

---

# STATIC PROGRESSIVE STRETCH IMPROVES RANGE OF MOTION IN ARTHROFIBROSIS FOLLOWING TOTAL KNEE ARTHROPLASTY

---

**Full Study appeared in *Knee Surgery, Sports Traumatology, Arthroscopy*. Feb 2010, Vol 18(2) 194 - 199.**  
Peter M. Bonutti, German A. Marulanda, Mike S. McGrath, Michael A. Mont, Michael G. Zywiell.

Arthrofibrosis is a relatively common complication after total knee arthroplasty (TKA) that significantly impacts function and quality of life. Static progressive stretch (SPS) is a technique that has shown results in treatment of stiffness of the elbow, ankle, wrist, and knee. This study evaluated use of a SPS device for patients with refractory knee stiffness after TKA.

25 patients with knee stiffness and unsatisfactory improvement following manipulation and conventional physical therapy were evaluated following a course of SPS device therapy. Authors conclude that SPS therapy may be an effective method for increasing knee joint ROM when arthrofibrosis develops following TKA.

---

## Materials and Methods

- 25 consecutive patients with knee stiffness after TKA were treated with a bidirectional SPS orthosis.
- Knee stiffness was defined as less than 90° active flexion and / or limited knee extension that negatively impacted patient function.
- All patients had undergone manipulation under anesthesia without satisfactory improvement in knee ROM.
- All patients had also undergone a standard course of physical therapy.
- Patients used a Knee SPS orthosis (Joint Active Systems Inc, Effingham, IL), and followed a 30-minute treatment protocol up to three times per day per direction of ROM loss.
- SPS treatment was continued until no further ROM improvement was measured for at least one week.
- Gains in active knee extension and flexion ROM, duration of treatment, patient satisfaction, and incidence of complications were evaluated.

---

## Results

- All patients experienced an increase in knee flexion, extension and total arc of motion following SPS knee orthosis use.
- Median gain in total knee ROM was 25° (range, 2° – 60°).
- Median gain in active knee flexion was 19°, median gain in active extension was 7°.
- Median duration of device use was 7 weeks.
- Median satisfaction score was 9 points (range 1 – 10); 92% reported satisfaction scores of 6 or higher.
- No injuries, skin compromise, nerve palsies or other complications associated with use of the SPS orthosis were reported.

---

## Discussion and Conclusion

- Results demonstrate that the use of an SPS orthosis increases total knee ROM in patients following TKA when arthrofibrosis is present.
- SPS orthosis use may be an excellent first choice of treatment in patients with persistent knee stiffness following TKA, prior to manipulation under anesthesia or lysis of adhesions.

Full Study Available

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

©2010 Joint Active Systems, Inc. All rights reserved. Licensed in the State of Illinois