

# Synthetic Mesh and Extensor Mechanism Allograft Reconstruction Have High Failure Rates

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## INTRODUCTION:

Extensor mechanism disruption is a devastating complication following total knee arthroplasty (TKA). While extensor mechanism reconstruction (EMR) may be performed using an allograft or synthetic mesh, the optimal treatment method remains unknown. The purpose of this study was to compare the clinical outcomes and failure rates of allograft and synthetic mesh reconstructive techniques.

## METHODS:

We identified a consecutive series of patients who underwent EMR (48 allograft, 30 mesh) following TKA between 2008 and 2020 at a single institution. Patient demographics, surgical history (traumatic cause, chronicity of symptoms), operative details (location of disruption, graft fixation method, hinged prosthesis), subsequent periprosthetic joint infection (PJI), and functional outcome scores were compared between the groups. Kaplan-Meier survivorship analysis was performed with an endpoint of reconstruction failure, defined as postoperative extensor lag  $>30^\circ$  or revision of the reconstruction. All patients had a minimum follow up of 2 years (range 2–13 years).

## RESULTS:

Of the 78 patients, 23 allograft (47.9%) and 15 mesh (50.0%) reconstructions failed at latest follow up. There was also no difference in rates of all cause reoperation (43.8% vs. 33.3%,  $p=0.36$ ), extensor lag  $>30^\circ$  (25.0% vs. 23.3%,  $p=0.87$ ), and subsequent PJI (22.9% vs. 20.0%,  $p=0.76$ ). Furthermore, there was no difference in postoperative KOOS-JR at latest follow up (52.20 vs. 62.67,  $p=0.306$ ). Using Cox regression to control for demographic and operative variables, there was no difference in odds of failure between the groups (HR 1.145, 95% CI 0.441–2.973,  $p=0.781$ ). There was no difference in survivorship between the groups (x months vs. y, p-value) Sub-group analysis of 23 Achilles tendon and 25 extensor mechanism allografts revealed similar findings.

## DISCUSSION AND CONCLUSION:

Extensor mechanism disruption remains a difficult complication to treat, with low success rates reported after EMR. With the numbers available, allograft and synthetic mesh reconstructions demonstrated comparably poor results, with high rates of failure, reoperation, and infection.

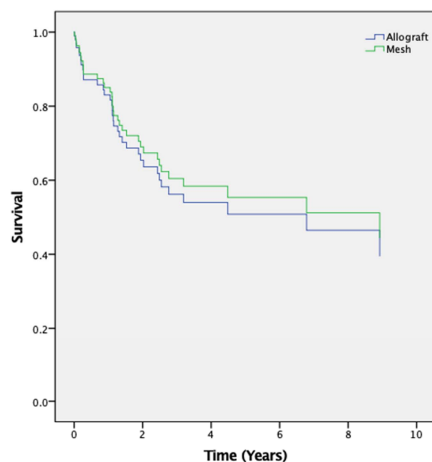


Figure 1. Kaplan Meier survival curve