

**Risk Factors for Failure in 228 Periprosthetic Distal Femur Fractures:
A Multicenter Study**

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Purpose: Our objective was to identify risk factors for reoperation to promote union or to address deep surgical site infection (DSSI) in periprosthetic distal femur fractures (PPDFs) treated with lateral distal femoral locking plates (LDFLPs).

Methods: The setting for this multicenter retrospective cohort study was 10 Level I trauma centers. We included patients with PPDFs treated with a LDFLP who had at least 3 months of follow-up or who sustained a reoperation to promote union or to address DSSI prior to that time (n = 228). The intervention was surgical fixation of PPDFs with LDFLPs. The main outcome measurement was unplanned reoperation to promote union or to address a DSSI.

Results: There was an 8.3% (19/228) rate of unplanned reoperation to promote union. Predictive factors for the need for reoperation to promote union included increasing body mass index (BMI) (odds ratio [OR] = 1.09; 95% confidence interval [CI]: 1.02-1.16; P = 0.01), increasing number of screws in the distal fracture segment (OR = 1.73; 95% CI: 1.06-2.95; P = 0.03), and decreasing proportion of proximal segment screws that are locking (OR = 0.17; 95% CI: 0.03-0.70; P = 0.02). There was a 4.8% (11/228) rate of reoperation to address DSSI. No statistically significant predictive factors in multivariate or univariate analysis were identified.

Conclusion: 8.3% of PPDFs treated with LDFLPs underwent unplanned reoperation to promote union. Increasing patient BMI and increasing number of screws in the distal fracture segment were found to be predictive factors, while increased locking screws in the proximal segment was found to be protective. 4.8% of patients in this cohort underwent reoperation to address DSSI.