

Patient Perception of Different Autografts in Anterior Cruciate Ligament Reconstruction Using a Validated Online Survey Marketplace

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INTRODUCTION:

Anterior cruciate ligament (ACL) reconstruction is the gold standard treatment for ACL tears. ACL graft reconstruction is commonly performed with an autograft. Common autograft modalities include bone-patellar tendon-bone (BPTB), quadriceps tendon (QT), and hamstring tendon (HT) grafts. This study sought to evaluate the general population's perception of the use of BPTB, QT, and HT autografts in ACL reconstruction.





METHODS:

A prospective cohort study was performed utilizing a 35-question survey. Participants were paid, and the survey was distributed via a clinically, validated, public, online marketplace in June 2023. After collecting baseline demographics, participants were queried on whether they held a preference for autograft type without additional information. All respondents then sequentially completed a pre-information survey to assess baseline knowledge, reviewed information from an evidence-based information sheet (Figure 1), and post-information survey to assess understanding of the provided material. Upon completion, participants were again asked which treatment modality they would prefer. Additionally, participants were queried on whether or not they would be willing to change their preference based on surgeon recommendation. Finally, participants were asked to rank the factor that was most influential to their final decision.

RESULTS: In total, there were 491 participants that completed the survey. The average age was 39.9 (range, 19-72), there were 244 males, 241 females, and 6 that preferred not to respond. A total of 362 (74%) patients reported earning at least a bachelor's degree and 362 (74%) reported that they did not work in health care. Prior to participant education, 19.3% (n=95) preferred BPTB, 18.7% (n=92) preferred QT, 12.6% (n=62) preferred HT, and 53.4% (n=262) had no preference. Following education, a significantly greater number of participants chose each graft type; 37.7% (n=185, $p<0.01$) preferred BTB, 21.6% (n=106, $p<0.01$) preferred QT, 13.8% (n=68, $p<0.01$) preferred HT. Significantly fewer participants had no preference 26.9% (n=132, $p<0.01$). The average score on the pre-information test was 35.0% while the average score on the post-information test was significantly greater, 50.0% ($p<0.01$). The most important factors in autograft decision making were surgeon preference (n=357, 72.7%), the provided information (n=104, 21.2%), and previous experiences (n=30, 6.1%). In total, 424 (86.4%) participants said they would switch their graft preference if their surgeon recommended it.

DISCUSSION AND CONCLUSION:

The primary finding of this study was that surgeon preference is the most influential factor for the general population when surveyed about their graft preferences for ACL reconstruction with autograft. This study showed that 86% of participants were willing to switch their preference if their surgeon recommended switching. Additionally, significantly more patients chose each graft type (BTB, QT, HT) after reading an evidence-based information sheet on the graft types. The findings of this study imply that informed patients are capable of participating in medical decision making with respect to their graft choices in ACL reconstruction, and that providing educational information can help surgeons and patients work together to optimize their care.

Types of Autografts in the Treatment of ACL Tears 			
Comparison Criteria	Bone-Patellar-Tendon-Bone (BPTB) 	Hamstring Tendon (HT) 	Quadriceps Tendon (QT) 
Advantages	<ul style="list-style-type: none"> Most frequently used in U.S. Most secure fixation Lower revision rate compared to HT (6.4 vs 17.5%) Load to failure: 2977 N* 	<ul style="list-style-type: none"> Most frequently used worldwide May result in decreased risk of long-term degenerative joint disease May use in skeletally immature patients Load to failure (quadruple folded): 4150 N* 	<ul style="list-style-type: none"> Less donor site morbidity than both BPTB and Hamstring May use in skeletally immature patients Load to failure: 2352 N*
Risks/Disadvantages	<ul style="list-style-type: none"> Patella fracture risk Cannot use in skeletally immature patients May result in increased risk of anterior knee pain or numbness 	<ul style="list-style-type: none"> Slowest graft incorporation Increased risk of failure (17.5%) 	<ul style="list-style-type: none"> Prolonged Quadriceps weakness for first 6 months
Treatment Outcomes	<ul style="list-style-type: none"> No significant difference in treatment outcomes between BPTB and Quadriceps Tendon <ul style="list-style-type: none"> Hamstring tendon may be associated with increased risk of failure compared to QT and BPTB No significant difference in patient reported outcomes Patients satisfaction high for all three groups 		

*Neme ACL, Load to Failure: 2160 N