Background: Malmanagement of distal radius fractures can lead to malunion and eventual pain, loss of motion, decreases in quality of life and the potential for persistent disability. Numerous studies have described outcomes with corrective osteotomy of the distal radius to address this issue. However, few studies report on the functional outcomes after ulnar shortening procedures.

Objective: We sought to compare the ulnar shortening osteotomy to the corrective distal radius osteotomy for addressing distal radius malunions.

Methods: We identified 11 patients with an extra-articular distal radius malunion treated with ulnar shortening osteotomy (USO). The mean follow-up was 12.7 months. A 1:1 age- and sex-matched cohort of patients treated with corrective distal radius osteotomy (DRO) was randomly selected. Visual analogue scores (VAS), wrist range of motion, grip and pinch strength, postoperative complications, and radiographic parameters were analyzed.

Results: The average age of patients undergoing USO and DRO was 52 and 54 years, respectively. In the USO group, the average amount of shortening was 4.9 mm, with an average of 4.3 mm ulnar positive variance preoperatively. wrist flexion and extension improved in both groups, with statistically significant difference in both groups (p < 0.05). Similarly, average VAS improved from 5.1 to 2.0 and from 5.4 to 1.9 in the USO and DRO groups, respectively (p < 0.05). After USO, the average ulnar variance was 1.9 mm negative while this was 0.8 mm positive in the DRO group. Two patients underwent USO after DRO for persistent impairment symptoms. The total tourniquet time was 97.3 minutes in the USO group compared to 116 minutes in the DRO group (p < 0.05).

Conclusions: This case-control retrospective review demonstrates an improvement in range of motion, grip, and VAS for patients undergoing both USO and DRO. Patients had similar clinical outcomes, with only a difference in wrist flexion and extension. Nevertheless, USO being a simpler procedure, with a shorter operative time, and the ability to better correct the radiocarpal relationship makes it an attractive option with acceptable outcomes to address distal radius malunions.