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Patellar Tendon Healing After ACL Reconstruction: A Randomized Trial of Repair Techniques



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Faculty Disclosure Information

- Nothing to disclosure



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Objective



- **Primary Objective:** Evaluate the healing gap of the patellar tendon donor site 6 months postoperatively using MRI.
- **Secondary Objectives:**
 - Assess changes in patellar tendon dimensions (length, width, thickness).
 - Evaluate functional outcomes with:
 - KOOS (Knee Injury and Osteoarthritis Outcome Score)
 - IKDC (International Knee Documentation Committee Score).



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Study Design



- **Randomized Controlled Trial**
- **Participants:** 75 patients initially enrolled, 73 analyzed
 - Partial thickness repair (PR) Group: 38 patients
 - Total thickness repair (TR) Group: 35 patients
- **Intervention:**
 - PR: Inner one-third of patellar tendon repaired using interrupted suture
 - TR: Entire patellar tendon thickness repaired using interrupted suture
 - **Both Groups:**
 - Paratenon meticulously repaired.
 - Bone grafting at patellar bone and tibial tubercle sites.
- Identical rehabilitation and follow-up protocols.



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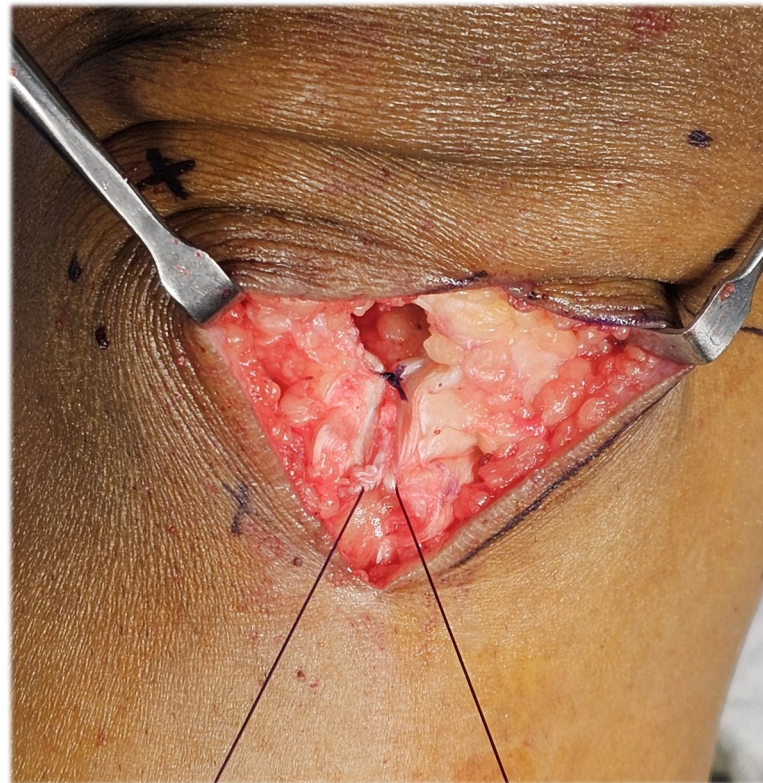
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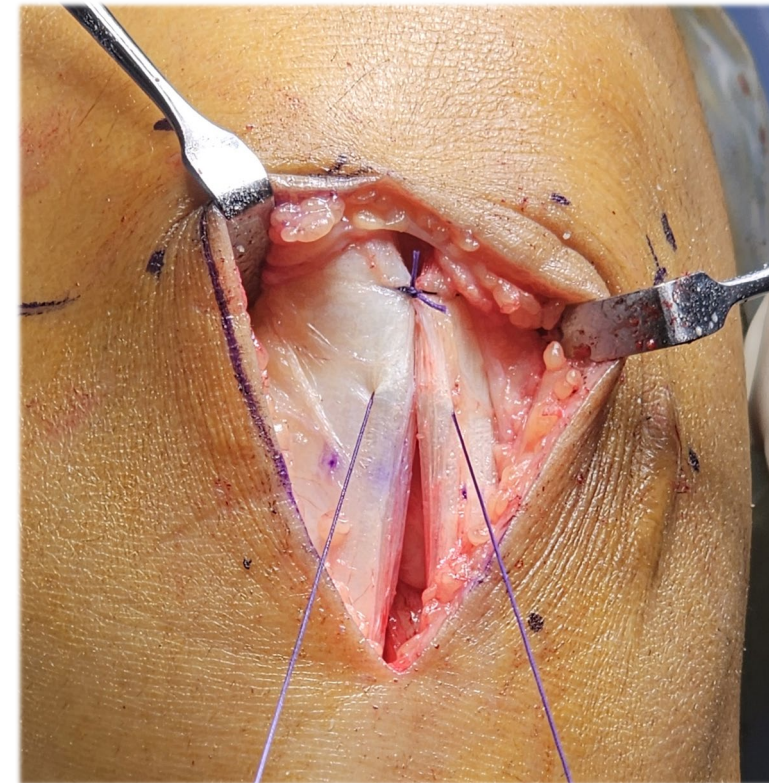
Patellar tendon repair techniques



Partial thickness repair



Total thickness repair



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Demographic Data



	PR group	TR group	<i>P</i> -value
Age	29.87 ± 1.61 years	26.41 ± 1.51 years	0.12
Sex	87.89% Male	100% Male	0.35
BMI	25.16 ± 0.64	23.98 ± 0.55	0.17



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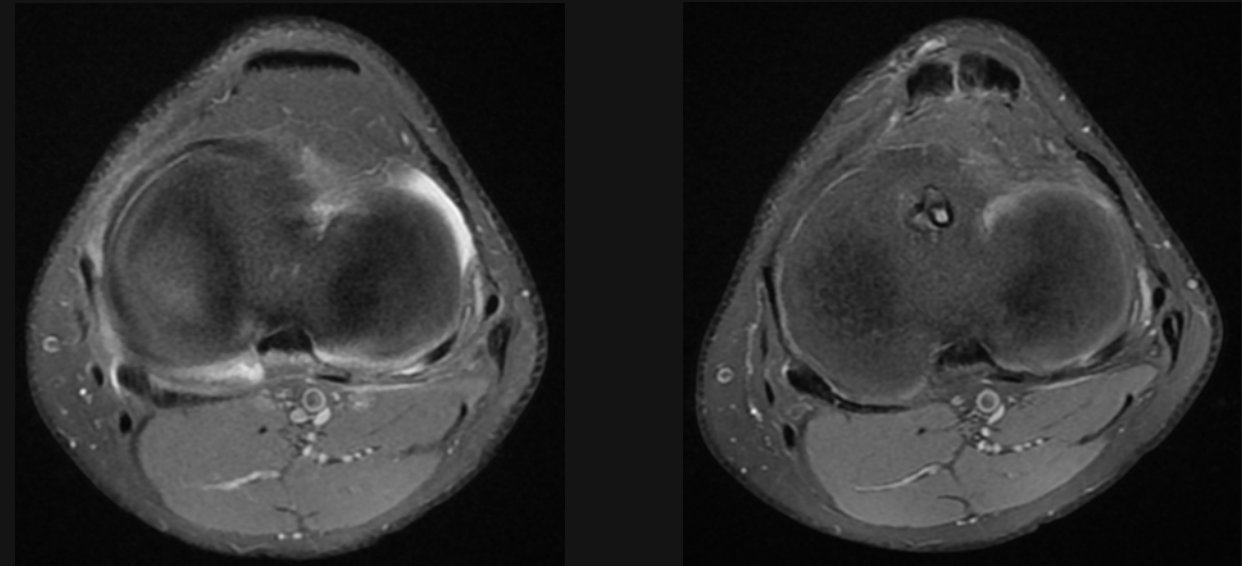


Primary Outcome: Tendon Gap



Mean Tendon Gap:

- PR Group: 2.08 mm
- TR Group: 2.20 mm



Pre-op and post-op MRI in the same patient

Statistical Significance: $p = 0.86$ (95% CI -1.50 to 1.26)

Conclusion: No significant difference in tendon gap between groups



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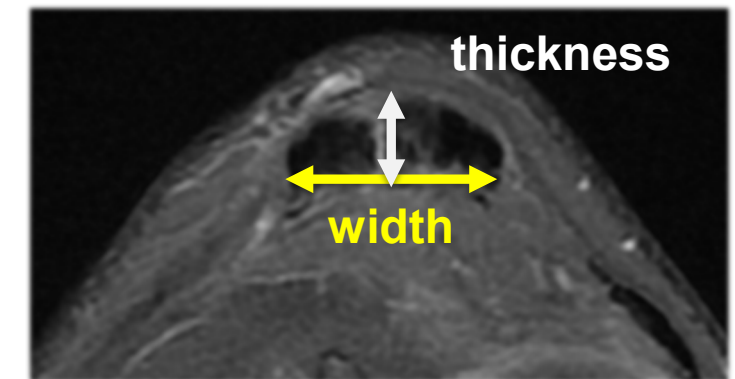
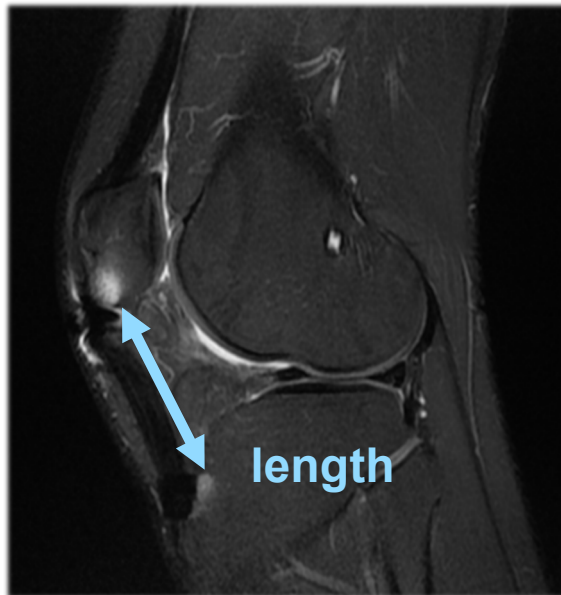
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Secondary Outcomes: Patellar Tendon Dimensions



- Δ Length: $p = 0.85$ (95% CI: -1.82 to 2.19)



- Δ Width: $p = 0.38$ (95% CI: -0.56 to 1.45)
- Δ Thickness: $p = 0.39$ (95% CI: -0.56 to 1.41)

Conclusion: No significant differences observed between PR and TR groups



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Functional Outcomes



- **KOOS Scores:**

- Symptom: $p = 0.73$
- Pain: $p = 0.80$
- ADL: $p = 0.57$
- Sport: $p = 0.82$
- QOL: $p = 0.90$

- **IKDC Score:**

- $p = 0.37$



Conclusion: Functional outcomes were similar between PR and TR groups



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Conclusion



- **No significant difference in:**
 - Patellar tendon healing (measured by tendon gap).
 - Patellar tendon dimensions.
 - Functional outcomes (KOOS, IKDC).

Recommendations:

- Paratenon repair and bone grafting are essential to promote healing
- Partial repair techniques can achieve outcomes comparable to total repair



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