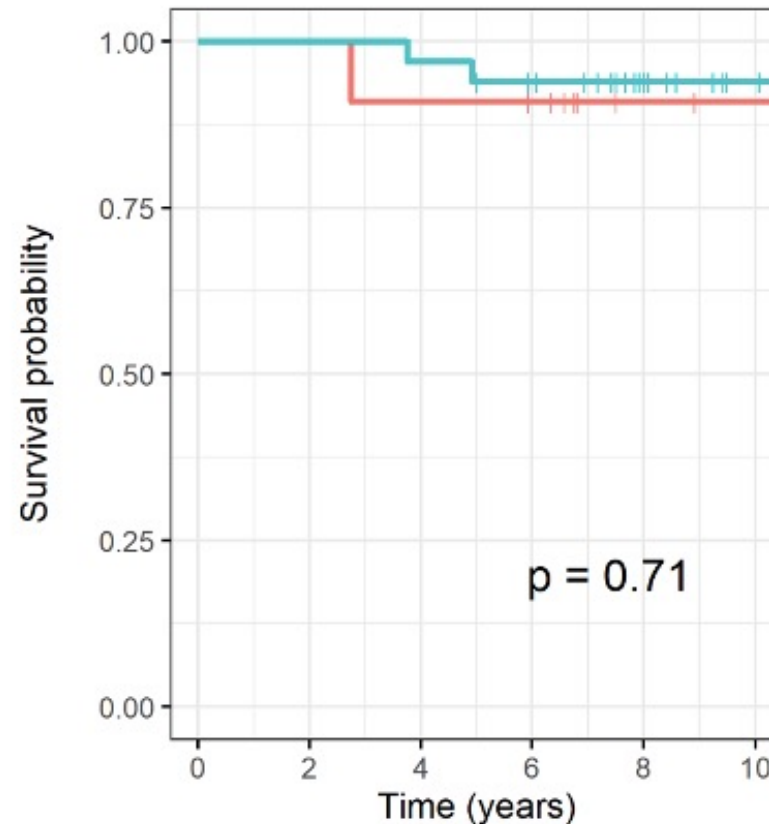




# Results

## Failures

- Three (7%) revision MATs at an avg of  $3.8 \pm 1.1$  years (range: 2.8-4.9)
- No difference based on sex ( $p = .71$ ), laterality ( $p = .48$ ), concomitant surgery ( $p = .23$ )



# Conclusions

## Our Outcomes

- Sig improved PROMs at 1-yr 2-yr, and final f/u
- 5-years:
  - 20% reoperation
  - 93% survival
- Final (9.5 yrs) follow-up:
  - 25% reoperation
  - 93% survival



## Midterm and Long-term Results of Medial Versus Lateral Meniscal Allograft Transplantation

### A Meta-analysis

Seong-Il Bin,<sup>\*</sup> MD, Kyung-Wook Nha,<sup>†</sup> MD, Ji-Young Cheong,<sup>‡</sup> MD, and Young-Soo Shin,<sup>§¶</sup> MD  
*Investigation performed at Veterans Health Service Medical Center, Seoul, Republic of Korea*

**AJSM 2018**

- 694 MATs (287 med, 407 lat)
- 85%, 89% survival at 5-yr
- 53%, 57% survival at 10-yr

## Long-Term Survival Analysis and Outcomes of Meniscal Allograft Transplantation With Minimum 10-Year Follow-Up: A Systematic Review

João V. Novaretti, M.D., Neel K. Patel, M.D., Jayson Lian, B.A., Ravi Vaswani, M.D.,  
Darren de SA, M.D., F.R.C.S.C.,  
Alan Getgood, M.Phil., M.D., F.R.C.S.(Tr.&Orth.), Dip.S.E.M., and Volker Musahl, M.D.

**Arthroscopy 2019**

- 687 MAT (294 med, 393 lat)
- 75% survival at 10-yr

# Conclusion



- **MAT in adolescent patients resulted in significant and durable functional improvements at mid- to long-term follow-up.**
  - **Adolescents undergoing MAT demonstrated similar graft survivability when compared to available adult MAT literature.**
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# Significance of the Findings



- Overall, this study illustrates that midterm outcomes of MAT in this cohort of adolescent patients significantly increases in functional outcomes, with low probability of graft failure.
  - Further research of MAT outcomes in this demographic remains warranted.
    - *A primary area of future study should evaluate the chondroprotective effects of MAT in adolescents, especially in light of inconclusive results in studies of adult populations.*
  - Long-term reporting of MAT outcomes remains necessary to better elucidate overall treatment prognosis and consequences of the procedure.
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# Thank you.

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