

**TITLE: Smoking Increases Post-Operative Complications after Distal Radius Fracture Fixation:
A Review of 417 Patients from a Level 1 Trauma Center.**

BACKGROUND: Unstable distal radius fractures that undergo surgical stabilization have varying complication rates in the literature. Smoking is known to impact bone healing and implant fixation rates but has never been definitively shown to affect post-operative outcomes of surgically managed distal radius fractures.

METHODS: A retrospective review was performed of patients with surgically treated distal radius fractures at a Level 1 trauma center who had at least 6 weeks of follow-up over a five-year period. Charts were reviewed for basic demographic information, comorbidities, details about the operative procedure, and early complications. Notable physical exam findings were noted, such as wrist stiffness and distal radius tenderness to palpation. Statistical analysis was performed to compare the smoking and non-smoking groups. To control for confounding differences, a hierarchical multivariable regression analysis was performed.

RESULTS: Four-hundred-and-seventeen patients were included in the study and 24.6% were current smokers at the time of surgery. The overall complication rate for smokers was 9.8% compared to 5.6% in non-smokers. The smoking cohort showed significantly higher rates of hardware removal, nonunion, revision procedures, wrist stiffness, and distal radius tenderness. When controlling for the confounding variables of diabetes and obesity, smokers still had significantly higher rates of the same complications.

CONCLUSION: Patients who smoke have a statistically significant higher rate of post-operative distal radius tenderness, wrist stiffness, nonunion, hardware removal, and revision procedures

compared to those who do not smoke in a review of 417 total patients undergoing surgical fixation for distal radius fractures.

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