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### DISCORDANCE BETWEEN PATIENT-REPORTED AND OBJECTIVELY-MEASURED INTERNAL ROTATION AFTER REVERSE SHOULDER ARTHROPLASTY

*R. Cueto*<sup>1</sup>, *K. Hao*<sup>1</sup>, *J. Kakalecik*<sup>2</sup>, *R. Janke*<sup>3</sup>, *J. Wright*<sup>2</sup>, *T. Wright*<sup>2</sup>, *B. Schoch*<sup>4</sup>, *K. Farmer*<sup>2</sup>, *A. Struk*<sup>2</sup>, *J. King*<sup>2</sup>

<sup>1</sup> University Of Florida, College Of Medicine, Gainesville, USA

<sup>2</sup> University Of Florida, Department Of Orthopaedic Surgery And Sports Medicine, Gainesville, USA

<sup>3</sup> University Of Florida, Department Of Applied Physiology And Kinesiology, Gainesville, USA

<sup>4</sup> Mayo Clinic, Department Of Orthopaedic Surgery, Gainesville, USA

**Background:** Satisfaction after reverse shoulder arthroplasty (RSA) partly relies on restoring internal rotation (IR). While postoperative IR assessment includes objective and subjective measures, these evaluations may not vary together uniformly. We assessed the relationship between objective, surgeon-reported assessments of IR and subjective, patient-reported ability to perform IR-related activities of daily living (IRADLs).

**Methods:** Patients undergoing primary RSA with a minimum 2-year follow-up were included. Wheelchair bound patients or those with preoperative infection, fracture, and tumor were excluded. Objective IR was measured to the highest vertebral level reached with the thumb. Subjective IR was based on patients' rating (normal, slightly-difficult, very-difficult, or unable) of their ability to perform four IRADLs (tuck in shirt with hand behind back, wash back/fasten bra, personal hygiene, and remove object from back pocket). IR was assessed preoperatively and at latest follow-up.

**Results:** 443 patients were included (52% female) at mean follow-up of  $4.4 \pm 2.3$  years. Objective IR improved pre- to postoperatively from L5-L4 to L3-L1 ( $P < 0.001$ ). Preoperative IRADLs of 'very-difficult' or 'unable' decreased postoperatively for all IRADLs ( $P < 0.005$ ) except those unable to perform personal hygiene (3.2% vs. 1.8%,  $P = 1$ ). The proportions of patients that improved, maintained, and lost objective and subjective IR was similar between IRADLs; 14-20% improved objective IR but lost or maintained subjective IR and 19-21% lost or maintained the same objective IR but improved subjective IR depending on IRADL assessed. When IRADLs improved postoperatively, objective IR also increased ( $P < 0.001$ ). In contrast, when subjective IRADLs worsened postoperatively, objective IR did not significantly worsen for 2/4 IRADLs. In those that reported no change in pre- vs. postoperative IRADLs, statistically significant increases in objective IR were found for 3/4 IRADLs.

**Conclusions:** Objective improvement in IR parallels improvements in subjective functional gains uniformly. However, in patients with worse or equivalent IR, the ability to perform IRADLs postoperatively does not uniformly correlate with objective IR. When attempting to elucidate how surgeons can ensure patients will have sufficient IR after RSA, future investigations may need to utilize patient-reported ability to perform IRADLs as the primary outcome measure rather than objective measures of IR.