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*“Medial meniscus allograft transplantation: is the bone trough technique a reasonable procedure?”*

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**Disclosures:**

**The authors have no disclosures relevant to this abstract to present.**





# Background

- Restoring knee functionality and decreasing the risk of osteoarthritis are paramount following meniscus allograft transplantation (MAT).
- Three fixation techniques (soft-tissue, bone plug, and the bone trough technique) have been employed for this procedure. For lateral meniscus allograft transplantation (LMAT), the bone trough technique has proven superior.



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- The purpose of this surgical technique description was to describe our method of medial meniscus allograft transplantation (MMAT) using the bone trough technique, while simultaneously evaluating patient outcomes before and after the procedure.



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# Methods

- Medial meniscal allograft transplantation MMAT( Through technique )

Number of patients, 13

- mean age,  $34.12 \pm 8.86$ ; 8 female and 5 male
- Follow-up, 2001-2020



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- functional outcomes Evaluation was achieved using three surveys: Western Ontario and McMaster Osteoarthritis Index (WOMAC), International Knee Documentation Committee (IKDC), and the Tegner Lysholm Knee Scoring Scale (Lysholm) evaluated before MMAT and at final follow-up.





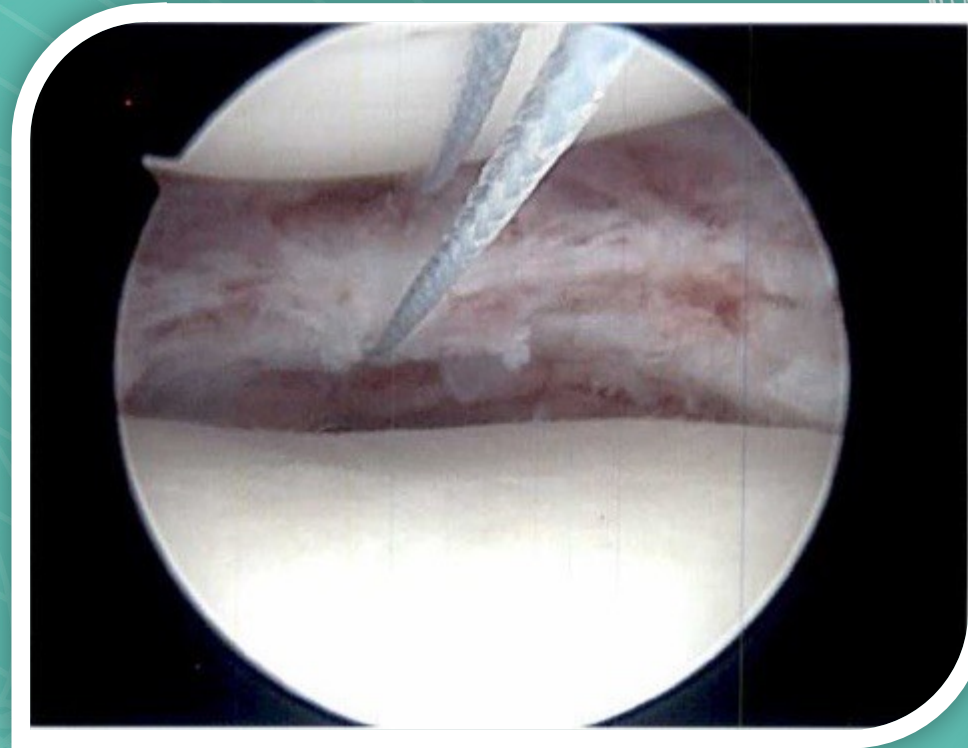
# Surgical Technique ( Through MMAT)

- An assumed provisional tract for the groove identifying the ACL footprint teased up really slightly off of medial tuberosity is made coming anteriorly approximately 6-7 millimeter towards the medial aspect on the cartilage to trim slight amount.



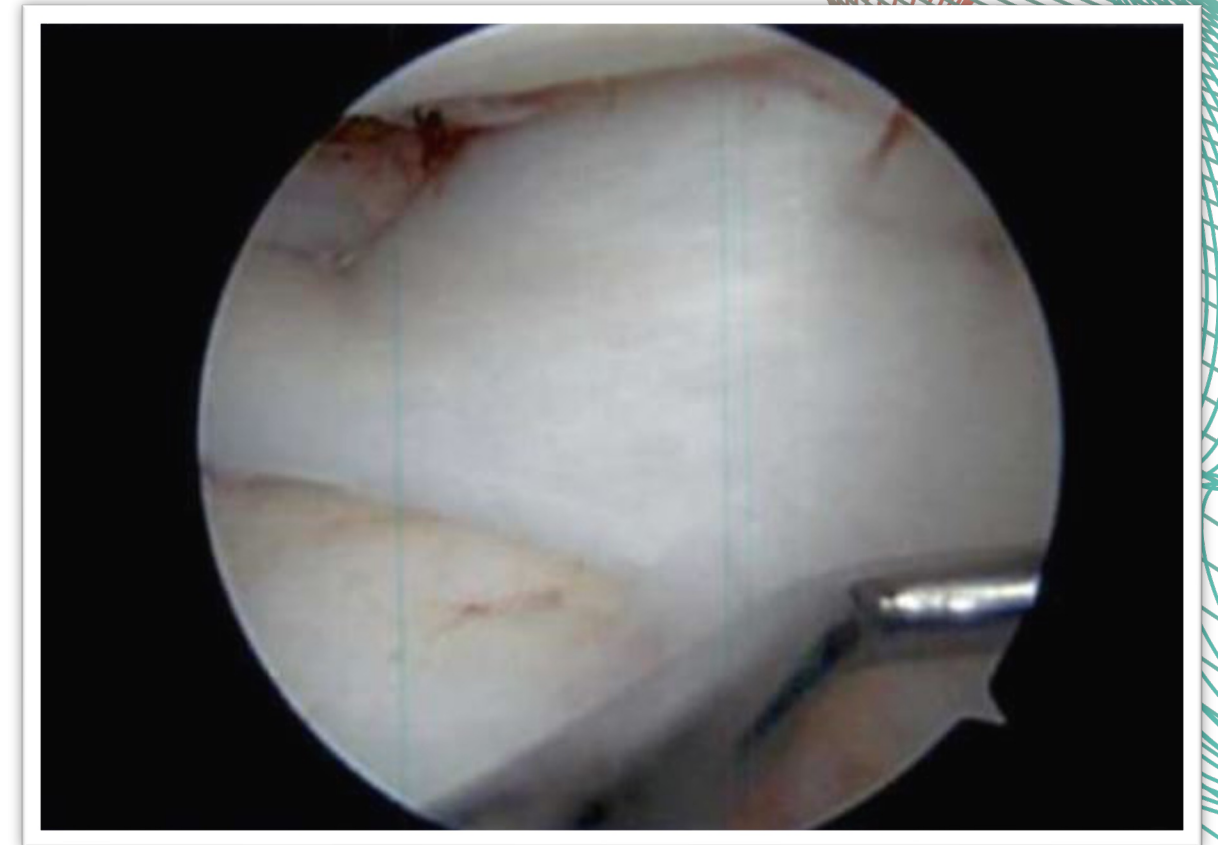


- The bridge is moved by 2/3 of the way through the slot by pushing straight forward and pulling the traction suture, which will then be necessary to flex the knee 20° and apply a valgus force so that the posterior horn is also reduced.
- .





- We then cycle the knee through a range of motion to let the bridge settle in a neutral position and then fix it in place at about 10 degrees of flexion using a 15 x 5.5 mm tenodesis screw. We insert it into the medial side of the bridge to displace it straight laterally so that helps prevent any extrusion





# Result

- improvement in functional outcomes pre to post using the WOMAC, IKDC, and Lysholm surveys ( $P < 0.001$ ).
- Functional outcomes based on the WOMAC survey improved from  $59.31 \pm 14.58$  prior to MMAT to  $9.77 \pm 6.29$  at final follow-up.
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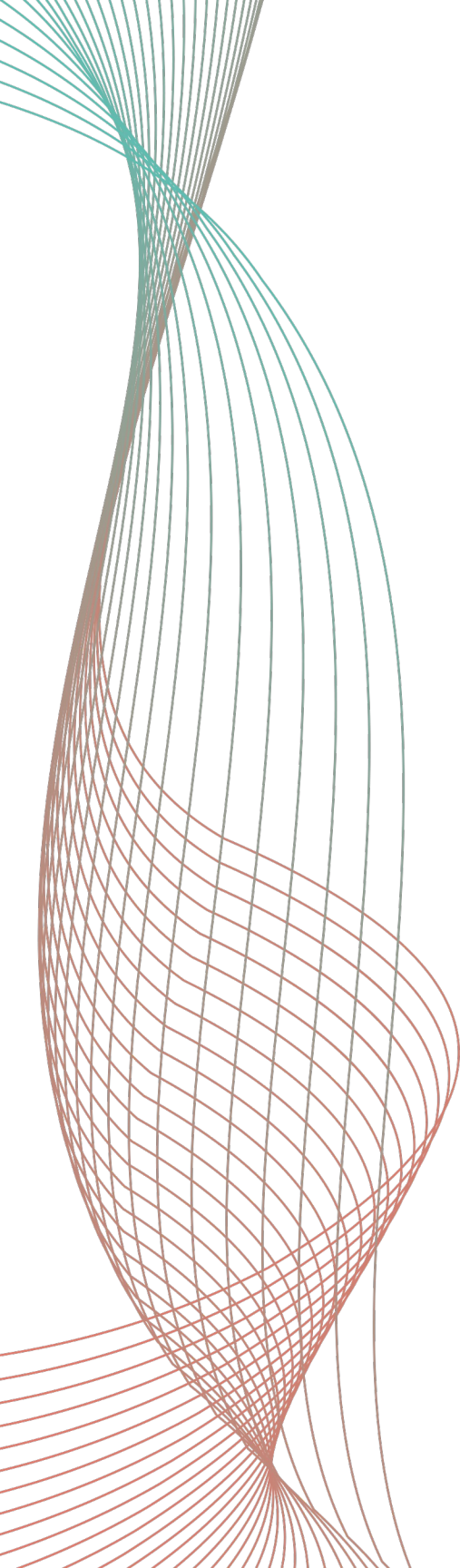


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- Functional outcomes based on the IKDC survey improved from  $42.62 \pm 7.33$  prior to MMAT to  $63.54 \pm 7.63$  at final follow-up.
  - Functional outcomes based on the Lysholm survey improved from  $27.62 \pm 15.38$  prior to MMAT to  $86.62 \pm 13.02$  at final follow-up.



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# Conclusions

- Based on the considerable improvement using three separate clinical surveys for evaluating functional outcomes of the knee after a surgical procedure, the bone trough technique for MMAT is a reasonable procedure. Using the bone trough technique was not associated with any major complication or graft failure.





# References

- Boss A, Klimkiewicz J, Fu F. Technical innovation: creation of a peripheral vascularized trough to enhance healing in cryopreserved meniscal allograft reconstruction. *Knee Surgery, Sports Traumatology, Arthroscopy*. 2000;8(3):159-62.
- Cavendish PA, DiBartola AC, Everhart JS, Kuzma S, Kim WJ, Flanigan DC. Meniscal allograft transplantation: a review of indications, techniques, and outcomes. *Knee surgery, sports traumatology, arthroscopy: official journal of the ESSKA*. 2020.
- Novaretti JV, Patel NK, Lian J, Vaswani R, Getgood A, Musahl V. Long-term survival analysis and outcomes of meniscal allograft transplantation with minimum 10-year follow-up: a systematic review. *Arthroscopy: The Journal of Arthroscopic & Related Surgery*. 2019;35(2):659-67.
- Nissen CW. The keyhole technique for meniscal transplantation. *Operative Techniques in Sports Medicine*. 2003;11(2):156-60.
- Zhang S, Li H, Li H, Hua Y. Bone bridge fixation has superior biomechanics on posterior knees to bone plug fixation after lateral meniscal allograft transplantation—A biomechanical study simulating partial weight-bearing conditions. *The Knee*. 2021;32:64-71.

