

## Effect of Surgeon Experience on Outcomes After Acetabular Fracture Fixation

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**Purpose:** Operative management of acetabular fractures is technically challenging, but there are little data regarding how surgeon experience affects outcomes. Previous efforts have focused only on reduction quality in a single surgeon series. We hypothesized that increasing surgeon experience would be associated with improved acetabular surgical outcomes in general.

**Methods:** The study group included 640 patients aged 16-65 years with acetabular fractures treated with open reduction and internal fixation at a single urban academic trauma center by 8 fellowship-trained surgeons. Cases had variety in surgeon experience with 17% of the cases performed by surgeons with less than 3 years experience and 26% by surgeons with more than 12 years experience. Our 7 outcome variables were initial reduction quality, reoperations (not including conversion to total hip arthroplasty [THA]), readmissions related to acetabular surgery, superficial wound complications, deep infections, iatrogenic nerve injuries, and secondary fracture displacement. Each of the outcome variables was analyzed as a function of surgeon experience in years after fellowship. Linear and non-linear curves were compared for best fit with these functions.

**Results:** Surgeon experience was significantly associated with 3 outcome variables: decreased reoperation rates (cubic regression,  $P = 0.03$ ), decreased readmission rates (linear regression,  $P = 0.04$ ), and improved reduction quality (linear regression,  $P = 0.003$ ). The years of experience to reach 50% of peak performance ranged from 3.1 years (reoperation rate) to 8.4 years (readmission rate).

**Conclusion:** Surgeon experience appears to be an important factor in 3 outcomes (reoperation rate, readmission rate, and reduction quality, all  $P < 0.05$ ) after acetabular fracture fixation. Our data indicate a relatively long learning curve as surgeons continue to demonstrate improvements 10 or more years after finishing fellowship.