

## Clinical & Radiographic Outcomes of Cemented vs. Diaphyseal Engaging Cementless Stems in Aseptic Revision TKA

Jeremy M. Gililland, MD, Christian J. Gaffney, MD, MSc,  
Christopher L. Peters, MD, **Walter B. Beaver, MD**, Susan M. Odum, PhDc

**Introduction:** The rate of revision TKA in the US has risen over 250% and is likely to increase. Although modular revision systems have become standard, the type of stem fixation remains controversial. The purpose of this study is to compare the incidence of failure between cemented and diaphyseal engaging cementless stems in aseptic revision TKAs.

**Methods:** We performed a multicenter retrospective review of 87 revision TKAs with minimum 2-year follow-up utilizing 86 femoral and 83 tibial stems. All revisions were performed for aseptic failures of primary TKAs. 53 revisions utilized cemented and 34 utilized diaphyseal engaging cementless stems. Medical records and radiographs were reviewed for failure as defined by aseptic revision of the stemmed components or radiographic evidence of loosening. Clinical outcomes were evaluated using the Knee Society Score (KSS). There was no difference in demographics between groups. Follow-up averaged 70 months (range 25-245) and 72 months (range 25-201) for the cemented and cementless groups.

**Results:** With the numbers available for study, revision rates and radiographic failure rates for both femoral and tibial stems were similar between groups. Two cemented tibial stems were revised (both for instability), while no cementless tibial stems were revised ( $p=0.53$ ). Two cemented femoral stems were revised (1 for instability, 1 for aseptic loosening), while two cementless femoral stems were revised (1 for periprosthetic fracture, 1 for malrotation) ( $p=0.64$ ). The rates of radiographic loosening were 1.9% and 6.7% ( $p=0.30$ ) for cemented and cementless tibial stems, and 3.8% and 3% ( $p=0.99$ ) for cemented and cementless femoral stems. Additionally, we found similar improvements in KSS, and similar rates of infection between groups.

**Conclusions:** At midterm follow-up, we found no difference in failure rates of cemented and diaphyseal engaging cementless stems. While both types of stem appear to provide reliable fixation, cementless stems may provide some benefit via bone preservation for future revisions.

