

Improved Shoulder and Elbow Range of Motion and Earlier Return to Work Occurs Following Open Reduction and Internal Fixation of Humeral Diaphyseal Fractures

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Purpose: Recovery from injury, including pain-free range of motion (ROM), is important for return to work and function. This study aimed to evaluate the return of shoulder, elbow, and forearm range of motion (ROM) following a humeral diaphyseal fracture.

Methods: This is a prespecified secondary analysis from a large randomized controlled trial (RCT) comparing open reduction and internal fixation (ORIF; plates and screws) with nonoperative treatment (functional bracing) of humeral diaphyseal fractures. Standardized ROM measurements for the shoulder, elbow, and forearm were taken using a goniometer at 6 weeks, then at 4, 6, and 12 months post-injury. Patient-reported return to baseline level of work was assessed at each follow-up. Student t tests and a 2-way analysis of variance (time and treatment group) were used to compare between the treatment groups.

Results: A total of 168 patients were enrolled (n = 84 per treatment group), with an 85% 1-year follow-up rate. The ORIF treatment group demonstrated significantly improved ROM over time for shoulder abduction ($P < 0.001$), forward flexion ($P < 0.001$; Figure 1), external rotation ($P < 0.01$), and elbow flexion ($P = 0.001$; Figure 1) when compared to the nonoperative group. The ORIF group returned to preinjury level of work sooner, at an average of 93.2 (± 71.7) days, compared to those in the nonoperative group, at an average of 138.3 (± 98.1) days ($P = 0.005$).

Conclusion: Return to work and function are important to stakeholders including patients, their family members, and their employers. This large RCT provides return to function and work information that can help guide shared decision-making between patients and surgeons, as earlier recovery of ROM and return to work were demonstrated in the ORIF treatment group.

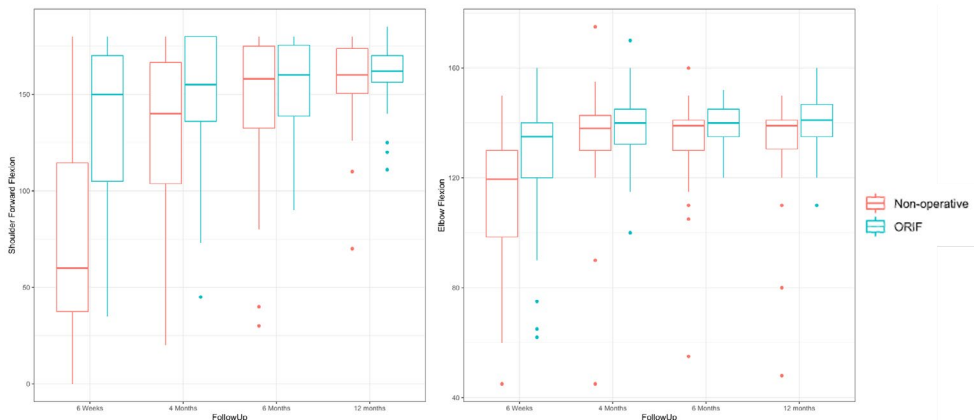


Figure 1: Boxplots with median and interquartile range for shoulder forward flexion (left) and elbow flexion (right) over time. There was significantly improved ROM in the ORIF (green) group.

See the meeting website for complete listing of authors' disclosure information. Schedule and presenters subject to change.