



Quadriceps Tendon versus Patellar Tendon Autograft for Anterior Cruciate Ligament Reconstruction in Young Athletes

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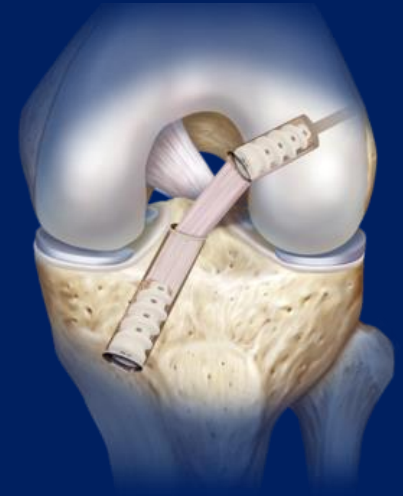


Disclosures

- Edward S. Chang, MD
 - Avanos – Consultant
 - Arthrex – Education and research support

Background

- Bone-patellar tendon-bone (BPTB) autograft is the current the gold standard graft source for ACL Reconstruction (ACLR)
- QT autografts are growing in popularity
- All soft-tissue quadriceps tendon (QT) autograft allows for easy harvest of robust tissue
- Limited data exists on patient outcomes comparing QT autograft to BPTB

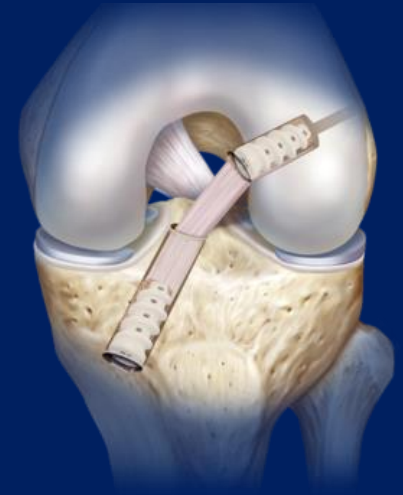


Purpose: To compare patient reported outcomes (PROs) in young athletes undergoing ACLR with either QT or BPTB autograft

Hypothesis: There would be no difference in clinical outcomes between patients receiving either graft type.

Methods

- **Study Design:**
 - Retrospective database study
 - 5 surgeons in a single practice
- **Participants:**
 - Patients aged 12-25 who underwent ACLR
 - Primary, unilateral, uncomplicated ACLR
 - Participating in competitive athletics at the time of enrollment
 - ACLR with BPTB or QT autograft
- **Chart Review and Patient Follow-up:**
 - Patients were contacted via phone
 - Surveys were sent via REDCap if they agreed to participate



Methods

- **Patient Reported Outcome Measures:**
 - International Knee Documentation Committee Subjective Knee Form (IKDC)
 - Marx Activity Scale
- **Statistical Plan:**
 - Descriptive statistics were calculated
 - Graft sources were compared using independent samples t-test
 - A-priori alpha level was $p < 0.05$.

Results

- **Participants (Table 1):**
 - Total sample of 47 patients with ACLR
 - 12 with QT autograft
 - 35 BPTB autograft
 - Mean follow-up of 2.6 years
 - BPTB group was significantly older than the QT group (p=0.01)

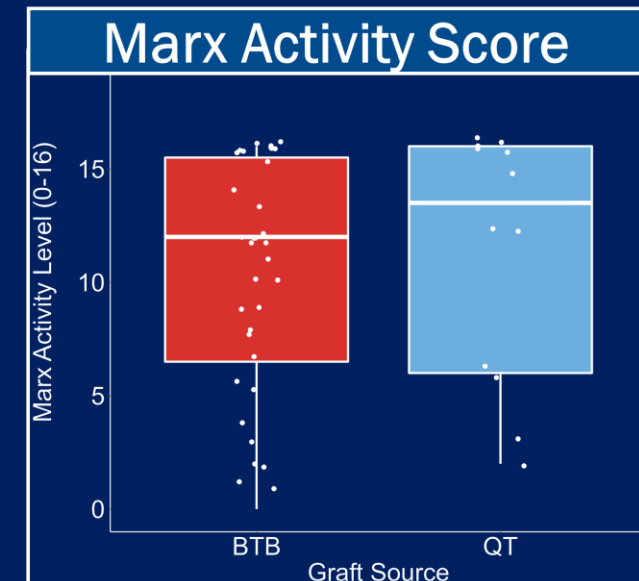
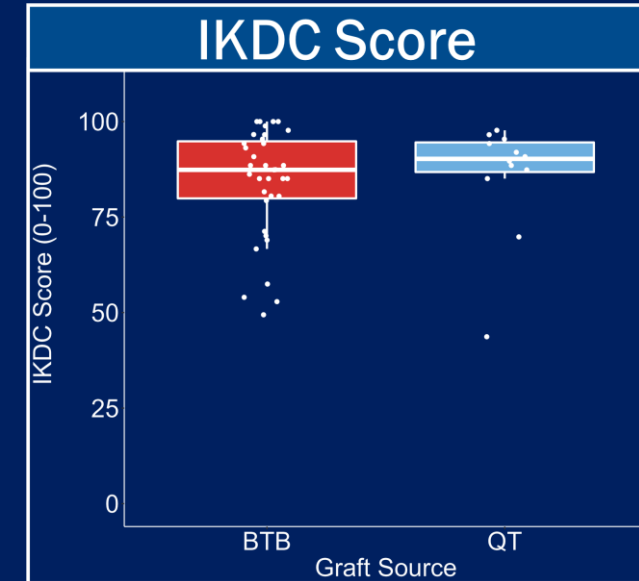
Table 1. Between group comparison of demographics and patient-reported outcome measures

| | BPTB Autograft | QT Autograft | <i>P</i> |
|----------------------------|----------------|--------------|----------|
| Age (years) | 17.0±2.8 | 14.7±1.9 | 0.01* |
| Sex (M/F) | 13M / 22F | 3M / 9F | 0.44 |
| Marx Activity Scale (0-16) | 10.1±5.2 | 11.3±5.5 | 0.50 |
| IKDC Score (0-100) | 83.9±14.4 | 85.9±15.2 | 0.69 |
| Graft Failure (N, %) | 1 (2.8%) | 0 (0.0%) | ----- |

BPTB = bone – patellar tendon – bone; QT = quadriceps tendon; IKDC = International Knee Documentation Committee; M = male; F = female, * = significant between group difference (p < 0.05)

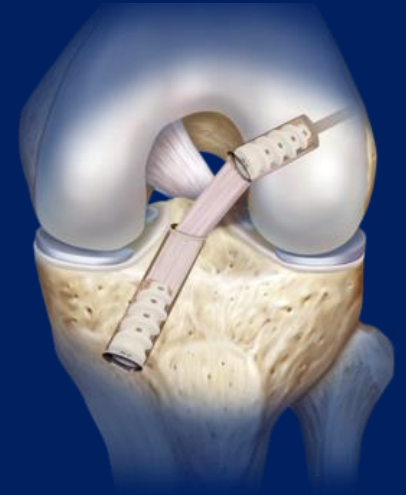
Results

- **Patient Reported Outcome Measures:**
 - No significant differences in Marx activity score ($p=0.50$) nor IKDC score ($p=0.69$)
- **Graft Failure:**
 - BPTB: 1 Failure
 - QT: None



Discussion/Conclusions

- At 2.6 years post-ACLR, patients who received QT and BPTB autografts reported similar levels of activity and knee-related function
- QT autograft allows for a robust graft while avoiding common BPTB complications such as patella fracture and anterior knee pain
- QT autograft may be a viable alternative to BPTB autograft in young athletes



References

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- Zhao L, Lu M, Deng M, Xing J, He L, Wang C. Outcome of bone–patellar tendon–bone vs hamstring tendon autograft for anterior cruciate ligament reconstruction: a meta-analysis of randomized controlled trials with a 5-year minimum follow-up. *Medicine (Baltimore)*. 2020;99(48):e23476.