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HOW DOES PREOPERATIVE SHOULDER EXTERNAL ROTATION STIFFNESS INFLUENCE THE RATE OF MOTION RESTORATION AFTER TOTAL SHOULDER ARTHROPLASTY?

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Background: Although both aTSA and rTSA reliably improve pain and function, there is a subset of patients who lag behind their peers in regaining overhead motion. We compared the rate of recovery in motion after aTSA and rTSA in preoperatively stiff (passive external rotation [ER] <=0°) versus non-stiff (passive ER >0°) shoulders.

Methods: A retrospective review of a multi-institutional shoulder arthroplasty database was performed between 2001 and 2021. We identified 1,164 aTSAs performed for OA and 539 rTSAs for OA, RCT, CTA, with a minimum 2-year follow-up. Patients were excluded for a preoperative diagnosis of nerve injury, infection, or fracture. Postoperative complications that would affect motion were also eliminated. Included patients at minimum had a follow-up between 3-6 months, minimum 2-year follow-up, and a third visit at any other timepoint. Our primary outcome was the rate and period of recovery in ROM.

Results: Non-stiff aTSAs regained ROM faster than stiff aTSAs for abduction (14.0 vs. 4.9 °/month), IR (0.5 vs. 0.3 points/month), and ER (9.1 vs. 3.1 °/month). However, stiff aTSAs continued to improve over a longer period compared to non-stiff aTSAs for abduction (8.1 vs. 4.6 months), IR (6.8 vs. 4.5 months), and ER (8.7 vs. 4.0 months). FE improvement for stiff vs. non-stiff aTSAs was similar for rate (16.9 vs. 16.6 °/month) and length of improvement (4.4 vs. 4.3 months). Non-stiff rTSAs regained ROM faster than stiff rTSAs for active FE (13.1 vs. 6.6°/month), ER (5.0 vs. 1.0°/month) and abduction (12.4 vs. 3.5°/month). However, stiff rTSAs continued to improve over a longer period compared to non-stiff rTSAs for active FE (6.7 vs. 4.5 months), ER (16.3 vs. 5.0 months) and abduction (8.4 vs 4.2 months). IR improvement was similar for rate (0.2 vs. 0.2 levels/month) and length of improvement (8.4 vs. 8.3 months). Stiff rTSAs had slower ER recovery regardless of subscapularis repair and both stiff and non-stiff groups had slower recovery with repair.

Conclusions: Preoperatively stiff versus non-stiff shoulders had a slower rate of recovery but continued to improve over a longer period for abduction, IR and ER after aTSA and FE, ER, and abduction after rTSA.