## Influence on Sequence of Total Joint Arthroplasty in Patients Requiring Upper and Lower Extremity Arthroplasty

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Advancements in medicine and technology have allowed for the aging population to maintain an active lifestyle for longer than ever before. This demand has made multiple arthroplasties an obvious choice for many patients. There is currently a paucity of published work on multi-joint arthroplasty and revision rates in peer-reviewed literature and especially the proper sequence of surgery in both shoulder arthroplasty (SA) and hip or knee arthroplasty (THA/TKA). This work aims to report on a single orthopaedic institution's experience with multi-joint arthroplasty. We hypothesize there are higher revision rates in patients receiving upper extremity arthroplasty prior to lower extremity arthroplasty. METHODS:

This was a retrospective review of 22,428 individual surgeries performed by 10 upper and lower extremity surgeons. We identified 1,104 arthroplasties (1038 primaries and 66 revisions) in 441 patients with both SA and THA/TKA between 2010–2021. To evaluate the sequence, surgeries were stratified into 6 groups based on the timing from SA: Group 1) THA/TKA 5+ years prior to SA(58sx), Group 2) THA/TKA 1-5 years prior to SA(175sx), Group 3) THA/TKA 1 year or less prior to SA(82sx), Group 4) THA/TKA 1 year or less after SA(61sx), Group 5) THA/TKA 1-5 years after SA(143sx), Group 6) THA/TKA 5+ years after SA(49sx). Primary and revision diagnoses were examined. The relative risk, odds ratios, and Fischer's exact test was utilized for statistical testing.

## RESULTS:

Most primary arthroplasties were performed for OA (90%) and most revision arthroplasties in all groups were performed for infection (31%). Frequency of THA/TKA was evenly distributed before and after SA, with patients receiving SA 5 years or less prior to THA/TKA having a higher incidence of SA revision (p < 0.05). SA revision indications in this group included infection (31%), instability (31%), component failure (31%), and cuff pathology (7%). DISCUSSION AND CONCLUSION:

This study reports on a single center experience with multi-joint arthroplasties. Based on the revision rates analyzed, THA/TKA should be performed prior to SA to avoid increased incidence of revision surgery in SA, specifically instability, component failure, and rotator cuff pathology.