

# Treatment Options for Acute Rockwood III & V Acromioclavicular Dislocations: A Network Meta-Analysis of Randomized Control Trials

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**INTRODUCTION:** Acute Rockwood type III-V acromioclavicular (AC) dislocations have been treated with numerous surgical techniques over the years. The purpose of this study was to perform a network meta-analysis of randomized controlled trials (RCTs) to quantitatively define the optimal treatment for operative AC dislocations.

## METHODS:

A literature search of three databases was performed on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. RCTs comparing one of ten treatments for acute Rockwood type III-V AC dislocations (Nonoperative [NO]; Kirschner wire fixation [KW]; Coracoclavicular screw fixation [Scr]; Hook plate [HP]; Open coracoclavicular cortical button [CBO]; Arthroscopic coracoclavicular cortical button [CBA]; Two or more coracoclavicular cortical buttons [CB2]; Isolated graft reconstruction [GR]; cortical button with graft augmentation [CB+GR]; coracoclavicular and acromioclavicular fixation [AC]) were included. Clinical outcomes were compared using a frequentist approach to NMA, with statistical analysis performed using R. Treatment options were ranked using the P-score.

## RESULTS:

From 5362 reviewed studies, 26 studies met the inclusion criteria, with a total of 1581 patients included in the NMA. AC, CB+GR, GR, CB2, CBA, and CBO demonstrated superiority over HP, Scr, KW, and NO treatments at final follow up for Constant-Murley and DASH scores, with AC and CB+GR demonstrating the highest P-scores for Constant (P-score = 0.9572 and 0.7807, respectively) and GR and CBO with the highest P-scores for DASH (P-score = 0.8961 and 0.7499, respectively). GR had the highest P-score for VAS (P-score = 0.9859). HP, CB2, CB+GR, AC, CBA, and CBO demonstrated superiority with final follow up coracoclavicular distance (CCD) and recurrence, with HP and CB2 having the highest P-score for CCD (P-score = 0.7978 and 0.7571, respectively) and GR and CB+GR having the highest P-score for recurrence (P-score = 0.8804 and 0.8550, respectively). KW and Scr had the shortest operative times (P-score = 0.9167 and 0.8098, respectively), with GR and CBA demonstrating longest operative times (P-score = 0.1200 and 0.0967, respectively).

## DISCUSSION AND CONCLUSION:

While there are multiple fixation options for acute surgical AC dislocations, adding AC fixation or graft augmentation likely improves functional outcomes and decreases CCD and recurrence at final follow up, at the expense of longer operative times.

