

No differences in outcomes after ACL reconstruction when comparing autografts of similar size

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Disclosures

No conflicts

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Objective

Purpose: To determine if there are patient-reported outcome measure (PROM) differences in bone-patellar-tendon-bone (BTB), quadriceps tendon (QT), and hamstring (HS) grafts of comparable size.

Hypothesis: Outcomes are similar for ACL grafts of the same diameter regardless of graft type.

Methods

Retrospective analysis of the Surgical Outcomes System (Arthrex, Naples, FL) global registry data to include all patients that had an ACL reconstruction with autograft between 2010 and 2021

We compared 1- and 2-year postoperative outcome scores between BTB, QT and HS of same size graft. We analyzed the following PROM:

- VAS
- KOOS pain
- MARS
- VR-12

Results

- 2318 subjects
- All graft types showed improved PROM at 1- and 2-years
- KOOS pain score for BTB group was better than the HS and QT groups at 1-year
- The difference between groups was not clinically meaningful

Descriptive statistics of the entire analytic cohort for baseline demographic clinical characteristics overall

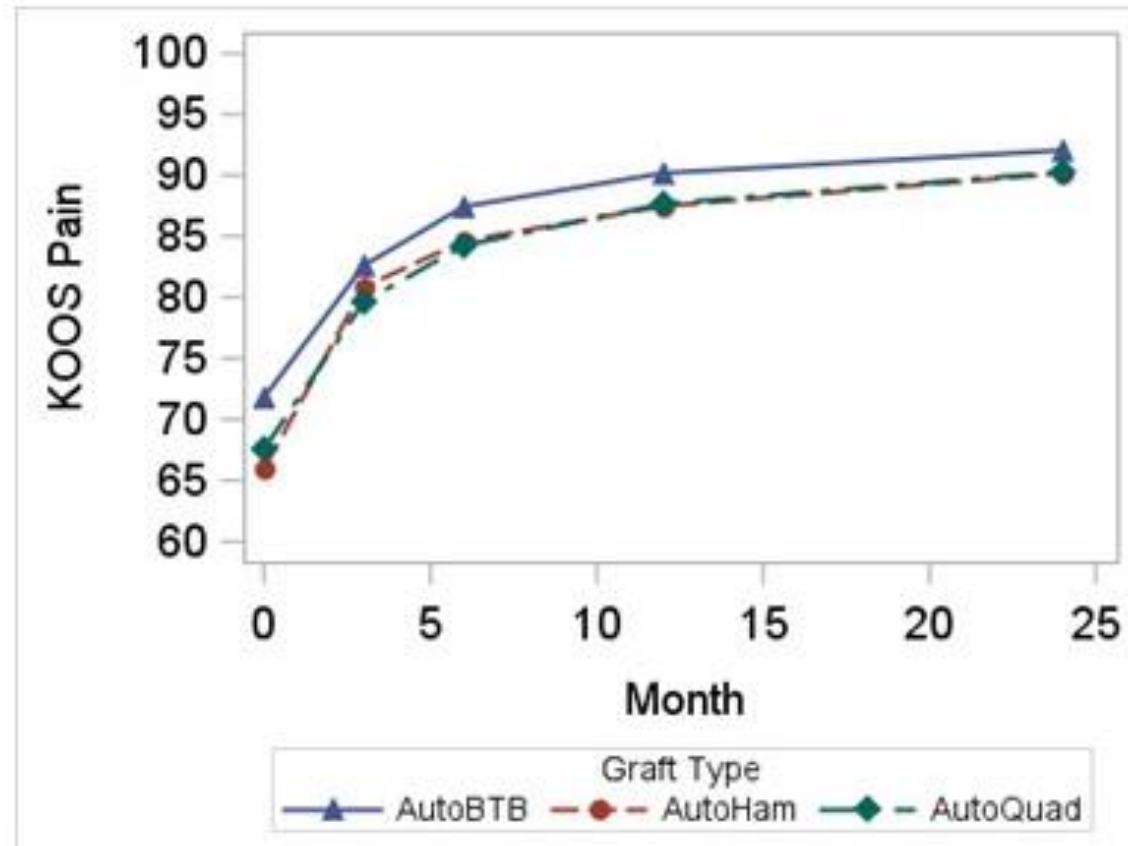
Variable	Mean (SD) or n (%)
Age	25.6 (10.3)
Age group	
≤18	618 (27%)
19-27	542 (23%)
28-39	584 (25%)
≥40	574 (25%)
Sex	
Female	1095 (47%)
Male	1223 (53%)
Graft Diameter (mm)	9.2 (1.1)
Autograft type	
BTB	683 (29%)
Hamstring	1402 (60%)
Quadriceps	233 (10%)



Description of cohort by graft type n (%) or mean (SD)

	Autograft BTB n= 683	Autograft Hamstring n= 1402	Autograft Quadriceps n= 233
Sex			
Female	311 (45.5%)	667 (47.6%)	117 (50.2%)
Male	372 (54.5%)	735 (52.4%)	116 (49.8%)
Graft Diameter			
<9mm	3 (0.4%)	724 (51.6%)	9 (3.9%)
≥9mm	680 (99.6%)	678 (48.4%)	224 (96.1%)
Graft Diameter (mm)	10.1 (0.6)	8.66 (1.03)	9.73 (0.71)
Age	23.16 (8.13)	26.80 (11.08)	25.37 (9.99)
Age group			
≤18	246 (36.0%)	433 (30.9%)	79 (33.9%)
19-27	263 (38.5%)	392 (28.0%)	73 (31.3%)
28-39	145 (21.2%)	382 (27.2%)	60 (25.8%)
≥40	29 (4.2%)	195 (13.9%)	21 (9.0%)

KOOS pain score for the BTB group was significantly better than the HS and QT groups at 1-year, and better than HS at 2-years



**differences were not clinically meaningful*

Differences between grafts were not clinically meaningful

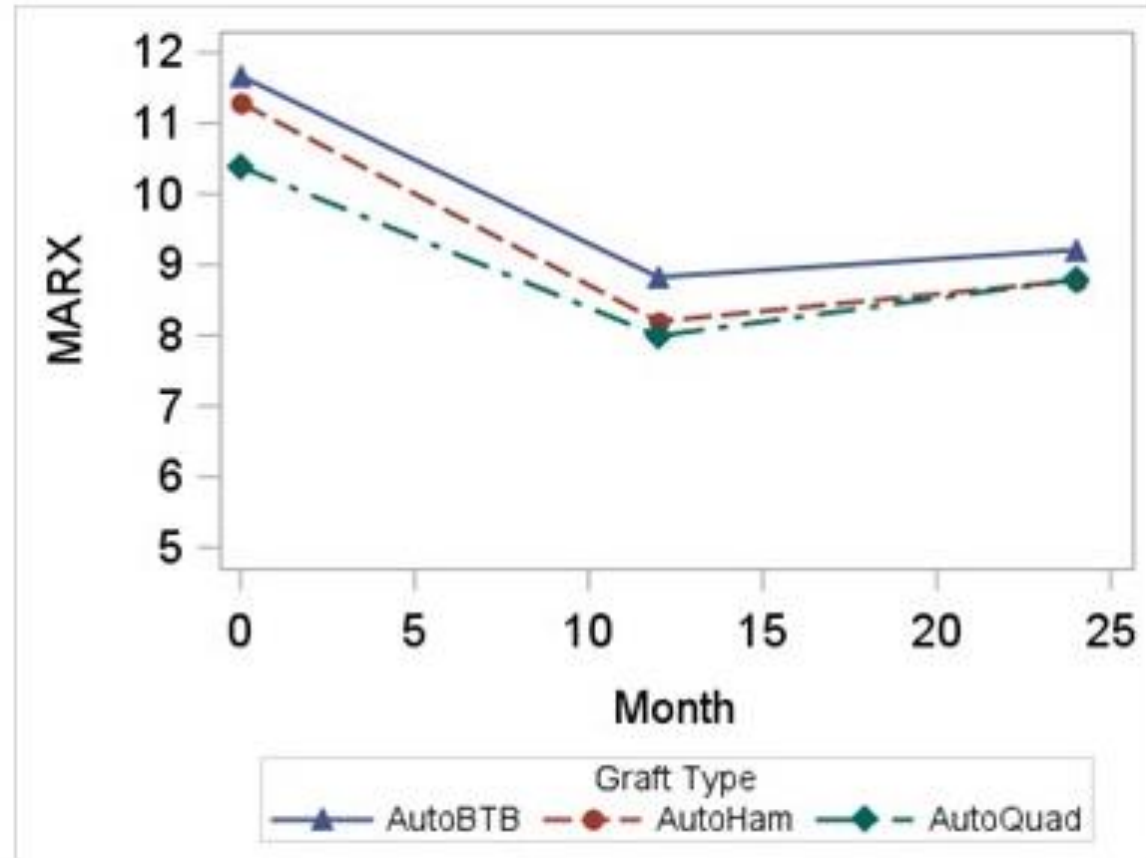
No significant differences were seen between sexes at either postoperative timepoint when comparing MCID for KOOS pain score

Rate of patients who reached MCID at 1-year follow-up

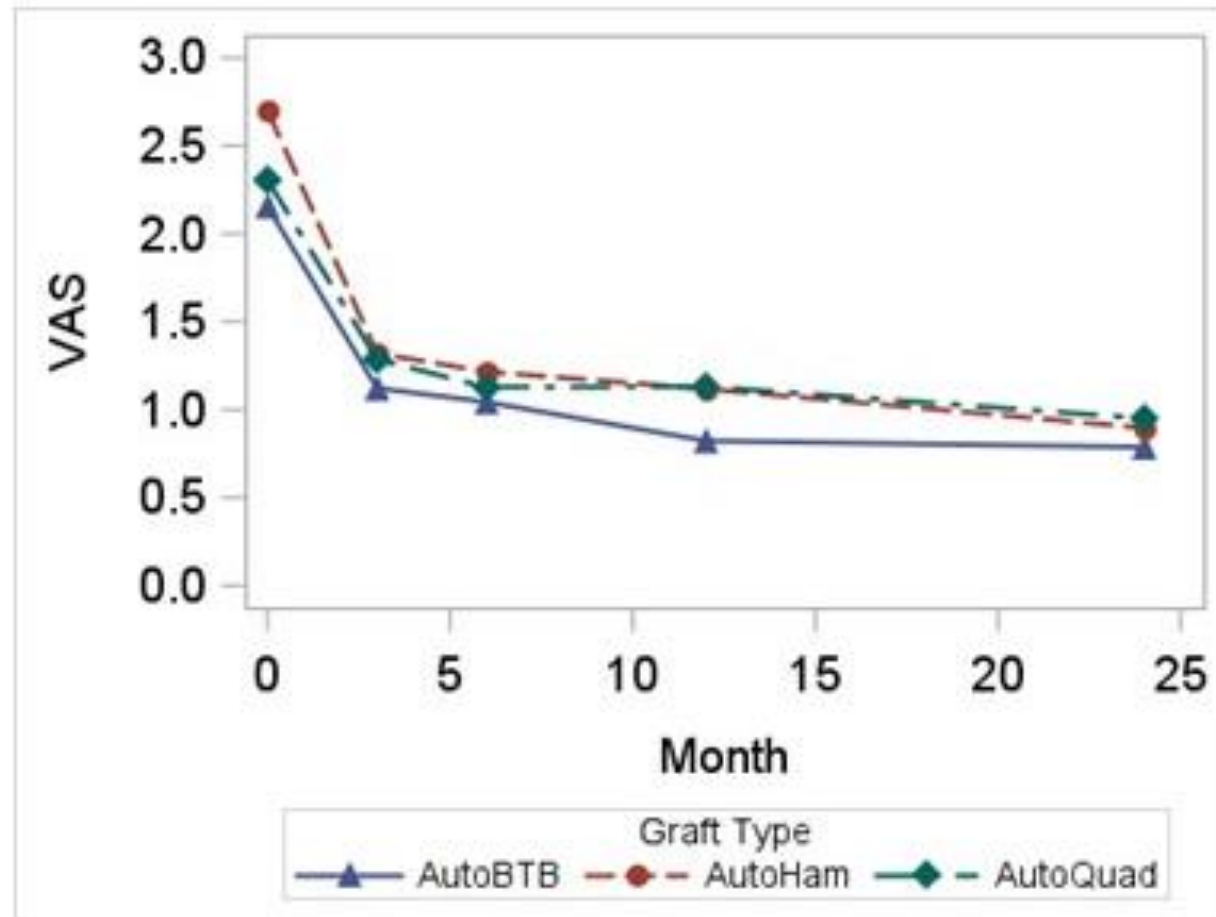
- BTB = 79.7%
 - HS = 78.3%
 - QT = 78.5%
- *no difference between the groups (p=0.88)

All rates increased at the 2-year follow-up, with QT group having the smallest increase. No differences between groups were observed at 2 years (p=0.45)

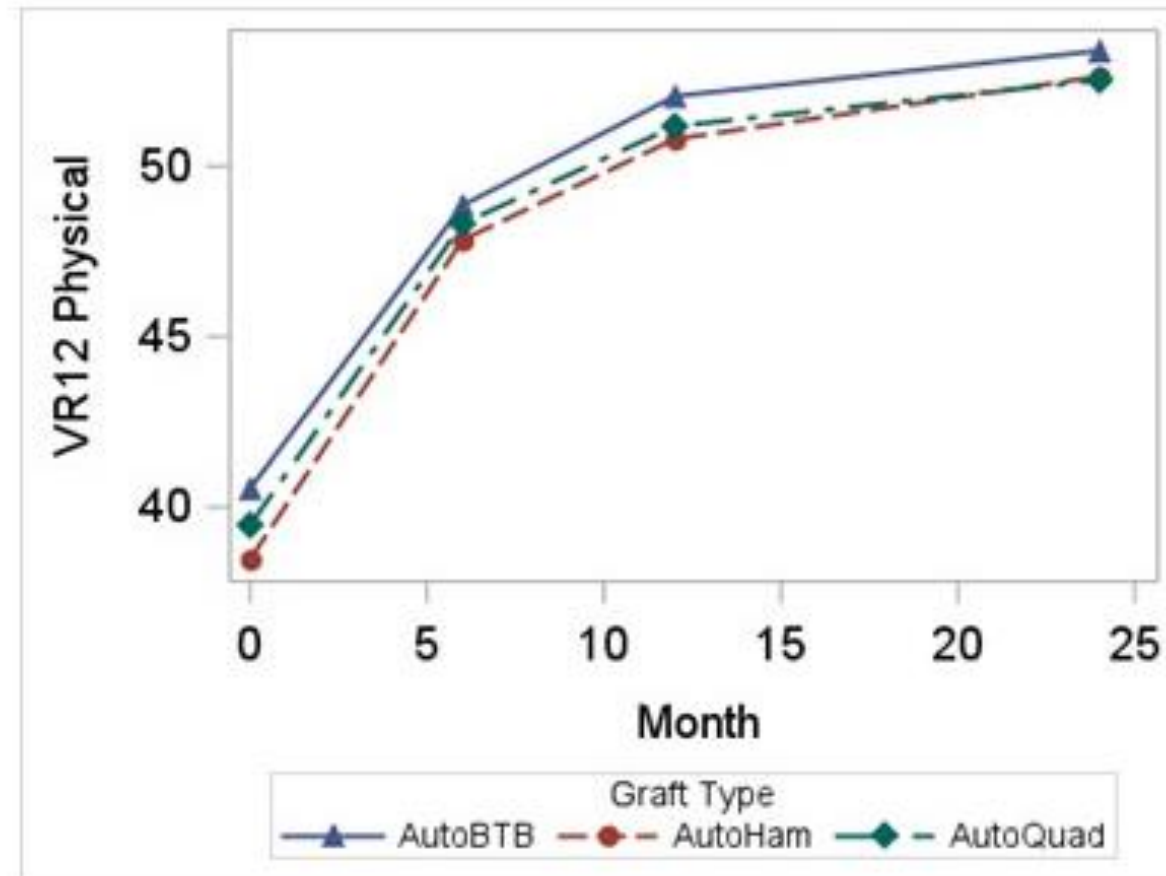
One year after ACLR, BTB had significantly better MARS scores than HS and QT, but this difference was not seen at 2-years follow-up. Comparing HS and QT showed no difference at 1- or 2-years follow-up



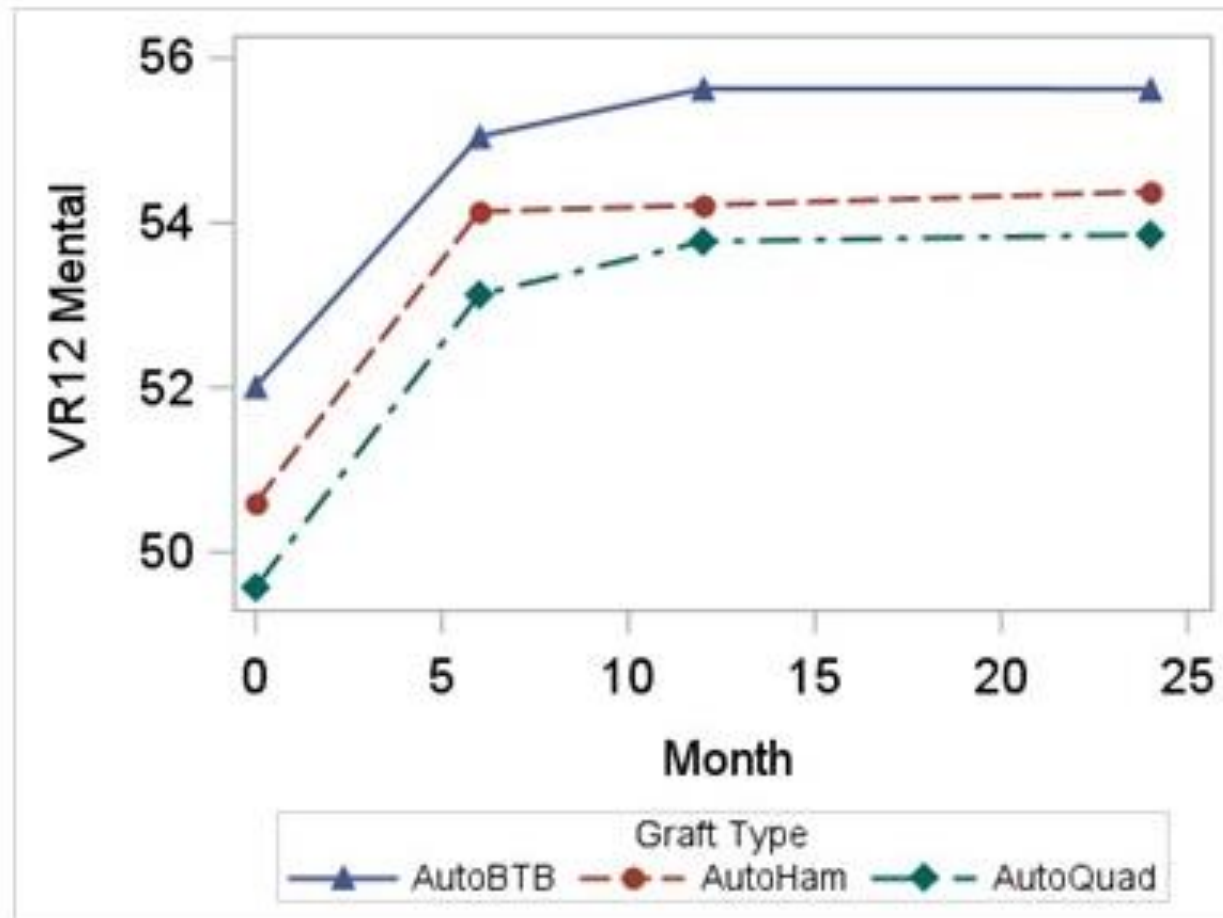
One year after surgery the BTB group showed significantly better VAS score than HS and QT, but this difference was not present at 2 years' time. No significant differences between HS and QT were seen at 1- and 2-years postoperatively



The physical component of the VR-12 was significantly better for the BTB group when compared to HS at 1- and 2-years follow-up. No difference was seen between BTB and QT or HS and QT at either time point



The mental component of the VR-12 score was significantly better in the BTB group when compared to HS and QT at 1- and 2-years after surgery. We found no differences when comparing HS versus QT



Conclusion

There is no clinically meaningful difference in PROMs at 1- and 2-years postoperatively in patients having anterior cruciate ligament reconstruction with BTB, HS or QT if graft size is at least 9mm in diameter.



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