

## **Comparison of Survivorship of Distal Femoral Replacements by Fixation Method**

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**INTRODUCTION:** Distal femoral replacements (DFRs) are utilized in primary or revision total knee arthroplasty (TKA) to correct for the lack of supportive bone, but they are known to have high failure rates. This study aimed to examine DFR survival and causes of failure by fixation method.

**METHODS:** This study was a retrospective, single-institution cohort study of patients who underwent DFR for revision TKA or primary fracture. Patient demographic and surgical data were collected via chart review, and fixation method was determined using operative notes and radiographs. Patients were divided into cohorts by DFR fixation method: cemented, cementless, and cemented with a femoral cone. Outcomes of interest included revision rates, revision causes, and DFR survival by fixation method.

**RESULTS:** We identified 243 DFRs for study inclusion: 187 cemented, 30 cementless, and 26 cemented with femoral cone. No significant differences were seen amongst groups for indication of primary DFR ( $P = 0.54$ ). At the time of the last follow-up, 55 (29.4%) cemented, 4 (13.3%) cementless, and 6 (23.1%) cemented with femoral cone DFRs had required revision ( $P = 0.164$ ). Causes of revision, including aseptic loosening, periprosthetic joint infection, periprosthetic fracture, and soft tissue failure, were not significantly different amongst groups ( $P = 0.968$ ). Femoral loosening was the primary cause of revision in 8 (14.5%) of cemented, 1 (25.0%) uncemented, and 1 (16.7%) cemented with femoral cone revised DFRs ( $P = 0.623$ ). Five-year survival rates for cemented, uncemented, and cemented with femoral cone were 72%, 87%, and 77%, respectively.

**DISCUSSION AND CONCLUSION:** In our retrospective cohort, method of DFR fixation did not significantly affect rates or causes of revision. This study represents a larger sample of DFRs than comparable analyses, which does not support the additional cost of fixation with a cone.