How Do Rotator Cuff Repair Study Designs Correlate with Revision Rates? A Systematic Review

Anthony Smyth, BS[1], Nicholas R. Pulciano, BS[2], Ilona Schwarz, MD[1], Jack Hop, MD[3], Kelly Leach, MD[3], Rachel Frank, MD[3], Jonathan Bravman, MD[3], Eric McCarty, MD[3]

[1] University of Colorado School of Medicine, Department of Orthopedics, Division of Sports Medicine and Shoulder Surgery, Aurora, Colorado, USA.

[2] Rocky Vista University, College of Osteopathic Medicine

University of Colorado Anschutz Medical Campus

Background

- The most common cause of shoulder disability is a rotator cuff tear.
- Advances in surgical techniques and patient risk factor identification have allowed for significant improvements in functional outcomes after rotator cuff repairs.
- Revision rate is a ubiquitously utilized primary outcome for rotator cuff repair studies.
- Understanding how this metric correlates to different elements of study designs across academic papers is key to interpreting results.

Objectives

- To assess the correlation between study designs and factors that contribute to understanding revision rates as a primary outcome to rotator cuff repair operations.

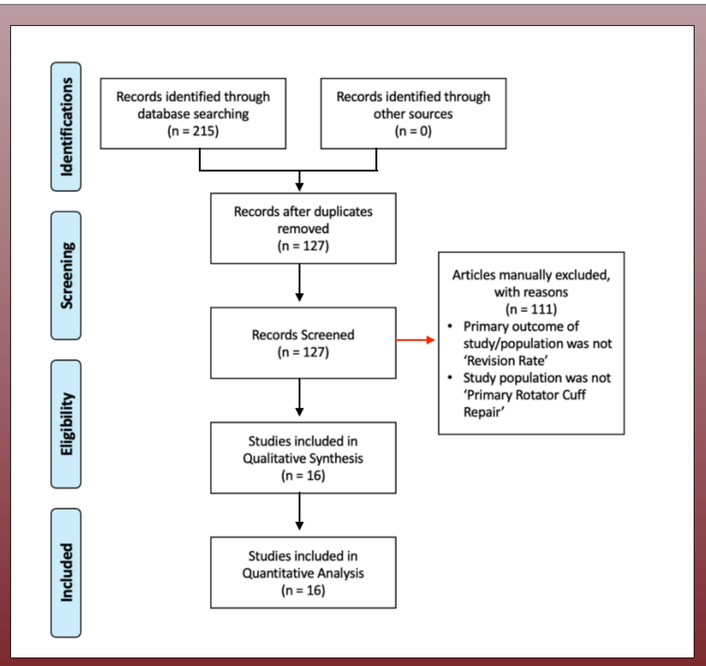
Methods

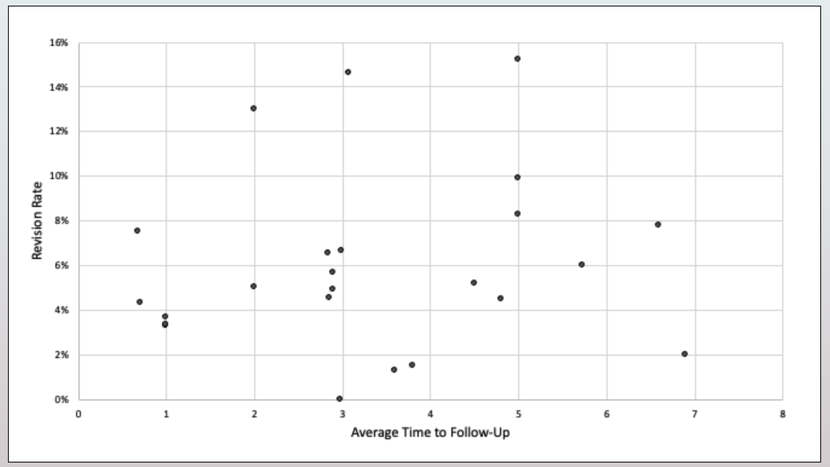
- A systematic search of the PubMed, Embase, and Cochrane Library databases was conducted.
- The following search terms were used by two different researchers on 3/20/21 and 4/2/21 - ((Rotator cuff repair[Title/Abstract]) AND (Revision[Title/Abstract]) NOT (Systematic Review[Title/Abstract]) NOT (arthroplasty[Title/Abstract]).
- All English language studies published between 2002 and 2021 were manually reviewed for revision rate as a primary outcome to primary rotator cuff repair.
- Revision rate for the purposes of this review is defined as the percentage of primary rotator cuff repairs that underwent revision.

Results

What did we find?

- Our review included 16 studies, comprising 25 treatment groups, 11 level III and 5 level IV studies, and totaling 95,578 patients.
- The revision rates were analyzed against study style (prospective vs. retrospective), sample size, follow-up duration, patient's average age, and post-operative American Shoulder and Elbow Surgeons (ASES) scores.
- While no significant differences were found between retrospective and prospective studies' revision rates, a trend was noted towards increased revision rates with larger sample sizes, longer follow-up periods, older patient age, and higher post-operative ASES scores.
- A statistically significant positive correlation was identified between the length of follow-up and revision rates (correlation coefficient .42, $p<0.05$).





Discussion

- A significant correlation between the time required for follow-up and the revision rate supports the intuitive understanding that longer follow-up periods may lead to higher instances of rotator cuff repair failures.
- This underscores the importance of follow-up duration as a key factor in assessing the long-term efficacy of rotator cuff repairs.

Implications

- This systematic review provides a critical methodological framework for future researchers and reviewers in evaluating the validity and interpretability of studies on rotator cuff repair.

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