

# RESTORING WRIST FLEXION/EXTENSION USING PRINCIPLES OF STRESS RELAXATION/STATIC PROGRESSIVE STRETCH

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Many patients develop joint stiffness and loss of motion as a secondary complication to wrist trauma. Two types of loading can be used to permanently lengthen soft tissue and restore ROM: creep-based and stress relaxation.

Historically, ROM limitations have been treated in the home setting using creep-based loading/dynamic splint devices that require eight to 12 hours per day wear time. Complications include poor patient compliance and skin irritation/breakdown.

The goal of this retrospective study was to verify whether stress relaxation/static progressive stretch (SPS) therapy could significantly increase ROM in patients with wrist stiffness. A secondary goal was to determine if a protocol of 30-minute SPS sessions could improve compliance and reduce complications.

## Patient Population

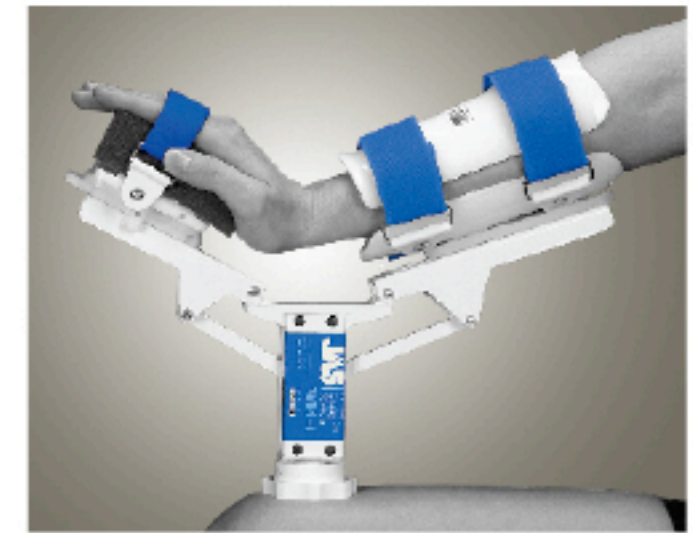
- 25 patients with post-traumatic loss of motion at the wrist joint.
- All had plateaued in therapy and failed to gain ROM with other treatment modalities.
- Mean age was 44 years (22 to 72).
- Majority of patients were limited in both flexion and extension.

## Materials and Methods

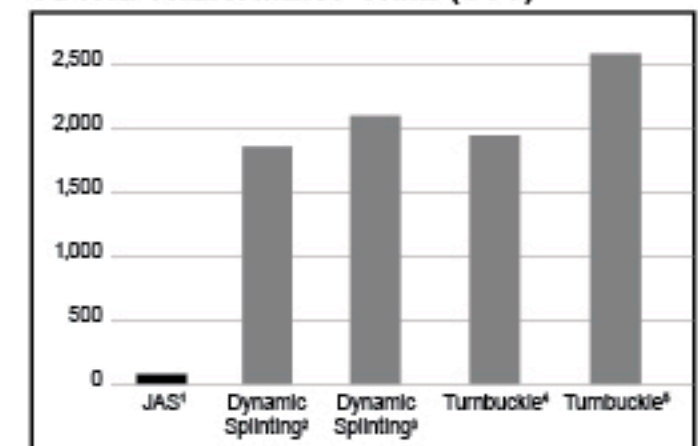
- A JAS Wrist SPS device was prescribed for home use.
- Patients were instructed to perform three 30-minute SPS sessions per direction, per day.
- Patients were regularly evaluated by licensed therapists who independently recorded ROM measurements.

## Results

- Total average increase in ROM was 37° per patient.
- Patients gained an average of 19° extension and 18° flexion.
- Average treatment time was eight weeks.
- No reports of complications or skin problems with device use.
- All patients completed the suggested treatment protocol.
- The JAS device was effective in restoring ROM using a significantly shorter treatment protocol than creep-based loading/dynamic splinting.



TOTAL TREATMENT TIME (TTT)



## References:

1. Bonutti PM, Windau JE, Ables BA, Miller BG. Static Progressive Stretch to Reestablish Elbow Range of Motion. *Clinical Orthopaedic and Related Research* 1994, No. 303.
2. Hepburn GR and Crivelli KJ. Use of Elbow Dynasplint for Reduction of Elbow Flexion Contractures: A Case Study. *The Journal of Orthopaedic and Sports Physical Therapy*, 5:Mar/April 1984.
3. MacKay-Lyons M. Low-Load Prolonged Stretch in Treatment of Elbow Flexion Contractures Secondary to Head Trauma: A Case Report. *Physical Therapy* 1989, Vol 69, No.4: 292-296.
4. Green DP, McCoy H. Turnbuckle Orthotic Correction of Elbow Flexion Contractures After Acute Injuries. *The Journal of Bone and Joint Surgery* 1979, Vol. 61-A, No.7.
5. Gelinas JJ, Faber KJ, Patterson SD, King GJW. The Effectiveness of Turnbuckle Splinting for Elbow Contractures. *The Journal of Bone and Joint Surgery* 2000, Vol 82-B, No. 1.



Full Study Available.

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