

Clinical Summary

Medial Patellofemoral Ligament Augmented with a Reinforced Bioinductive Implant is Biomechanically Similar to the Native Medial Patellofemoral Ligament at Time Zero in a Cadaveric Model

Authors: Sean Mc Millan, D.O., Seth Sherman, M.D., Zachary R. Brown, M.S., Erik Brewer, Ph.D.c, Elizabeth Ford, D.O.

Journal: Arthroscopy, Sports Medicine, and Rehabilitation

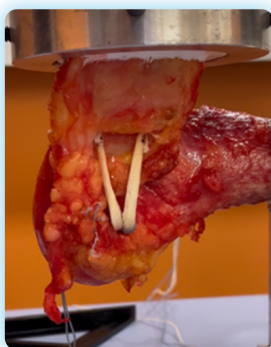


Aim:

To evaluate whether medial patellofemoral ligament (MPFL) repair augmented with a reinforced bioinductive implant (BioBrace®) replicates the biomechanical properties of the native MPFL, and how it compares to semitendinosus (semi-T) graft reconstruction in a cadaveric model.

Study Design

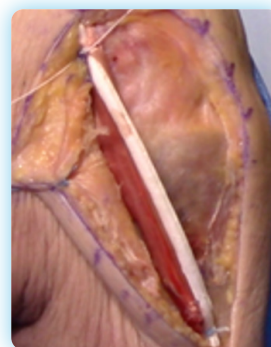
- Cadaveric biomechanical study using 8 knees (4 matched pairs)
- Each knee tested in three conditions:



MPFL Repair Augmented with BioBrace®



MPFL Recon with Semi-T



Native Intact, MPFL

Test Method:

- Constructs were tested to failure, measuring:
 - » Load at failure
 - » Displacement
 - » Stiffness
 - » Mode of failure

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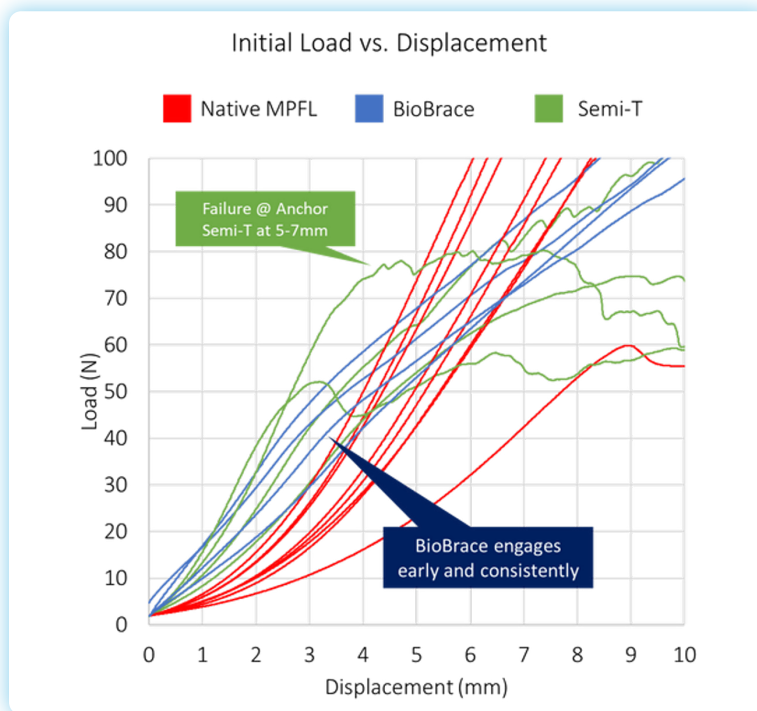
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Results:



Interpretation:

- BioBrace®-augmented repair closely mimics native MPFL biomechanics in terms of strength and stiffness.
- Semi-T reconstruction was significantly stiffer than the Native MPFL. It's displacement at failure was much earlier than the native MPFL.
- BioBrace® offers a more consistent and reproducible construct with favorable mechanical behavior.

Key Takeaways:

- BioBrace® augmented MPFL repairs provides similar strength to an intact MPFL.
- Augmentation with BioBrace® provides an alternative solution for patient indications where a reconstruction is not necessary, but surgical intervention is required.

McMillan, S., Sherman, S., Brown, Z. R., Brewer, E., & Ford, E. (2024). Medial Patellofemoral Ligament Augmented With a Reinforced Bioinductive Implant Is Biomechanically Similar to the Native Medial Patellofemoral Ligament at Time Zero in a Cadaveric Model. *Arthroscopy, Sports Medicine, and Rehabilitation*, 6(5), 100975. <https://doi.org/10.1016/j.asmr.2024.100975>