

## **A Prospective Randomized Control Trial Comparing Immediate Weight Bearing Versus Touch-Down Weight Bearing in Extra-Articular Distal Femur Fractures**

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**Purpose:** Distal femur fractures can be difficult to manage. Locked lateral plates have become a standard of care for these challenging fractures. The tendency has been to protect weight bearing postoperatively in this often elderly population. The purpose of this study was to prospectively randomize patients regarding postoperative weight bearing status, distributed to either weight bearing as tolerated (WBAT) versus touch-down weight bearing (TDWB). Our hypothesis is that patients allowed WBAT immediately would have similar rates of early catastrophic failure and union compared to the TDWB group.

**Methods:** This prospective randomized cohort study evaluated the outcomes of patients with distal femur fractures (OTA 33-A) treated with open reduction and internal fixation (ORIF) via locked lateral plating. These patients were randomized to either immediate WBAT versus TDWB for 12 weeks. The attending surgeon was blinded to the weight-bearing status of the patient until postoperatively. From April 2015 to January 2017, 31 patients from a Level I trauma center met inclusion criteria, with 23 having fractures adjacent to a total knee arthroplasty. Primary outcomes include fracture union, mortality, and early catastrophic failure, defined as any bent or broken hardware or loss of reduction within the first 3 months postoperatively. The patients were examined at routine clinic intervals with radiographs.

**Results:** Of the 31 patients, 16 were randomized to the TDWB group and 15 to the WBAT group. One patient in the TDWB group had a nonunion requiring revision ORIF. One patient in the WBAT group had loss of reduction requiring conversion to a distal femoral replacement. Fracture union was achieved in 11 patients, 5 in the WBAT group and 6 in the TDWB group. Five patients in each group had progression of radiographic healing but incomplete union at their last follow-up. Four patients died within 6 months postoperatively (13%). Three patients have been lost to follow-up.

**Conclusion:** Early mobilization after orthopaedic surgery is vital to achieving an optimal outcome and preventing postoperative complications. Traditional management of distal femur fractures has involved protected weight bearing postoperatively. Despite the small cohort, this prospectively randomized study demonstrates the low likelihood of early catastrophic failure when allowing patients to weight-bear immediately after surgery. This study also confirms the high mortality rate associated with distal femur fractures in the elderly population.