



ISAKOS
CONGRESS
2023



Boston
Massachusetts
June 18–June 21

Welcome

isakos.com/2023 • [#ISAKOS2023](https://twitter.com/ISAKOS2023)





ISAKOS
CONGRESS
2023



Boston
Massachusetts
June 18–June 21

A Comparison of Postoperative Outcomes Between Internal Brace Augmented and Non- Augment Hamstring Tendon Autograft Anterior Cruciate Ligament Reconstruction (ACLR)

Author/s:

Maria Melanie Legaspi Valbuena, MD, MBA

Raphael Angelo Jurilla, MD

Patrick How, MD

Jason Paul Santiago, MD

Philippine Orthopedic Center, Quezon City, PHILIPPINES





ISAKOS
CONGRESS
2023



Boston
Massachusetts
June 18–June 21

Disclosures:

None



Introduction: ACL injury

- Anterior cruciate ligament is the most injured knee ligament.
- For acute ruptures, the gold standard surgical treatment is ACL reconstruction (ACLR) using tendon or ligament autograft.



Introduction: Internal Brace

- An internal brace is relating concept that applied **knotless bone anchors** and **braided suture tape** to fortify the strength of the ligament graft.
- Internal brace augmented ACL reconstruction is a technique that marries a previously published technique with the potential advantages of suture tape augmentation to **increase the biomechanical strength** of the reconstruction at the time of surgery and **potentially reinforcing the graft thereafter.**

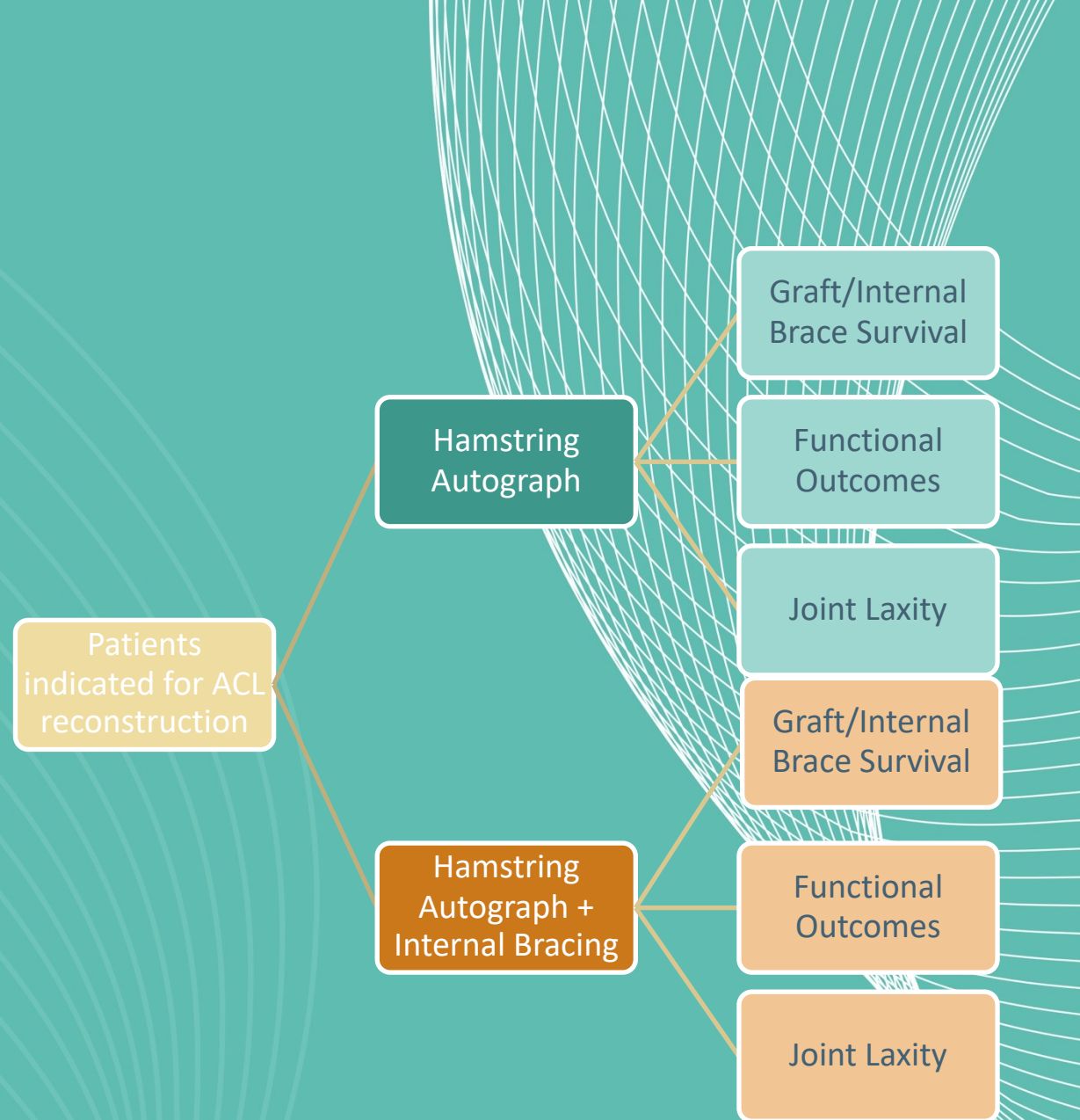


Methods

Design: prospective, experiment, experimental level of intervention, analytical and randomized control trial.

CONTROL GROUP: received the standard practice of non-augmented hamstring autograft

EXPERIMENT GROUP: received augmented hamstring autograft



Intra-operative photos

Figure 1. Harvested Semitendinosus tendon up to the musculotendinous junction.

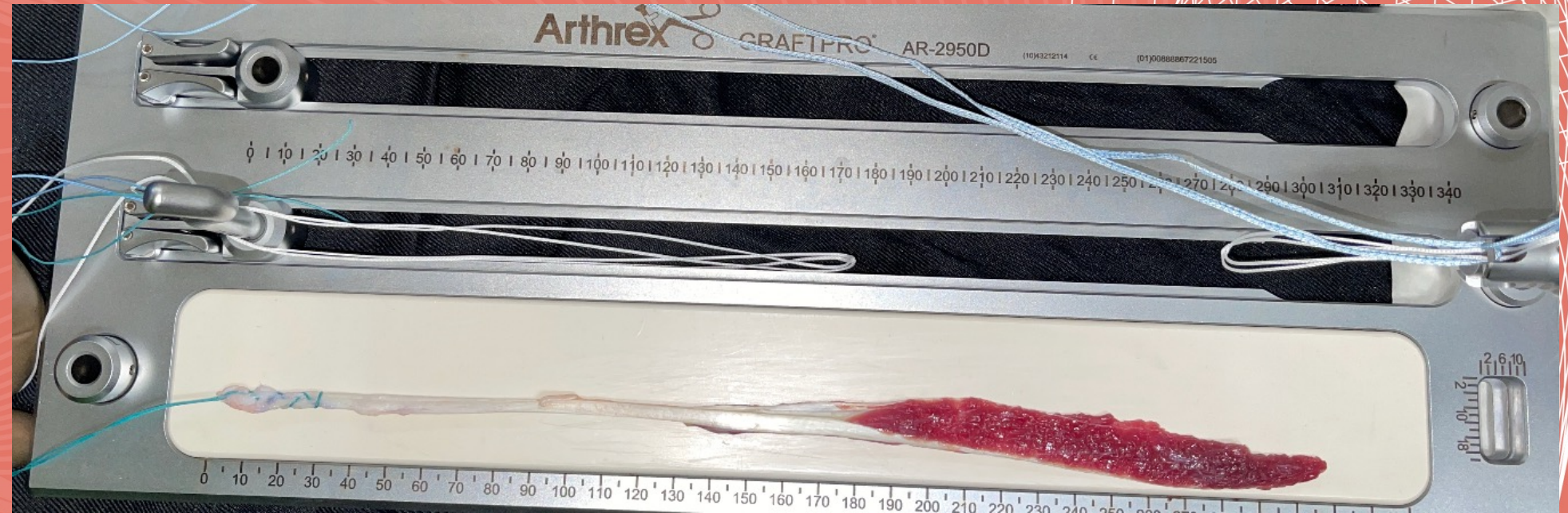
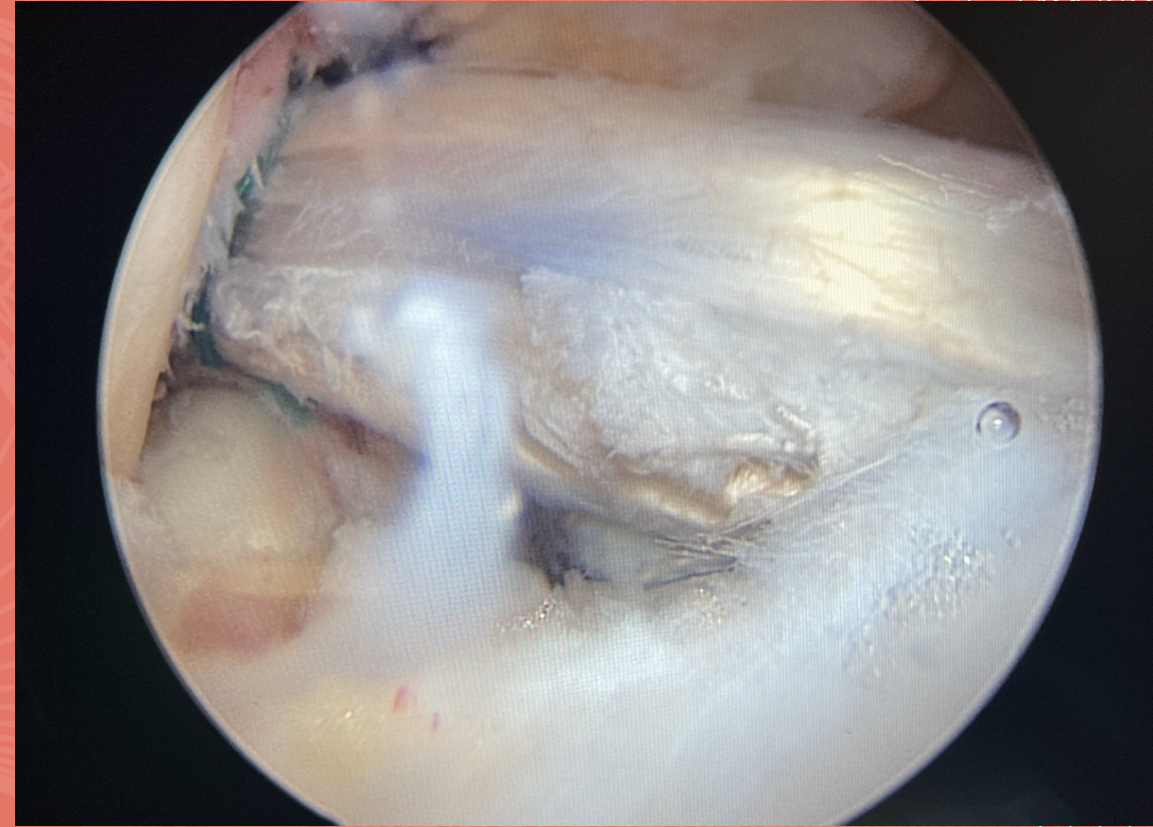


Figure 2. Folded and bundled semitendinosus autograft with internal brace fibertape.



Intra-operative photos

Figure 3. Insertion of graft with internal brace through the bone tunnels created.



RESULTS

Ten patients (mean age 22.3 years, range 21-23) who underwent ACLR with internal brace augmentation and 27 patients (mean age 24.3 years, range 17-43) without internal brace augmentation were included in this study.

No patient from both groups underwent reoperation.

No patient in both groups experienced ACL failure and underwent revision ACLR.



ISAKOS
CONGRESS
2023



Boston
Massachusetts
June 18–June 21

RESULTS

No tears were seen on follow-up MRI of all patients on both groups. 1 month post-op scores of augmented comparing to non-augmented ACLR Tegner activity scores (8.6 to 7.3, 7.1 to 7.0), Lysholm scores (76.5 and 75.8), IKDC scores (83.4 and 81.7) and KOOS scores (77 and 65) show **significantly better scores amongst augmented ACLR.**



ISAKOS
CONGRESS
2023



Boston
Massachusetts
June 18–June 21

RESULTS

4 months and 8 months scores show no statistically significant difference. 1 year post-op scores of augmented comparing to non-augmented ACLR Tegner activity scores (9.2 to 9.3, 8.1 to 8.3), Lysholm scores (96.5 and 85.8), IKDC scores (93.4 and 83.0) and KOOS scores (89 and 72) show **better scores amongst patients who underwent augmented ACLR** compared to non-augmented ACLR.



ISAKOS
CONGRESS
2023



Boston
Massachusetts
June 18–June 21

DISCUSSION

- Compared to standard hamstring ACLRs, the study showed that the population who underwent augmented hamstring ACLRs exhibited ***improved PROMs, less pain, and a higher percentage of and earlier return to pre-injury activity level without evidence of over constraint..***



REFERENCES

- Magnusson J, Podesta L. Anterior Cruciate Ligament Reconstruction. Rehabilitation for the Post-surgical Orthopedic Patient. 2013; 3rd Edition.
- Kumar K, Maffulli N. The Ligament Augmentation Device: An Historical Perspective. Arthroscopy: The Journal of Arthroscopic & Related Surgery [Internet]. 1999;15(4):422–32.
- Aboalata M, Elazab A, Halawa A, Ahmed MS, Imhoff AB, Bassiouny Y. The Crossing Internal Suture Augmentation Technique to Protect the All-Inside Anterior Cruciate Ligament Reconstruction Graft. Arthroscopy Techniques [Internet]. 2017;6(6).
- Crawford SN, Waterman BR, Lubowitz JH. Long Term Failure of Anterior Cruciate Ligament Reconstruction. Elsevier Inc. 2013 Sep;29(9):1566-71.
- Eck CFV, Limpisvasti O, Elattrache NS. Is There a Role for Internal Bracing and Repair of the Anterior Cruciate Ligament? A Systematic Literature Review. The American Journal of Sports Medicine. 2017Jul;46(9):2291–8.
- Wilson WT, Hopper GP, Byrne PA, MacKay GM. Anterior Cruciate Ligament Repair with Internal Brace Augmentation. Surg Technol Int. 2016 Oct 26;29:273-278.
- David Machin and Peter Fayers. 2010. Randomized Clinical Trials, 1st Edition ed. New Jersey, USA: John Wiley and Sons, Ltd; page 184 and 191.
- Collins NJ, Misra D, Felson DT, et al. Measures of knee function: International Knee Documentation Committee (IKDC) Subjective Knee Evaluation Form, Knee Injury and Osteoarthritis Outcome Score (KOOS), Knee Injury and Osteoarthritis Outcome Score Physical Function Short Form (KOOS-PS), Knee Outcome Survey Activities of Daily Living Scale (KOS-ADL), Lysholm Knee Scoring Scale, Oxford Knee Score (OKS), Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), Activity Rating Scale (ARS), and Tegner Activity Score (TAS). Arthritis Care Res (Hoboken). 2011;63(Suppl 11): S208–28.

