



Return of Range of Motion Following Volar Plating for Distal Radius Fracture

¹Marci Jones, MD; ²Erika Lewis, PT, EdD, CHT; ¹Ryan Strzepa; ¹Patricia Franklin, MD, MBA

¹ Department of Orthopedic Surgery, University of Massachusetts, Worcester, MA, ² Department of Physical Therapy, University of Massachusetts, Lowell, MA

Introduction

- Distal radius fractures are more frequently treated with volar plating
- The recovery of range of motion following operative treatment is variable
- The optimal post-operative course is unknown
- We sought to determine the course of return of range of motion in adults who underwent operative treatment with volar plating for distal radius fractures

Methods

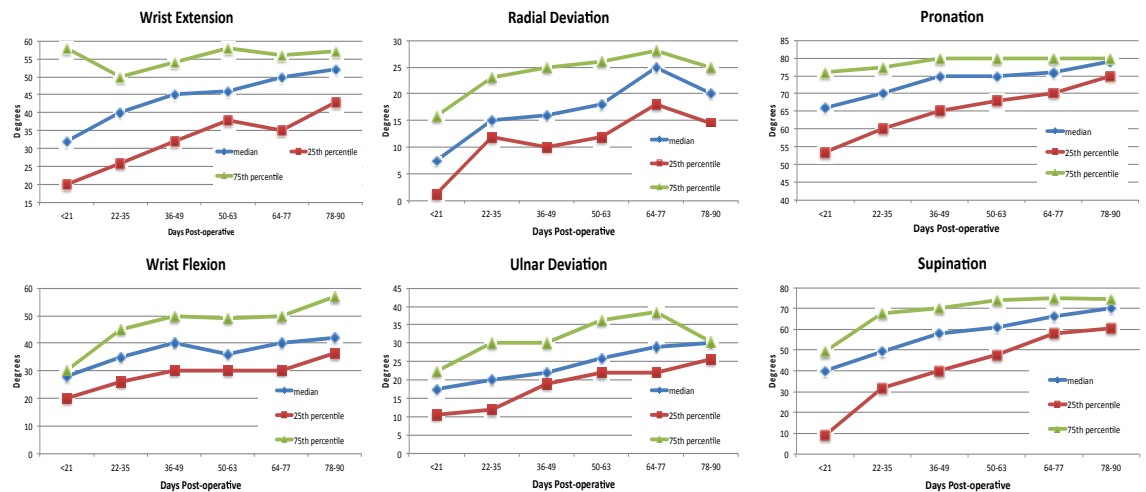
- Retrospective review of 50 consecutive adult patients
- Operative volar plating of distal radius fracture by 4 hand surgeons
- Wrist range of motion (ROM) measurements by hand therapist on at least 2 separate dates
- Trends in recovery of wrist ROM wrist extension (WE), wrist flexion (WF), radial deviation (RD), ulnar deviation (UD), supination (Sup) and pronation (Pro) were determined
- Median, 25th and 75th percentile ROM was calculated over 2 week intervals up to 90 post-operative days (POD)

Results

- Average ROM increased in all patients and in all directions over 90 days
- There was considerable variability in ROM at the early time points, however this had substantially decreased by 78-90 post-operative days
- The greatest ROM gain was seen in supination

	POD 0-22	POD 78-90		POD 0-22	POD 78-90
WE	36° ± 19°	50° ± 10°	UD	16° ± 7°	28° ± 5°
WF	26° ± 13°	45° ± 14°	Pro	64° ± 15°	77° ± 3°
RD	9° ± 7°	20° ± 7°	Sup	33° ± 24°	67° ± 10°

Results - Median, 25th and 75th percentile ROM



Discussion

- ROM increased in all directions in the 90 days following volar plating of distal radius fractures.
- The greatest gains are seen in supination, which is also the direction with the greatest initial ROM deficit
- Especially in early post-operative days, there is variability in the measured ROM among patients. The variability decreases most in UD, Sup and Pro at 90 days (e.g. patients tend to have similar ROM at 90 days)
- Establishment of this normative data will help surgeons and hand therapists identify patients who may be at risk for sub-optimal return of ROM and target them for additional interventions.
- Further study of effects of fracture pattern, reduction parameters, age and other patients variables will improve the strength of this data.