

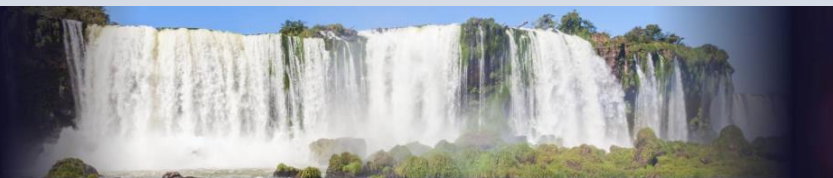
Muscle Strength Recovery After ACL Reconstruction with Partial vs. Full-Thickness Quadriceps Tendon Autograft

João V. Novaretti

Paulista School of Medicine (EPM), Federal University of São Paulo, Brazil



ACL Biennial Meeting
Study Group
Iguazu Falls, Brazil
February 1-5, 2026





INTRODUCTION

➤ QT autograft

- Greater asymmetry in landing kinetics¹
- Loss of knee extension²
- Weaker quad strength at 7 months³

1. Cherelstein RE et al. AJSM 2025

2. Giusto JD et al. OJSM 2025

3. Holmgren D et al. AJSM 2024



INTRODUCTION

➤ Partial vs. full-thickness

- No difference biomechanical properties¹
- No difference in gait mechanics²

1. Dansby J et al. OJSM 2025

2. Ripic Z et al. PM&R 2024



Partial vs. Full-Thickness Quad Tendon Autograft

OBJECTIVE

To compare quadriceps and hamstrings strength between ACLR with partial and full-thickness QT autograft



Partial vs. Full-Thickness Quad Tendon Autograft

METHODS

➤ Included:

- Primary ACLR with QT autograft

➤ Excluded:

- Concurrent ligament reconstructions, contralateral ACLR



Partial vs. Full-Thickness Quad Tendon Autograft

METHODS

➤ Surgical Technique:

➤ Anatomic ACLR

- Partial or full thickness, fixation, tunnel placement



METHODS

Quadriceps and Hamstrings Strength

Testing:

- Handheld dynamometry
- 3 / 6 / 9 and 12 months of follow-up



Partial vs. Full-Thickness Quad Tendon Autograft

METHODS



Comparable to isokinetic dynamometer¹



Partial vs. Full-Thickness Quad Tendon Autograft

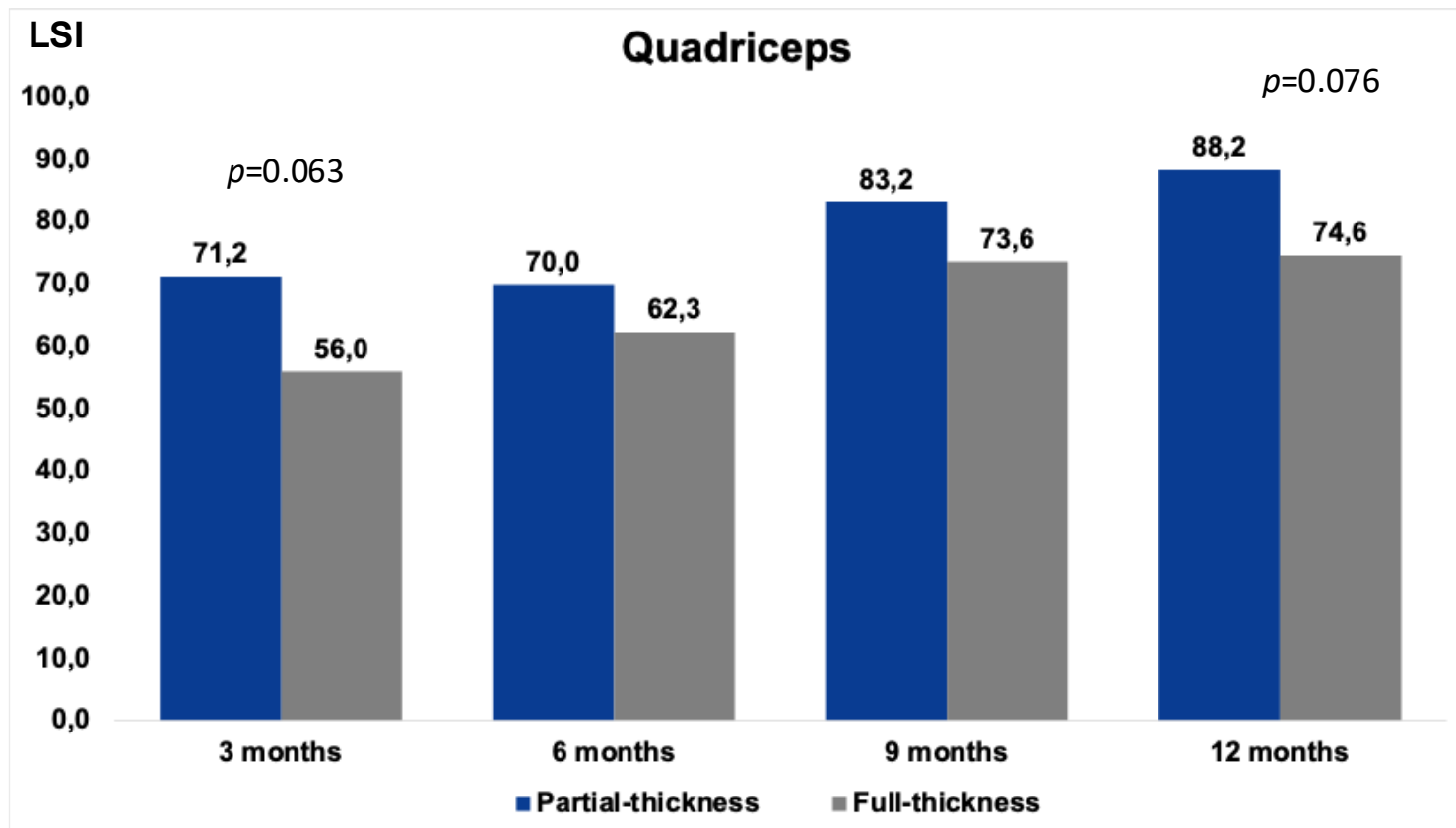
RESULTS

- 28 patients
- 16 partial / 12 full-thickness
- Mean graft size
 - 8.3mm partial vs. 9.8mm full-thickness



Partial vs. Full-Thickness Quad Tendon Autograft

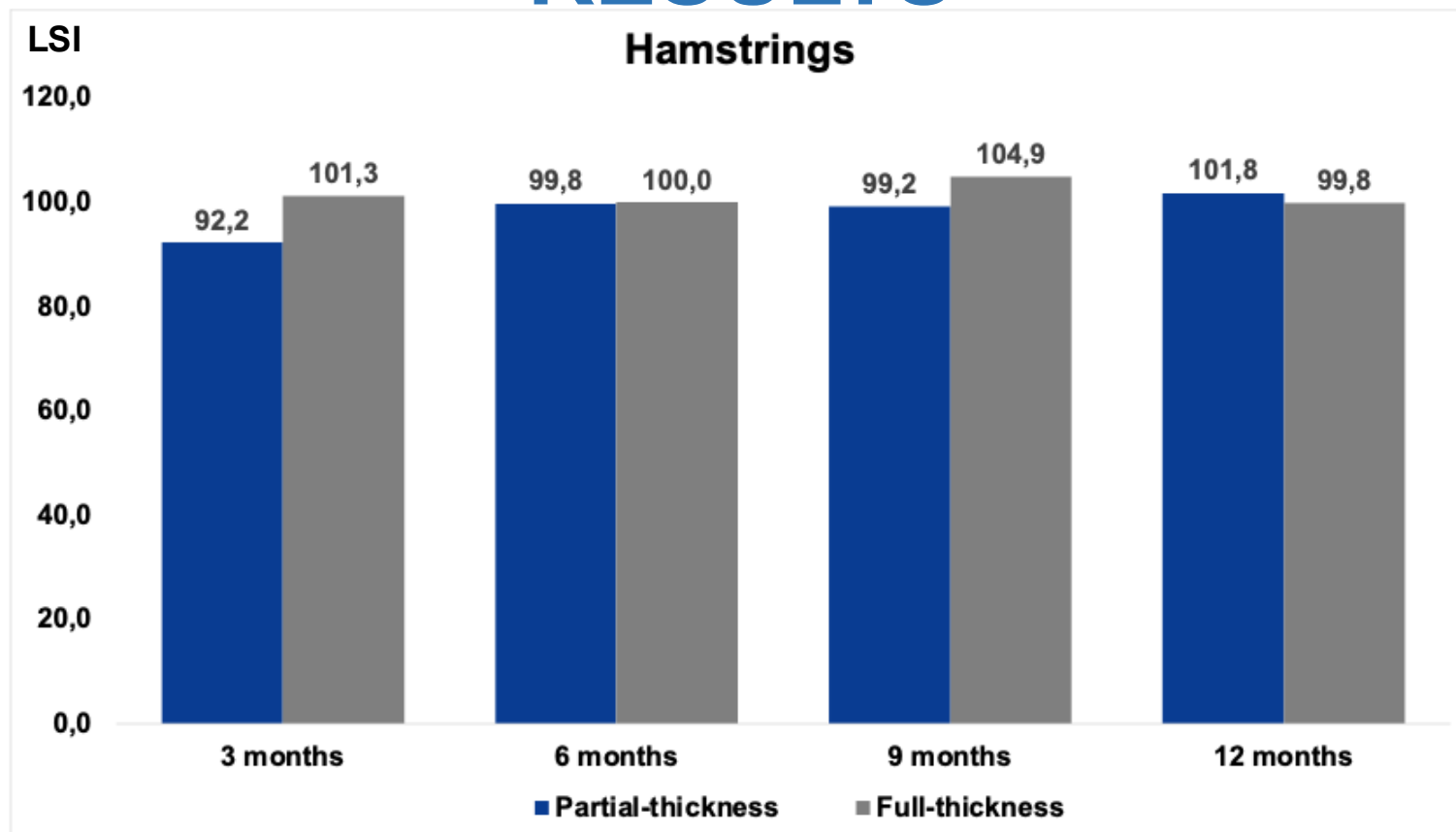
RESULTS





Partial vs. Full-Thickness Quad Tendon Autograft

RESULTS





Partial vs. Full-Thickness Quad Tendon Autograft

DISCUSSION

MAIN FINDINGS

- ✓ Higher quadriceps LSI in partial-thickness group at 3 months
 - Earlier effective rehabilitation



Partial vs. Full-Thickness Quad Tendon Autograft

DISCUSSION

MAIN FINDINGS

- ✓ Partial-thickness group near-optimal symmetry at 12-month follow-up
 - Safer return to sports



Partial vs. Full-Thickness Quad Tendon Autograft

DISCUSSION

MAIN FINDINGS

- ✓ Both groups - excellent LSI for hamstrings
 - Does not negatively affect the posterior chain
 - May be preferred for athletes who require high flexor peak torque



Partial vs. Full-Thickness Quad Tendon Autograft

CONCLUSION

Partial-thickness QT autograft demonstrated a faster functional recovery curve and superior extensor symmetry compared to the full-thickness QT grafts

Partial vs. Full-Thickness Quad Tendon Autograft

THANK YOU!



jvnovaretti@gmail.com