

## Comparison of Double Anatomical Locking Compression Plates versus Nonlocked Plates in Distal Humerus Fractures

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**Purpose:** The current literature contains no guidelines for choosing the method of fixation for fractures of the distal humerus. The hypothesis of this study is to compare the functional and radiological outcomes between anatomical locking compression plates and nonlocked reconstruction plates in fractures of the distal humerus (AO type A3) and if there is superiority of any method of fixation.

**Methods:** This was a prospective randomized comparative study that was conducted between 2015 and 2021 on 60 patients with distal humeral fractures (AO type A3). There were 30 patients (23 males and 7 females) with a mean age of 40 years and 2 months ( $40.20 \pm 9.62$ , range: 23–48 years) who were followed up for 62 months in group 1. The patients in group 1 underwent open reduction and internal fixation with double anatomical locking compression plate (LCP). There were 30 patients (21 males and 9 females) with a mean age of 41 years and 7 months ( $41.73 \pm 6.39$ , range: 24–52 years) in group 2. The mean follow-up period was 58 months. 15 of the patients in group 2 underwent open reduction and internal fixation with nonlocked plates.

**Results:** There was no significant difference in the degree of extension, flexion, arc of motion, and MEPS (Mayo Elbow Performance Score) between the 2 groups at the 6-month follow-up appointment (P value 0.406, 0.701, 0.770, 0.557, respectively). There was a highly significant difference between the study groups in the mean union time (P < 0.001) ( $3.27 \pm 0.46$  months vs  $4.27 \pm 0.70$  months) and time taken to mobilize the elbow joint after surgery (10–14 days [mean  $11.33 \pm 1.40$ ] vs 21–30 days [mean  $24.87 \pm 4.45$ ] days) in groups 1 and 2, respectively.

**Conclusion:** There was no difference in the functional outcomes of distal humeral fractures (AO type A3), including range of motion and MEPS, between the precontoured anatomical LCP and 3.5-mm nonlocked reconstruction plates. There was improvement in the union time and short postoperative time of mobilization in group 1. the Level of Evidence: III