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# The New Age Gladiator: ACL Allograft Reconstruction Has Low Revision Rates in Patients Over 40

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## Background

The aging population are participating in more athletic and physically demanding activities longer and later in life.

The debate over the best graft for ACL reconstructions has been ongoing for years and there are numerous studies supporting all types, but none focus on the older population.

This study aims to report allografts are an equally viable and effective option for ACL reconstruction in patients over 40 years of age with no difference in re-rupture rates.

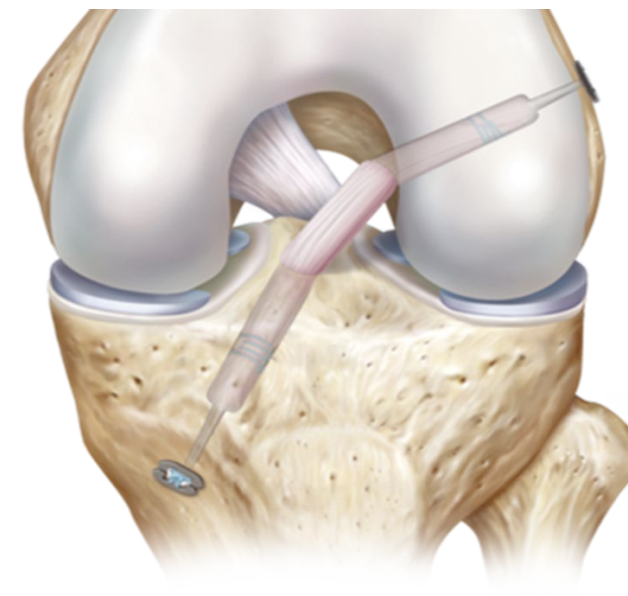


Figure 1: ACL Reconstruction

## Comorbidities

Days from Injury to Surgery (<30/>30)	3/27
Lives Independently	6/24
Smoker (N/Former/Y)	9/3/18
Alcohol Use (N/Y)	10/20
Drug Use (N/Y)	28/2
Coronary Artery Disease (N/Y)	29/1
Hypertension (N/Y)	20/10
Diabetes Mellitus (N/Y)	26/4
BMI (<40/>40)	28/2
Mechanism of Injury (Low Energy/High Energy)	25/5
Prior Knee injury (N/Y)	25/5
Meniscus Injury (N/Y)	22/8

## Demographics

Female/ Male	17/30
Average Age (range)	49 (41-64)

## Follow-Up Call Data (n=17)

Re-rupture Rate	0%
Infection Rate	0%
Return to Baseline	100%
Knee Stability	88%
Surgery and Recovery Satisfaction	94%
Return to Activities (n=10)	80%
Completed Physical Therapy	82%

## Results

- 56.7% of patients were female.
- The average patient age was 49 years old (range: 41-64).
- 90% of patients had surgery greater than 30 days after injury.
- Only 10% had surgery within 30 days of injury. The average time after injury to reconstruction was 15.3 days (range: 10-20).
- 76.7% of patients had partial meniscectomy in addition to ACL reconstruction.
- Average of 219 days follow-up (range: 22-656).
- These surgeries were all outpatient and there were no immediate complications and no re-ruptures.

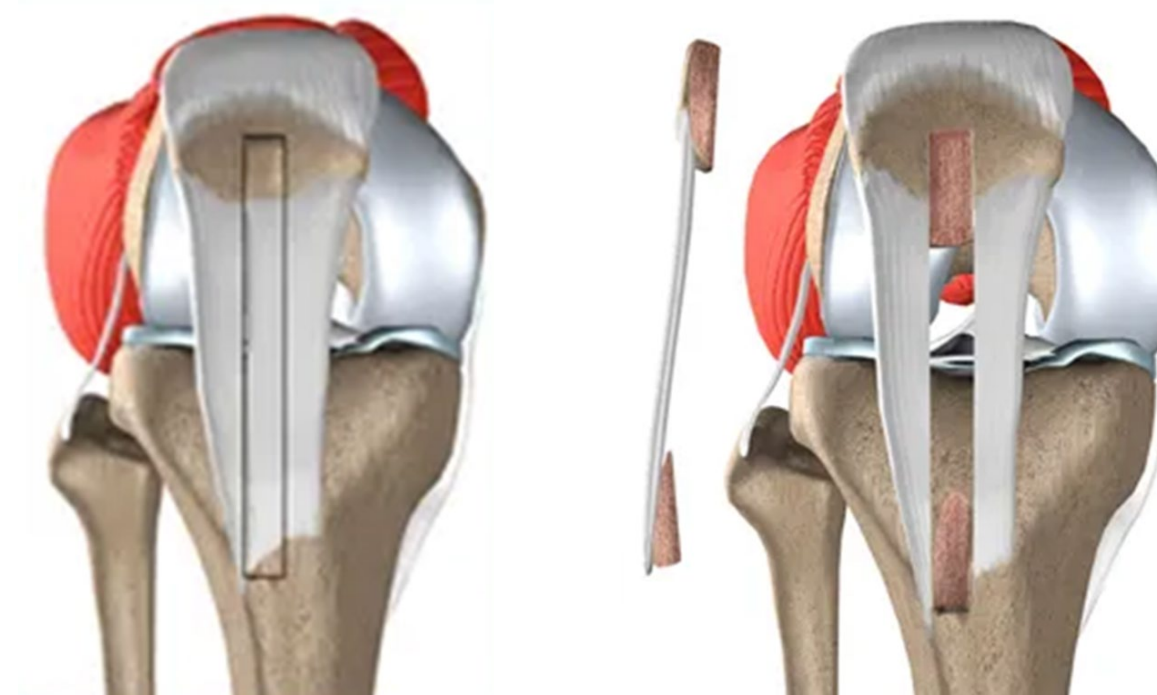


Figure 2. Bone Patellar Tendon Bone (BPTB) Grafting

## Discussion

Graft choice is a continued debate in the orthopedic community. Allografts have been used successfully for decades, however there is mounting evidence that autografts may be superior, especially in survivorship.

Re-rupture rates can be as high as 50% in the first postoperative year<sup>1</sup> and is considered a catastrophic failure.

Our small patient population demonstrates that allografts are a viable option with equal survivorship in the older population.

Data suggests that patients can benefit long-term with BPTB allograft reconstructions without the increased morbidity from an autograft with equal survivorship.

### Limitations

Small patient population: Greater number of patients is needed to provide higher validity to the study findings.

Short follow-up times: an average follow-up time of 219 days and some patients being lost to follow-up after 22 days. Future collection of follow-up data is needed to provide further analysis of long-term benefits of allograft ACL reconstruction. ROM, stability, and return to physical activity are the most pertinent data points to continue collecting.

## Conclusion

With no patients with a re-rupture, our study provides insight into supporting our hypothesis that patients over 40 years of age can return to physical activity and receive long term benefits from ACL reconstruction using allografts

## Methodology

This is a retrospective qualitative study.

Medical records for patients who underwent an ACL reconstruction by a single provider at Novant Health Orthopedics and Sports Medicine were obtained from 2018 – 2022 (n=104). Of those ACL reconstructions, patients 40 years of age or older who had allografts were identified (n=30).

All allografts were done with patellar bone graft that were pre-shaped and measured 10mm in diameter and 95-100mm in length.

Specific post operative protocol including physical therapy and weight bearing in a brace immediately post operatively with crutches.

Medical records were reviewed, and patients were contacted via telephone for follow-up information. Data interpreted included demographics, mechanism of injury, pre- and post-op ROM, pre- and post-op function, return to recreational sport, complications, re-rupture and subjective instability.

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