

**The role of age on failure rates and outcomes
following arthroscopic primary repair of proximal
anterior cruciate ligament tears**

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Disclosures

Harmen D. Vermeijden

No conflict of interest

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No conflict of interest

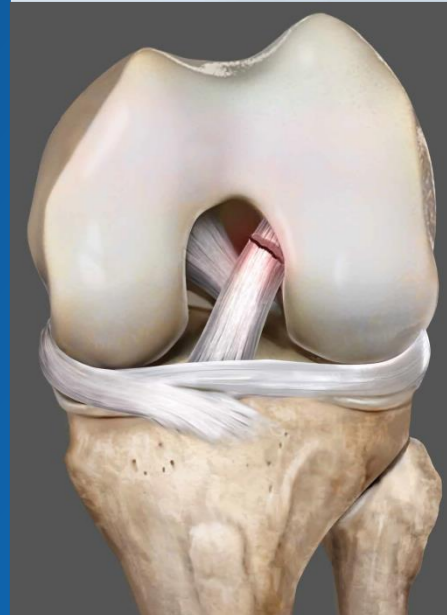
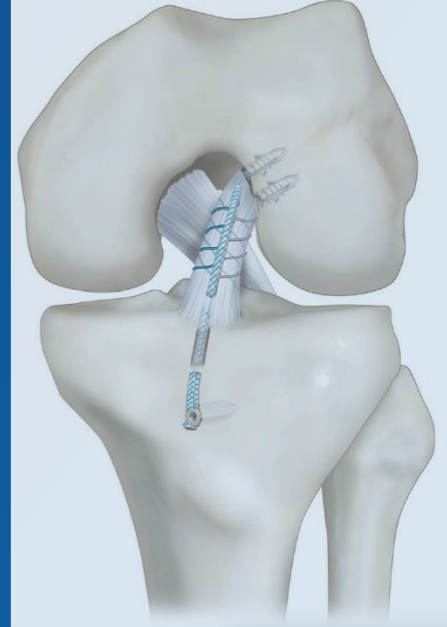
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Research Support & Royalties

Arthrex

Introduction

- Renewed interest in primary ACL repair
- Selected patients:
 - Proximal tears
 - Good tissue quality
 - (Sub)acute setting
- Meta-analysis on recent literature¹
 - Retear rate 6-14%
 - Excellent PROMs
 - No complications (arthrofibrosis, early low-energy failure)



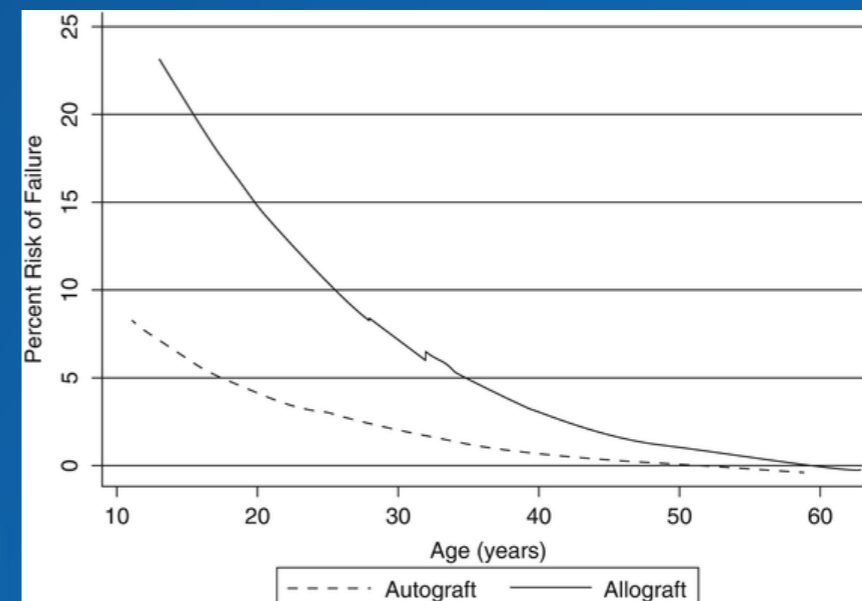
Introduction

- From ACL reconstruction young age is risk factor retear^{1,2}
- However, this is not known for ACL repair
 - 1 study suggested high failure rates (41%)³
- Goal to assess outcomes of ACL repair in large cohort and understand role of age

¹ Kaeding et al., Sports Health 2011

² Webster & Feller, AJSM 2016

³ Gagliardi et al., AJSM 2019



Methods

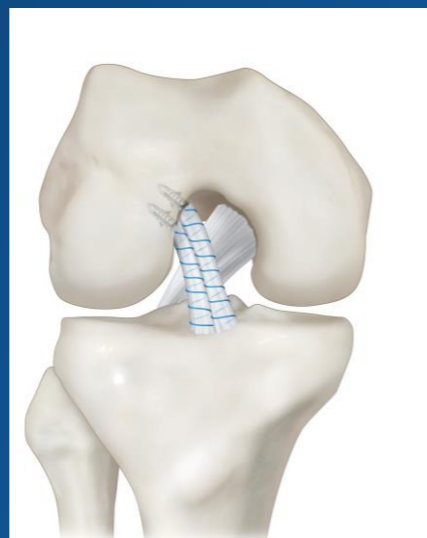


Retrospective

2008 – 2017

Isolated ACL injuries

Minimal 2 year FU



3 age groups:
 ≤ 21 , 22-35, > 35

Failure rates

PROMs

Results

- First 113 patients (100% follow-up)
 - ≤21 years: 27 patients
 - 22-35 years: 24 patients
 - >35 years: 62 patients

Table 2. Patient Demographics Following Primary ACL Repair in All Patients and the Different Age Subgroups

	All Patients (n = 113)	≤21 Years (n = 27)	22-35 Years (n = 24)	≥35 Years (n = 62)	P Value
Age, y, median (IQR)	35 (23 - 43)	16 (16 - 18)	28 (26-31)	42 (38-49)	<.001
Male sex, n (%)	62 (54.9%)	8 (29.6%)	13 (54.2%)	41 (66.1%)	.006
Delay (days injury-surgery), median (IQR)	38 (18 - 93)	20 (14-82)	39 (25-96)	40 (18-92)	.216
BMI, median (IQR)	24.4 (22.8-28.3)	23.4 (19.8-24.8)	24.2 (22.3-27.4)	25.6 (23.4-27.7)	.004
FU, y, median (IQR)	2.2 (2.0-2.8)	2.1 (1.9-2.7)	2.4 (2.1-3.3)	2.2 (2.0-2.6)	.254
Preinjury Tegner score, median (IQR)	6 (6 - 8)	9 (6.5-9)	7 (6-9)	6 (5 - 7)	<.001

Results

- Overall failure rate 11.5%
- Failure rate ≤ 21 : 37.0% (10/27)
- Failure rate > 21 : 3.5% (3/86)

Table 4. Outcomes Among Different Age Groups Following Arthroscopic Primary ACL Repair

	All Patients (n = 113)	≤ 21 Years (n = 27)	22-35 Years (n = 24)	≥ 35 Years (n = 62)	P Value
Failure	13 (11.5%)	10 (37.0%)	1 (4.2%)	2 (3.2%)	<.001
Reoperation	7 (6.2%)	2 (7.4%)	3 (12.5%)	2 (3.2%)	.260
Complication	2 (1.8%)	1 (3.7%)	0 (0.0%)	1 (1.6%)	.600
Contralateral failure	4 (3.5%)	2 (7.4%)	1 (4.2%)	1 (1.6%)	.390

Results

- No difference between repair vs. repair + IB
- Small numbers

Table 3. Failure Rates Between Patients With and Without Suture Augmentation Stratified Per Age Group

	ACL Repair	ACL Repair + SA	<i>P</i> Value
≤21 y	2/6 (33.3%)	8/21 (38.1%)	>.999
22-35 y	1/9 (11.1%)	0/15 (0.0%)	.375
≥35 y	2/38 (5.3%)	0/24 (0.0%)	.518

NOTE. Values are reported as number (%).

ACL, anterior cruciate ligament; SA, suture augmentation.

Results

- No difference in PROMs between the groups (without failures)

Table 5. Patient-Reported Outcomes Among Different Age Groups Following Arthroscopic Primary ACL Repair

	All Patients (n = 89)	≤21 Years (n = 16)	22-35 Years (n = 18)	≥35 Years (n = 55)	P Value
Lysholm, median (IQR)	95 (89-100)	100 (91-100)	95 (82-100)	95 (90-100)	.422
Modified Cincinnati, median (IQR)	96 (88-100)	100 (96-100)	99 (86-100)	92 (88-100)	.119
SANE, median (IQR)	90 (85-99)	95 (90-100)	90 (75-95)	90 (85-99)	.122
Subjective IKDC, median (IQR)	92 (84-99)	98 (89-100)	94 (82-99)	92 (82-99)	.359
Pain score, median (IQR)	0 (0-1)*	0 (0-1)†	1 (0-2)‡	0 (0-1)§	.188
Satisfied, n (%)	69 (91%)	15 (94%)	13 (92%)¶	41 (91%)#	.787

Limitations

- Retrospective design with selection bias
- Unequal group sizes
- No preinjury PROMS available
- Different surgical techniques (with and without IB)
- Follow-up relatively short (median 2.2 years)

Conclusions

- Primary repair leads to high failure rates in young active population
 - Tegner 9 & 70% female
- Very low failure rates in patients >22 years of age (3.5% in 86pts)
- This information should be shared with patients
- Larger cohorts on ACL repair are needed

Thank you!

