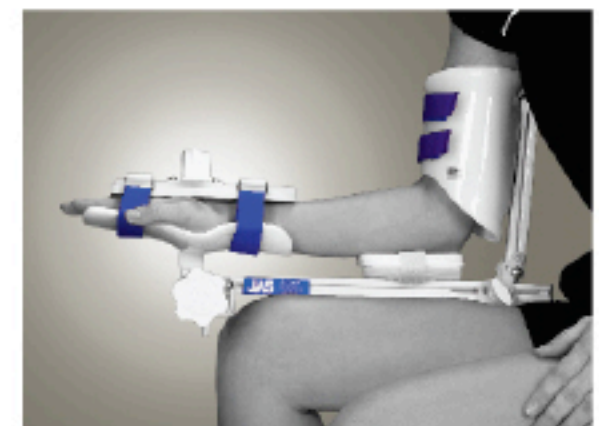
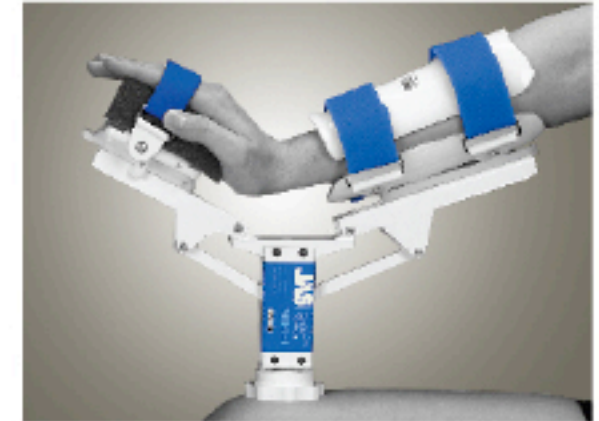


# CHANGES IN IMPAIRMENT AND FUNCTION FOLLOWING STATIC PROGRESSIVE SPLINTING FOR STIFFNESS AFTER DISTAL RADIUS FRACTURE

Full study appeared in *Journal of Hand Therapy*, 2008; Vol 21 Issue 4: 319-325.  
Ann Lucado, P.T., C.H.T., Zhongyu Li, M.D., Ph.D., Gregory Russell, M.S.,  
David Ruch, M.D., Anastasios Papadonikolakis, M.D.

The purpose of this study was to describe changes in range of motion, grip strength and function in subjects treated with static progressive splinting (SPS) for stiffness after distal radius fracture. A retrospective review was conducted on 25 patients who did not recover adequate ROM with a course of routine therapy. Wrist extension and flexion improved 18.6° and 11.4°, respectively. Pronation and supination improved 20.0° and 14.5°, respectively. Grip strength improved 24.5 pounds, and the median Disability of the Arm, Shoulder and Hand (DASH) scores improved from 43 to 19. Data revealed that SPS splinting can be a useful adjunct to therapy in the treatment of post-traumatic stiffness after distal radius fracture. Furthermore, increased wrist ROM correlated with better functional outcomes as reflected by DASH scores.



## Subjects/Intervention

- 25 patients with healed distal radius fractures.
- All received a course of hand therapy and a wrist or forearm SPS device (Joint Active Systems, Inc., Effingham Ill.).
- SPS splint use criteria: Patients reached a plateau or lost ROM gains despite therapeutic intervention following standard treatment guidelines.
- SPS splint protocol: three 30-minute sessions per day, per manufacturer's guidelines.

## Methods

- Retrospective review of medical records for all patients with residual stiffness post-distal radius fracture.
- Outcome data recorded included active wrist flexion and extension ROM, active forearm pronation and supination ROM, grip strength via isometric dynamometry and DASH scores.
- Outcome measures were obtained prior to and after completion of SPS splint treatment.

## Results

- Mean duration of SPS splint use: 75 days.
- Mean increases in wrist extension: 18.6° and flexion: 11.4°.
- Mean increases in forearm pronation: 20° and supination: 14.5°.
- Median DASH score improved 24 points.
- Average grip strength increased 24.5 pounds.
- 19 subjects who used a wrist flexion/extension SPS and six who used a forearm rotation splint all made gains in both wrist and forearm ROM.

## Discussion / Conclusion

- Study cohort demonstrated improved wrist and forearm ROM, grip strength and functional outcome measures after SPS splint treatment.
- Results demonstrate that increased wrist and forearm ROM correlates with improved function as reflected by DASH scores.
- Data suggests that SPS splinting can be a useful adjunct in the treatment of post-traumatic stiffness after distal radius fracture.



**Full Study Available.**

Please contact JAS at 800-879-0117 or [info@jointactivesystems.com](mailto:info@jointactivesystems.com).