

CLINICAL OVERVIEW

A PROSPECTIVE RANDOMIZED CONTROLLED TRIAL OF DYNAMIC VERSUS STATIC PROGRESSIVE ELBOW SPLINTING FOR POSTTRAUMATIC ELBOW STIFFNESS

Full study appeared in The Journal of Bone and Joint Surgery American: 2012; 94: 694 – 700. Anneluuk L.C. Lindenhovius, MD, PhD, Job N. Doornberg, MD, PhD, Kim Brouwer, Msc, Jesse B. Jupiter, MD, Chaitanya S. Mudgal, MD, David Ring, MD, PhD

Static progressive and dynamic elbow splints are often used to help stretch a contracted elbow capsule to regain elbow motion after injury. There are advocates of each method, but no comparative data.

This prospective randomized controlled trial examined the difference in improvement of motion and Disabilities of the Arm, Shoulder, and Hand (DASH) scores between static progressive and dynamic splinting.

Static progressive splints (Joint Active Systems, Inc) were used following a standard protocol of 3 x 30 minute sessions per day (90 minutes daily wear time), whereas dynamic splints (Dyasplint Systems, Inc) were used following a standard protocol of 6 to 8 continuous hour sessions per day.

Data revealed no significant difference in the improvement of elbow motion between static progressive and dynamic splinting use for post traumatic elbow stiffness, and the choice of splinting method can be determined by patients and their prescribing physicians.



Participants

- 66 patients with posttraumatic elbow stiffness; 35 in the static progressive and 31 in the dynamic cohort.
- Subjects had loss of > 30° in elbow flexion or extension after injury or surgery.
- Subjects demonstrated failure to improve in elbow motion for at least 4 weeks with standard therapy and exercise.

Materials and Methods

- Patients were randomly assigned a JAS static progressive splint (Joint Active Systems, Inc.) or a Dynasplint dynamic splint (Dyasplint Systems, Inc).
- JAS static progressive splints were worn 3 times per day for 30 - minute sessions (90 minutes total); Dynasplint dynamic splints were worn for 6 to 8 continuous hours per day.
- Elbow motion was measured at enrollment and at 3, 6 and 12 months.
- DASH questionnaires were completed at enrollment and at 6 and 12 months.

Results

- Three patients (10%) in the Dynasplint dynamic splinting cohort requested a change to a JAS static progressive splint, due to discomfort and pain using a dynamic splint.
- Average gains in total elbow ROM (Dynamic / SPS) - 3 Months: 29°/28°, 6 Months: 40°/39°, 12 months: 47°/49°.
- Average DASH Score (Dynamic / SPS) - Enrollment: 50/45, 6 Months: 32/25, 12 Months: 28/26.

Conclusions

- There were no significant differences in elbow motion improvement between JAS static progressive and Dynasplint dynamic splinting protocols.
- The choice of splinting method can be determined by the patients and their physicians.
- Posttraumatic elbow stiffness can improve with exercises and static progressive or dynamic splinting over a period of 6 to 12 months, and patience is warranted.



Full Study Available

Please contact JAS at 800-879-0117 or info@jointactivesystems.com

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