

# Is Older Age Really a Predictor of Reoperations following Plate Fixation of Distal Radius Fractures?

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## INTRODUCTION:

There is continued debate about the best method of treatment in older patients with distal radius fractures (DRFs). We sought to characterize and identify predictors of reoperations following plate fixation of DRFs and to determine if older age was associated with worse outcomes.

## METHODS:

We used provincial administrative data to identify DRF patients aged  $\geq 18$  years between 2003-2016. We used procedural codes to ascertain those who underwent primary plate fixation within 30 days. We used procedural and diagnosis codes to examine reoperations related to the index fracture within 2 years of fixation. We used multivariable logistic regression to examine independent predictors of reoperations.

## RESULTS:

We identified 13,165 DRF patients who underwent plate fixation between 2003 and 2016, 65.2% of whom were female, 25.9% aged 51-60 years, and 18.0% aged  $>60$ . Of these, 9.1% underwent a reoperation (mean  $297.2 \pm 196.4$  days). The most common reoperation was plate removal (7.0%,  $309.8 \pm 183.7$  days), followed by revision fixation (2.1%  $252.6 \pm 216.8$  days), and "other" reconstructive repair (1.8%,  $352.2 \pm 188.7$  days, includes osteotomy and capsular release). The most common diagnoses were hardware related concerns (5.4%), followed by non- or malunion (1.4%), and median neuropathy (1.1%).

We identified the following variables independently associated with an increased odds of reoperation: concomitant ulna fracture (odds ratio [OR] 1.25 [1.08-1.44]), time to fixation (OR 1.01 [1.00-1.02]), and female sex (OR 1.15 [1.01-1.32]). Specifically, concomitant ulnar fractures were associated with an increased odds of plate removal (OR 1.19 [1.02-1.40]) and revision fixation (OR 1.91 [1.48-2.47]); increased time to surgery was associated with a higher odds of revision fixation (OR 1.04 [1.02-1.06]); and female patients were more likely to undergo plate removal (OR 1.23 [1.06-1.43]), and nerve release or repair (OR 1.56 [1.01-2.44]). Further, we identified poor bone quality as an independent predictor of revision fixation (OR 1.82 [1.14-2.92]).

## DISCUSSION AND CONCLUSION:

Reoperations following plate fixation of DRFs appear to be driven primarily by hardware-related complications and tend to occur in those who experience a longer delay to surgery, females, and those with more complex fracture types or poor bone quality. While this suggests factors other than age cut-offs should be considered when deciding to perform plate fixation, further prospective research is required.