

# Inferior Screw Fixation in Revision Acetabular Reconstruction Decreases Acetabular Component Failure

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**Introduction:** Adjunctive screw fixation has been shown to be reliable in achieving acetabular component stability in revision THA. While biomechanical studies have shown inferior screw fixation in the ischium or superior pubic ramus may improve abduction stability of the acetabular component, data examining clinical differences in re-revision rates based on screw placement is limited. The purpose of this study was to assess the effect of inferior screw placement on acetabular component failure following revision THA. We hypothesize that inferior screw fixation will decrease acetabular failure rates.

**Methods:** We reviewed 250 patients with Paprosky Type II or III defects who underwent acetabular revision between 2001-2021 across 4 institutions. Demographic factors, the number of screws, location of screw placement (superior versus inferior), use of augments and/or cup-cage constructs, Paprosky classification and presence of discontinuity were documented. Inferior screw placement was defined as placement in the superior pubic ramus or ischium based on radiographs. Multivariate regression was performed to identify the independent effect of inferior screw fixation on primary outcome of aseptic re-revision of the acetabular component.

**Results:** At mean follow-up of 53.4 months (range, 12 to 261 months), 16 patients (6.4%) required re-revision for acetabular loosening. There were 140 patients (56.0%) with inferior screw fixation, all without neurovascular complication during screw placement. Patients with inferior screws had a lower rate of acetabular re-revision than those with only superior screw fixation (2.1% vs. 11.8%,  $p=0.0030$ ). Multivariate regression demonstrates that inferior screw fixation decreased the likelihood of re-revision for acetabular loosening when compared to superior screw fixation only (OR: 0.22, CI: 0.05-0.77;  $P=0.0289$ ). No other risk factors were identified.

**Conclusion:** Inferior screw fixation is a safe and reliable technique to reduce acetabular component failure following revision THA in cases of severe acetabular bone loss.

## Notes