



43: Functional Patient Outcomes and Donor-Site Morbidity After Anterior Cruciate Ligament Reconstruction

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Disclosures

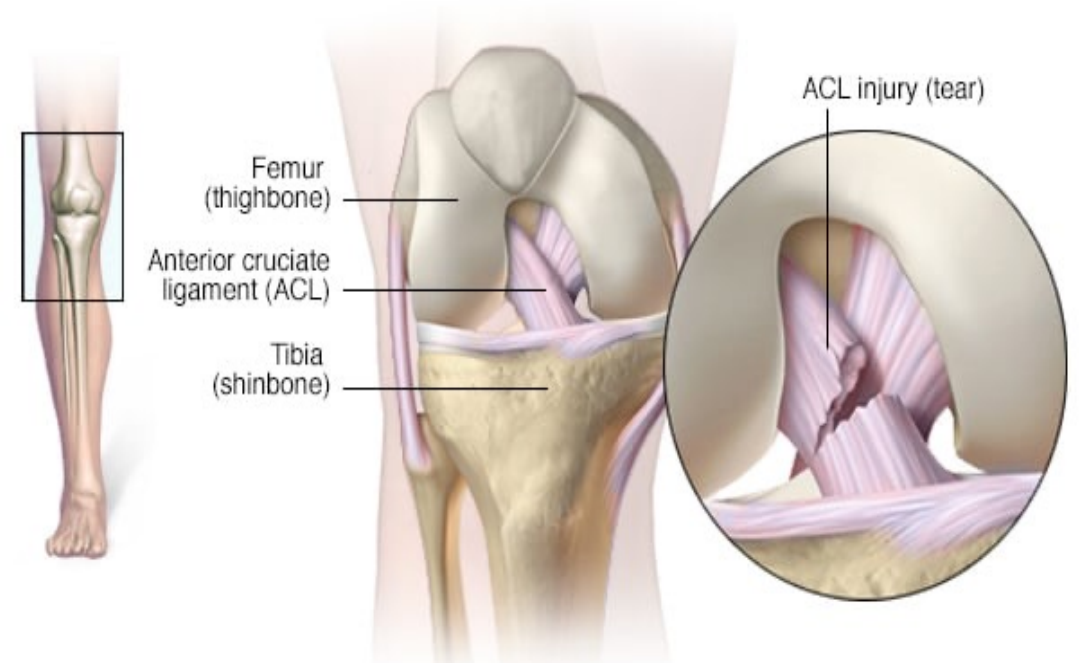
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Background

- National rates of ACL reconstruction increased nearly 24% over the last decade
- Incidence of ~68 per 100,000
- 70% of ACL tears are noncontact injuries



Credit: Mayo Clinic

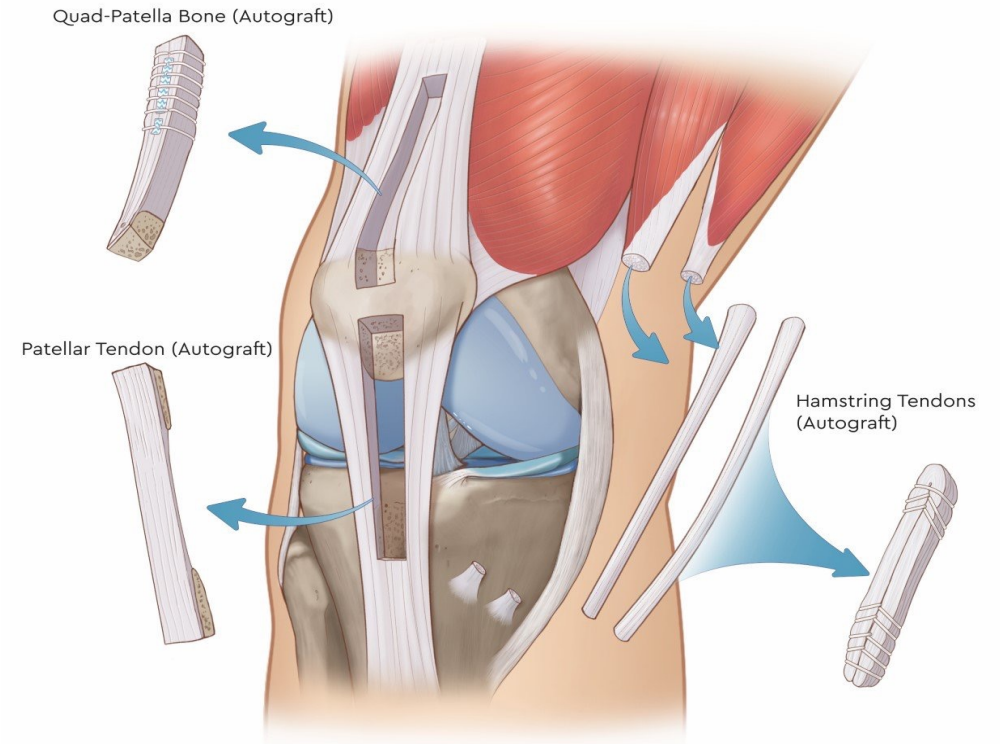
Background

BPTB

Hamstring

Quadriceps

Allograft



Credit: Children's Hospital Colorado

Objective of the Study

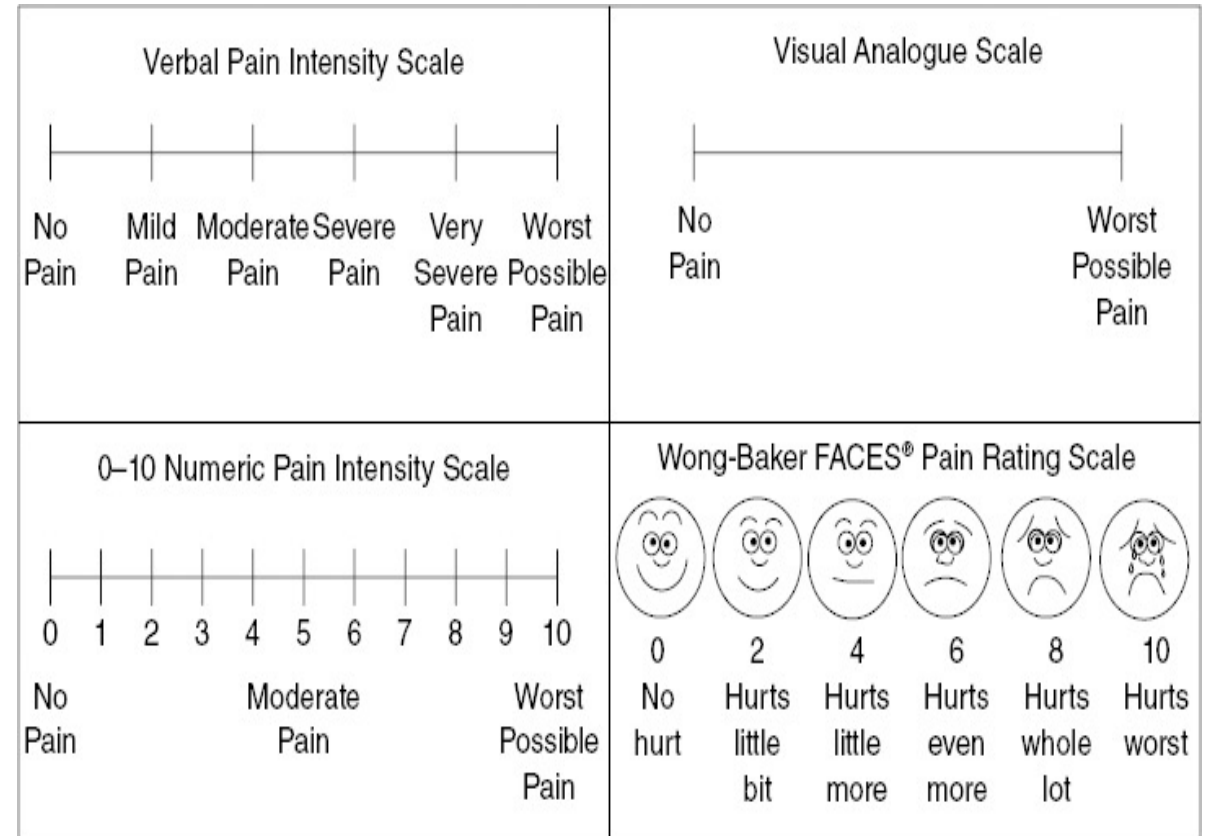
- **Question:** Optimal autograft selection
- **Issue:** Driven by surgeon preference, warrants patient's perspective via Patient-Reported Outcomes (PROs)
- **Objective:** Better understand long-term functionality and morbidities between BPTB vs. Quadriceps autografts
- **Hypothesis:** Similar functionality and morbidity scores

Methods

- Retrospective analysis of prospectively collected data
- ACL-R with BPTB or Quadriceps autografts at the institution between **October 2014 – November 2021**
- Patient-reported outcomes (PROs) collected in the postoperative period, followed by **three-, six-, and twelve months postoperatively**

Methods

- **Primary Endpoints:** revision rates, continued pain at 12-months, DVTs/PE, paresthesia/neurological defects, infection rates, and delayed healing
- **Secondary Endpoints:** Patient-reported outcomes → Visual Analog of Scale (VAS) pain score, Knee Injury and Osteoarthritis Outcome Score (KOOS), and Single Assessment Numeric Evaluation (SANE)



Credit: Visual Analog Pain Scale (VAS)

Results

- **371 total patients** underwent ACL reconstruction with either **BPTB (n = 200)** or **quadriceps autografts (n= 171)**

Variable	BPTB	Quadriceps	p-value
Total Patients (N)	200	171	-
Age	23.7	23.0	0.553
Gender (M)	117 (59.0%)	103 (60.0%)	-
BMI	27.7	27.9	0.767
Race (White/Black/Hispanic/ Asian)	120 / 44 / 21 / 1	93 / 48 / 24 / 1	-

Results

- **Revision rates insignificant** between the BPTB and quadriceps (**11.5% vs. 12.9%**, respectively, $p=0.6680$)
- No statistically significant differences in **KOOS pain surveys** for BPTB and quadriceps groups (**87.3 vs. 84.4**, $p=0.6972$)
- **SANE functionality rating** BPTB and quadriceps groups displayed similar functionality scores (**82.3 vs. 81.8**, respectively, $p = 0.916$)

Variable	BPTB	Quadricep	p-value
Revisions (%)	11.5		0.688
Return to Play (days)	271	279	0.773
Patient Reported Outcomes (12-mo)			
KOOS Pain	87.3	85.1	0.697
VAS Pain	0.819	1.37	0.400
SANE	82.3	81.8	0.916
Complications (%)			
Continued Post-op Pain*	2.00	4.68	0.238
DVT/PE	1.50	0.00	0.108
Paresthesia/Neurological Defect	0.00	0.00	-
Infection	1.00	0.590	0.999
Delayed Healing*	0.00	0.00	-

*Continued post-op pain is based on knee pain at the surgical site after 12 or more weeks

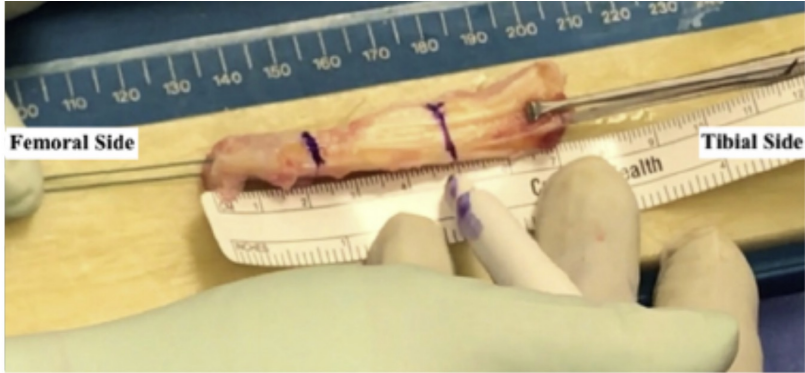
**Infection was diagnosed based on knee aspiration

Conclusion

- Post-operative complications were minimal and displayed no differences between the BPTB and the all-inside soft tissue Quadriceps autograft
- High scores reported on **SANE scale** – patients report functionality as “back to baseline” out of 100%
- Return to play (RTP) – No differences in timeline

*Complications defined as: continued postoperative pain at the 12-month mark and beyond, deep vein thrombosis or pulmonary embolism, paresthesia/neurological defects, infections diagnosed via knee aspiration, and delayed healing also at the 12-month mark

Conclusion



Sprowls (2018)



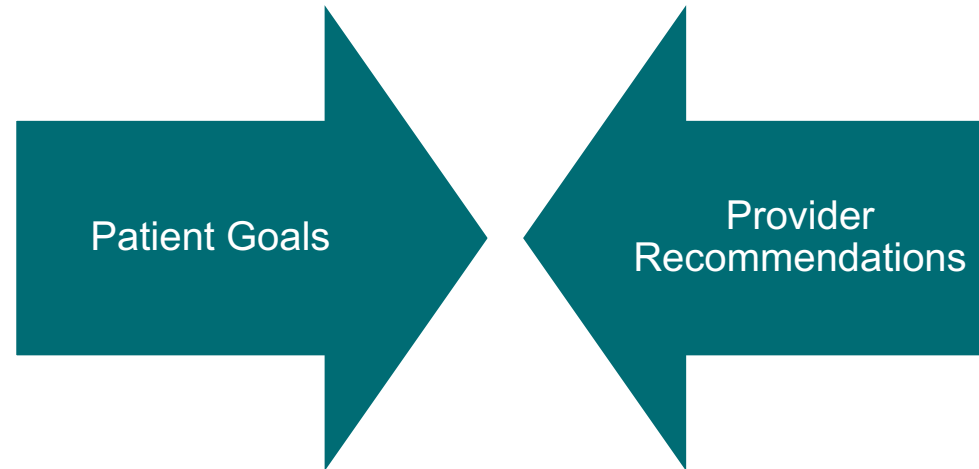
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Central Performance

Conclusion

- Graft Selection → Patient-centered discussion
- Despite historical dogma, this data demonstrates the viability of both graft types, particularly with appropriate soft tissue handling, defect closure, and donor site grafting



Significance & Future Direction

- Stratify by age groups, competition levels, type of sport
- Athlete vs. Non-athlete
- Role of preoperative imaging in graft selection

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Co-investigators

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Questions?

