

Spin in Meta-Analyses and Systematic Reviews: Hip Labrum Reconstruction

Matthew Gulbrandsen¹, Damien Cannon, Meng-Yung Michael Ong, Dheeraj Yalamanchili², Joseph Nairne Liu, Anthony Essilfie

¹Loma Linda University Hospital, ²Loma Linda University

INTRODUCTION: Hip labral reconstruction is an evolving technique to treat labral pathology. There continues to be debate of the short-term and long-term outcomes of acetabular labral reconstruction. Spin is a recent concept that is defined as a reporting bias that misrepresents research. Spin bias can affect clinical decision making and patient care. The purpose of this study is to identify the prevalence of spin in meta-analysis and systematic reviews regarding the efficacy of acetabular labral reconstruction.

METHODS: Electronic libraries (MEDLINE, Embase, Web of Science, Google Scholar) were searched for meta-analyses and systematic reviews regarding hip labrum reconstruction. The inclusion criteria for final review was that each article needed to be a systematic review or meta-analysis regarding labral reconstruction that was written in English or included an English translation. The nine most severe types of spin commonly found in abstracts were used as an evaluation tool to assess the articles. Other variables evaluated included number of citations, journal impact factor, reported conflicts of interest, adherence to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, and methodologic quality according to A Measurement Tool to Assess Systematic Reviews (AMSTAR-2). Statistical analysis was done in RStudio and the Fisher exact test, t-test, and/or Wilcoxon rank sum test was used to evaluate associations between presence of spin and study characteristics.

RESULTS: The electronic database search resulted in 1,148 articles, of which 10 met our inclusion criteria. Of these 10 articles, 70% (7/10) were found to have at least one form of spin present. The most prevalent types of spin were type 3 (“selective reporting of or overemphasis on efficacy outcomes or analysis favoring the beneficial effect of the experimental intervention”), type 5 (“conclusion claims the beneficial effect of the experimental treatment despite high risk of bias in the primary studies”), and type 8 (“conclusions extrapolates the review’s findings from a surrogate marker or a specific outcome to the global improvement of the disease”). Type 3, 5, and 8 spin were each found in 30% (3/10) of articles. A full report of prevalence of each type of spin can be found in Table 1. No significant associations were found between the presence of spin and number of citations, journal impact factor, reported conflicts of interest, adherence to PRISMA guidelines, or AMSTAR-2 rating.

DISCUSSION AND CONCLUSION: Spin was present in the majority of meta-analyses and systematic reviews pertaining to hip labrum reconstruction. Therefore, education and recognition of spin is crucial for orthopaedic surgeons when making clinical decisions based on review of literature. Furthermore, improved guidelines should be considered to reduce the prevalence of spin in orthopaedic literature.

Nine Most Severe Types of Spin	Articles With Spin
1. Conclusion contains recommendations for clinical practice not supported by the findings	2 (20%)
2. Title claims or suggests a beneficial effect of the experimental intervention not supported by the findings	0 (0%)
3. Selective reporting of or overemphasis on efficacy outcomes or analysis favoring the beneficial effect of the experimental intervention	3 (30%)
4. Conclusion claims safety based on non-statistically significant results with a wide confidence interval	2 (20%)
5. Conclusion claims the beneficial effect of the experimental treatment despite high risk of bias in the primary studies	3 (30%)
6. Selective reporting of or overemphasis on harm outcomes or analysis favoring the safety of the experimental intervention	1 (10%)
7. Conclusion extrapolates the review’s findings to a different intervention	0 (0%)
8. Conclusions extrapolates the review’s findings from a surrogate marker or a specific outcome to the global improvement of the disease	3 (30%)
9. Conclusion claims the beneficial effect of the experimental treatment despite reporting bias	0 (0%)

Table 1: The Nine Most Severe Types of Spin per Yavchitz et al in the article, “A new classification of spin in systematic reviews and meta-analyses was developed and ranked according to the severity.”