

**Risk Factors for Reoperation to Promote Union in 1,128 Distal Femur Fractures**

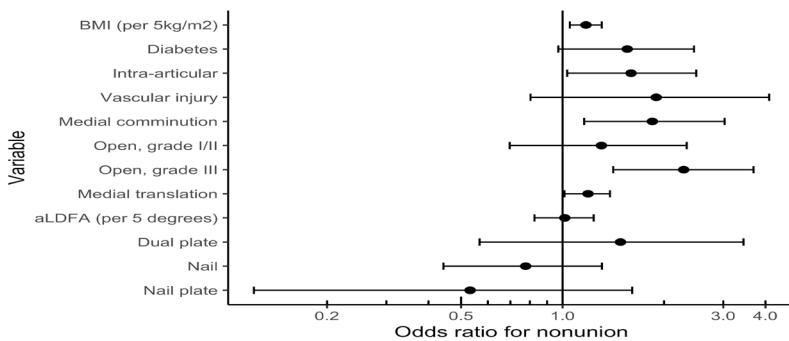
*Dane Jensen Brodke, MD; Sai Devana, MD; Adolfo Hernandez, MS; Nathan N. O'Hara, PhD; Cynthia Burke, BS, BSN; Jayesh Gupta, BS; Natasha McKibben, BS; Robert V. O'Toole, MD; John Morellato, MBBS; Murphy McGriff Walters, MD; William Hunter Gillon, MD; Colby Barber, MD; Paul William Perdue, MD; Graham John DeKeyser, MD; Lillia Steffenson, MD; Lucas Scott Marchand, MD; Stephen J. Shymon, MD; Marshall James Fairres, MD; Loren O. Black, MD, MBA; Zachary Mark Working, MD; Matthew Hogue, MD; Trevor Gulbrandsen, MD; Omar Hammad Atassi, MD; Thomas W. Mitchell, MD; Erika Roddy MD; Ashraf N. El Naga, MD; Christopher Lee, MD*  
 University of California, Los Angeles, Los Angeles, California, UNITED STATES

**Purpose:** Our objective was to evaluate the association between patient, injury, reduction, and fixation construct characteristics and the outcome of unplanned reoperation to promote union in patients with distal femur fractures.

**Methods:** A multicenter retrospective review involving 10 centers was performed. Distal femur fractures in patients at least 18 years of age who underwent operative fixation between January 2012 and December 2019 were eligible. Pathologic fractures and patients with less than 3 months of follow-up and no outcome event were excluded. The study cohort was comprised of 1128 distal femur fractures. Fixation constructs were classified as lateral plate, nail, dual plate, or nail plate. Associations between potential predictors and unplanned reoperation to promote union were evaluated using logistic regression analysis.

**Results:** There was an 11% (123/1128) rate of unplanned reoperation to promote union. In the multivariate analysis (Figure 1), predictive factors included body mass index (odds ratio [OR] = 1.17; 95% confidence interval [CI]: 1.05-1.31; P<0.01), intra-articular fracture (OR = 1.60; 95% CI: 1.03-2.50; P = 0.04), grade III open injury (OR = 2.29; 95% CI: 1.41-3.69; P<0.01), the presence of medial comminution (OR = 1.85; 95% CI: 1.16-3.03; P = 0.01), and medial translation on postoperative radiographs (OR = 1.19 per one-tenth of condylar width; 95% CI: 1.01-1.38; P = 0.03). Construct type was not significantly predictive.

**Conclusion:** 11% of distal femur fractures underwent unplanned reoperation to promote union. Diabetes, intra-articular fracture, grade III open injury, medial comminution, and medial translation were predictive factors. Construct type was not predictive; however, this conclusion was limited by small numbers in the dual plate and nail plate groups.



The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device they wish to use in clinical practice.