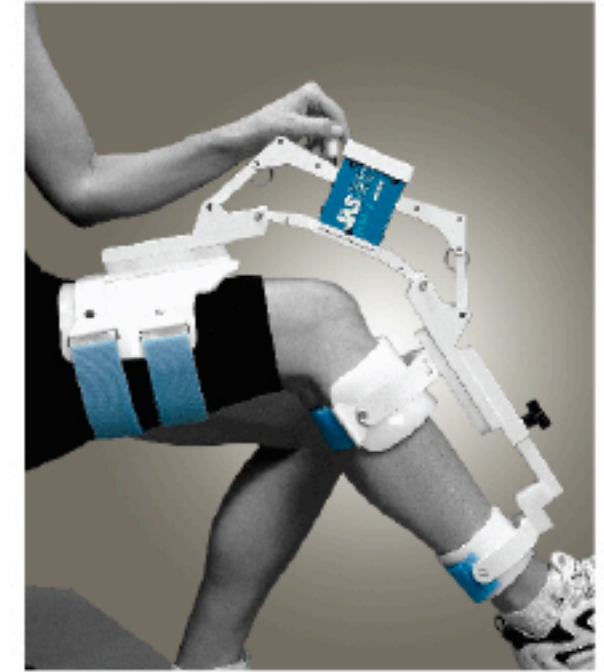


## STATIC PROGRESSIVE STRETCH FOR THE TREATMENT OF KNEE STIFFNESS

Full study appeared in *The Knee*. 2008; (15) 272-278. Peter M. Bonutti, M.D., Mike S. McGrath, M.D., Shelton A. McKenzie, M.D., Slif D. Ulrich, M.D., Thorsten M. Seyler, M.D., Michael A. Mont, M.D.

Persistent knee stiffness is common after knee arthroplasties, cruciate ligament repairs and trauma. Static progressive stretch (SPS) protocols have shown success in treating stiffness of the elbow, ankle and knee in case reports and small case series.

This study evaluated SPS as a treatment method for patients who had refractory knee stiffness and compared outcomes to published results of other therapeutic modalities. Forty-one patients who had knee stiffness and who had not improved with conventional physical therapy were treated with a patient-directed SPS orthosis. After a mean of nine weeks of use (range: three to 27 weeks), the total arc of motion increased by a mean of 33° (range: 0 to 85°). Forty of 41 patients had increased motion at a mean final follow-up time of one year (range: six months to two years), and 93% were satisfied with the results.



The outcomes were comparable to other nonoperative treatments reported in the literature, but the results in the present study occurred in a shorter mean treatment time. An orthosis that utilizes the principles of SPS may be a successful treatment for improving the range of motion and satisfaction of patients who have knee stiffness.

### Materials / Methods

- 41 consecutive patients with knee stiffness who had failed other therapeutic modalities were treated with a bi-directional SPS orthosis (Joint Active Systems, Effingham, Ill.).
- Knee stiffness was defined as a total arc of motion less than 90° or a flexion contracture that impaired quality of life.
- All patients had undergone standard physical therapy for a mean of 10 weeks (including stretching, ROM therapy, strengthening, ultrasound and gait training).
- The mean interval between onset of stiffness and initiation of SPS orthosis use was 17 weeks.
- Patients were instructed to perform three 30-minute SPS sessions per day, per direction of motion loss.
- Duration of treatment, knee ROM, compliance, satisfaction and complications were measured for each patient at the completion of the study.

### Results

- All patients completed the treatment and experienced a significant increase in total active ROM.
- The mean duration of SPS orthosis use was nine weeks.
- The mean increase in total active arc of knee motion was 33°, the mean increase in extension was 9° and flexion was 24°.
- No injuries, skin compromise, nerve palsies or other complications with the use of the device were reported.
- The mean satisfaction score was 7.6 points (range: 0 to 10).

### Discussion / Conclusion

- SPS orthosis use achieved knee ROM gains comparable to or better than results attained with other splinting methods, such as dynamic splinting, but with significantly shorter treatment time.
- SPS orthosis therapy may provide patients with an alternative to surgery for the treatment of persistent knee stiffness.
- SPS orthosis is a valuable tool for treating joint stiffness of the knee in the outpatient setting.



Full Study Available.

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