

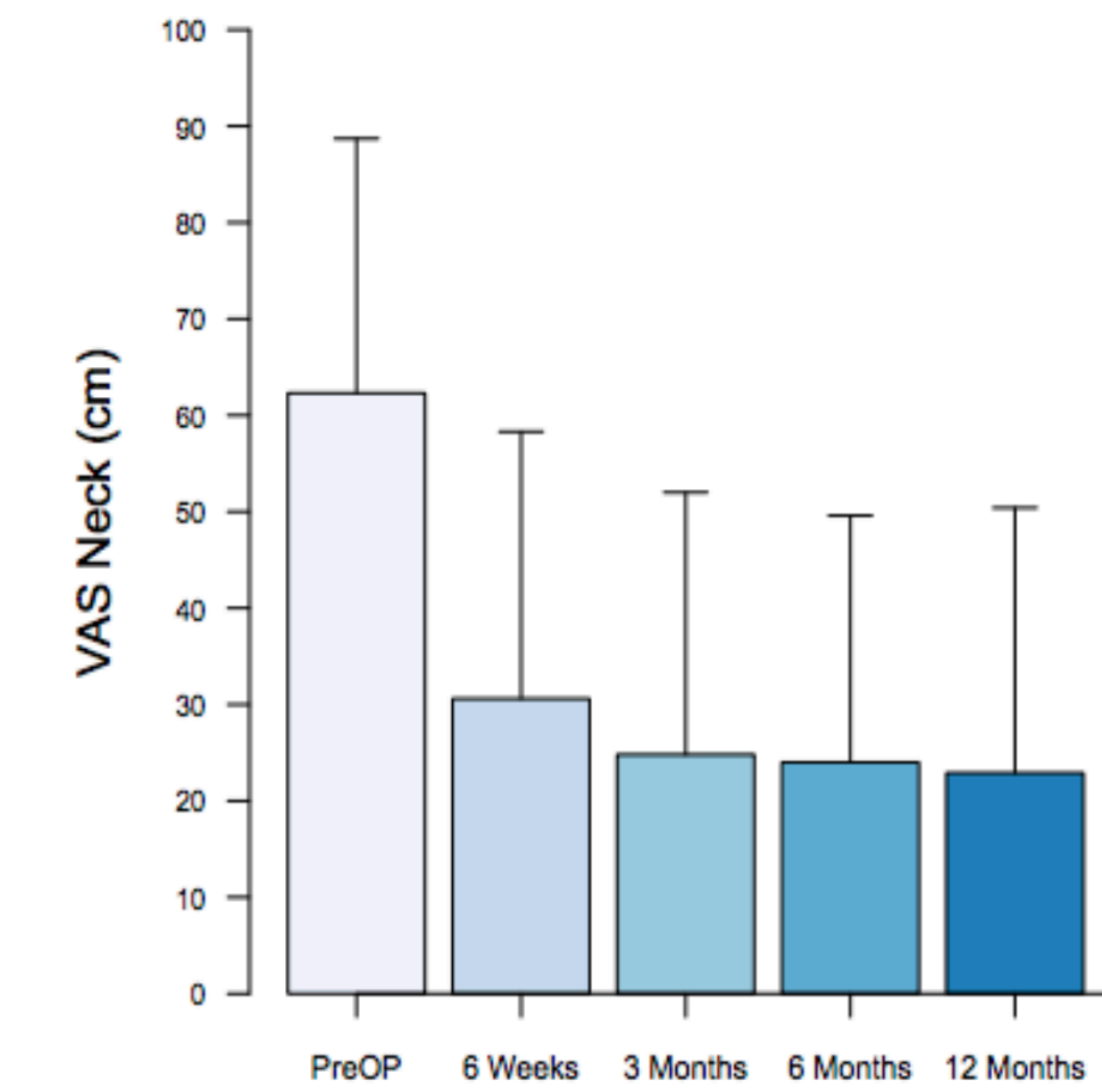
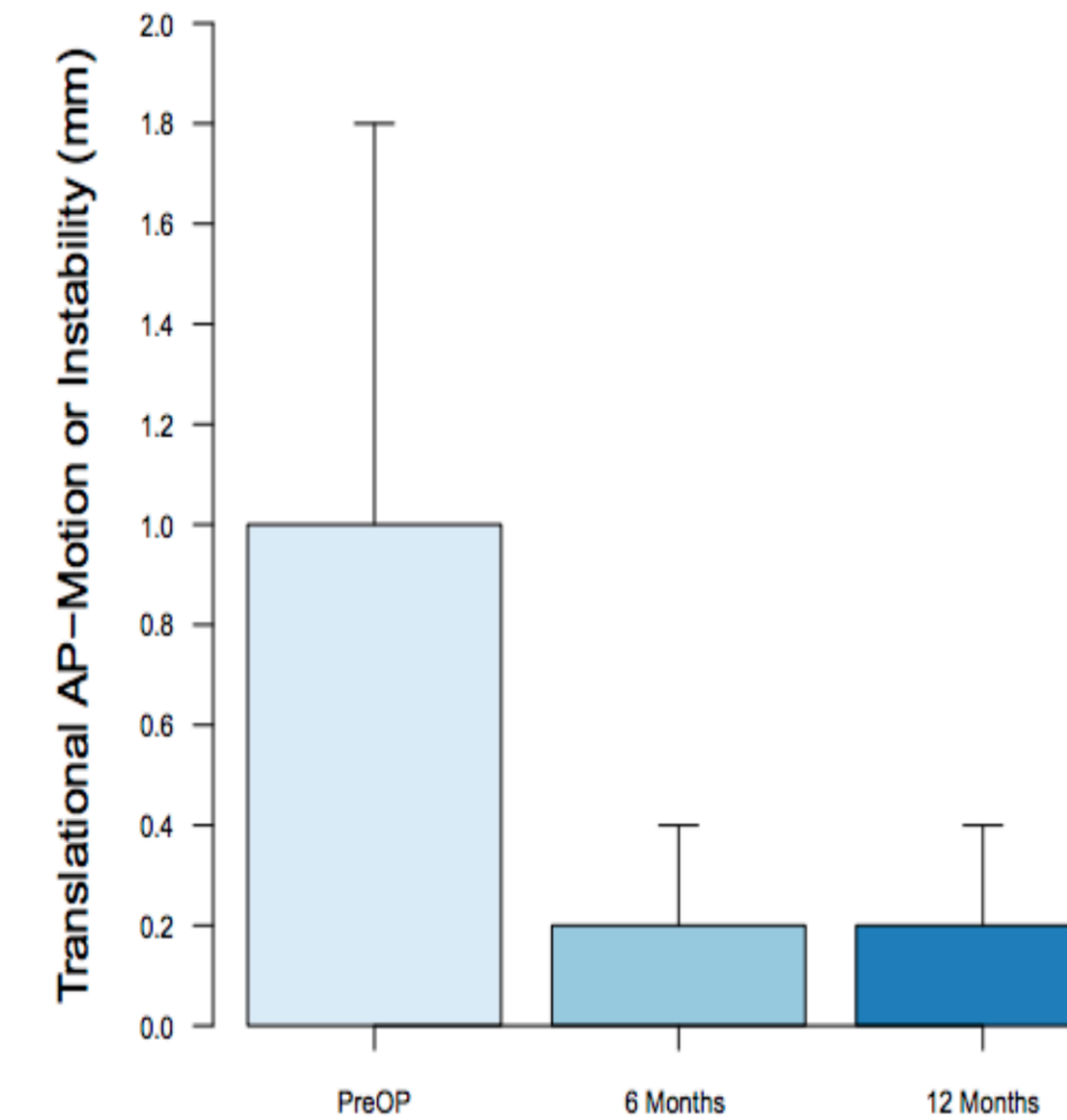
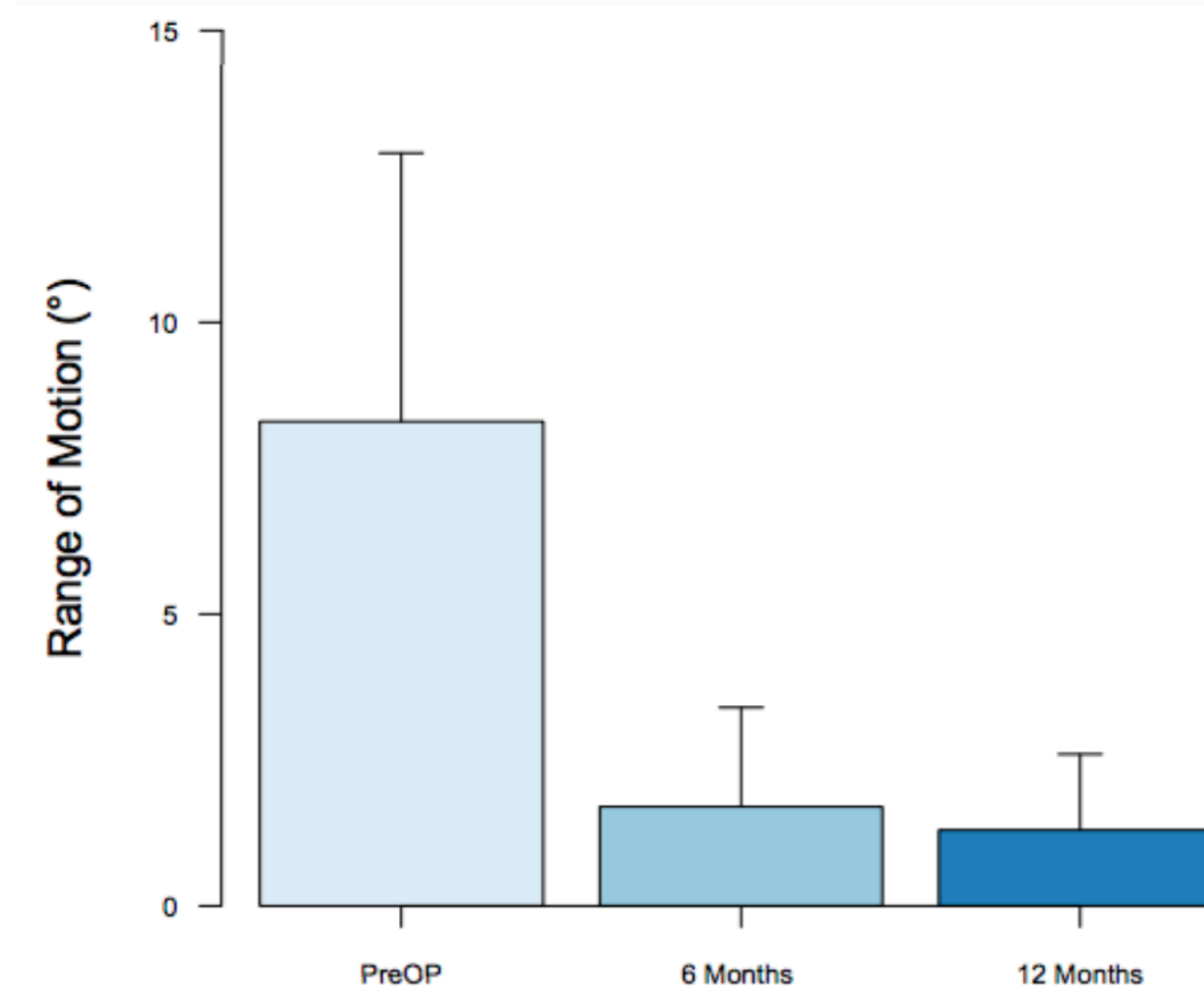
Introduction

- Interbody spacers are today's mainstay of facilitating fusion with ACDF
- PEEK spacers offer a modulus of elasticity most similar to the vertebral bodies (1)
- Growing body of evidence supports incorporating hydroxyapatite (HA) into these spacers to provide an even more favorable environment for bone ongrowth, further facilitating fusion (2)

Methods

- Patient enrollment began in 2018 and continues through present day
- Primary outcome is radiographic evidence of interbody fusion using dynamic flexion-extension radiographs (3)
- Secondary outcomes include NDI, VAS neck, VAS arm, patient satisfaction, medication usage, and adverse events
- To date, 271 and 122 patients have completed 6 and 12-month follow-up, respectively
- All procedures were done for radiculopathy or myelopathy after failure of nonoperative management.
- Levels fused ranged from C3-T1
- Interbody fusion was assessed by individual level with dynamic flexion-extension radiographs by an independent researcher
- Measurements on flexion-extension radiographs included rotational motion (degrees) and anterior-posterior translation (millimeters) between vertebral bodies

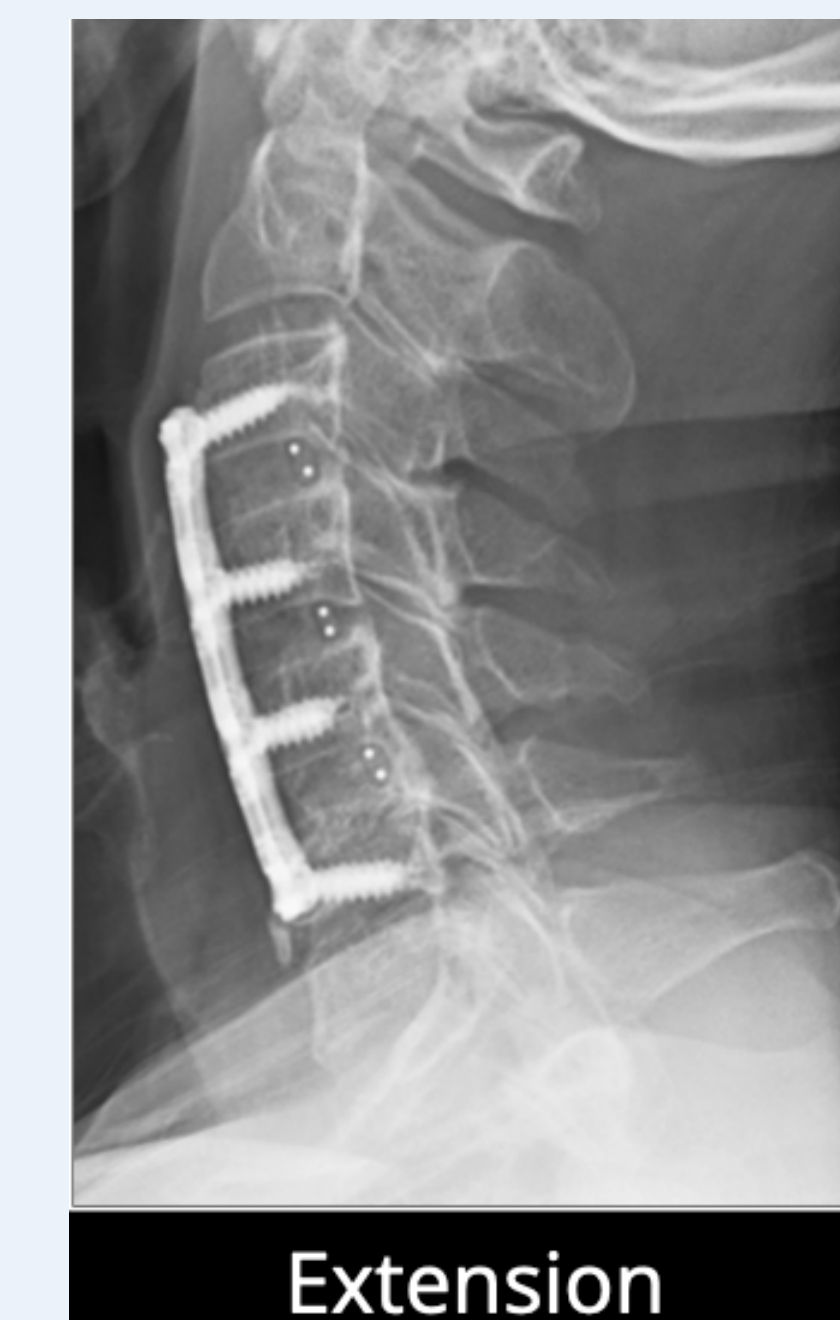
Results



- 881 patients across 50 centers
- 33.1% of patients had 1 level fused; 36.1%- 2 levels, 22.1%- 3 levels, and 8.4%- 4 levels
- **Fusion was confirmed in 73.6%** of all levels at 12 months using a rotational ROM cutoff of $<2^\circ$
 - Using a cutoff of $<5^\circ$, this number **increased to 96%**
- **Median translation** decreased from 1.0mm preoperatively to 0.1mm at 12 months
- **Mean NDI** declined from 45.2 preoperatively to 22.7 at 12 months ($p < 0.01$)
- **VAS neck** (62.5 to 22.4) and **arm** (39.7 to 15.7) both decreased at 12 months ($p < 0.01$)
- At 12 months **97.3% of patients were satisfied or somewhat satisfied**
- 3 patients have undergone interbody spacer revision

Conclusions

- In this multicenter ACDF cohort, fusion rate based on rotational motion on flexion-extension radiographs was 73.6% at 12 months. Employing the osteoconductive properties of HA with PEEK interbody cages seems to be a safe and viable option in facilitating anterior cervical fusion, a benefit described previously in other areas of orthopaedics (4).



References

- (1) Li ZJ, et al. Is PEEK cage better than titanium cage in anterior cervical discectomy and fusion surgery? A meta-analysis. *BMC Musculoskelet Disord.* 2016 Sep 1;17(1):379.
- (2) Walsh WR, et al. Does PEEK/HA Enhance Bone Formation Compared With PEEK in a Sheep Cervical Fusion Model? *Clin Orthop Relat Res.* 2016 Nov;474(11):2364-2372.
- (3) Schulze M, et al. A method to perform spinal motion analysis from functional X-ray images. *J Biomech.* 2011 Jun 3;44(9):1740-6.
- (4) Clauss M, et al. Prospective five-year subsidence analysis of a cementless fully hydroxyapatite-coated femoral hip arthroplasty component. *Hip Int.* 2014 Jan-Feb;24(1):91-7.