Spin in the Abstracts of Meta-analyses and Systematic Reviews: Quadriceps Tendon Graft for Anterior Cruciate Ligament Reconstruction

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INTRODUCTION:

Spin is a reporting bias that misrepresents research. Ultimately it can impact surgeon decision making and patient care. Anterior Cruciate Ligament (ACL) reconstruction is common; however debate continues over the optimal graft choice. The quadriceps tendon has become an increasingly popular graft. The purpose of this study was to identify the prevalence of spin in meta-analysis and systematic review abstracts regarding the treatment of ACL injuries with quadriceps tendon graft.

METHODS:

Electronic libraries (MEDLINE, Embase, Web of Science, Google Scholar) were searched for meta-analyses and systematic reviews regarding the treatment of ACL tears with quadriceps tendon graft. The key words used for searches included (ACL or Anterior Cruciate Ligament) and (Quad or Quadricep or Quadriceps). All meta-analyses and systematic reviews that contained analysis for quadriceps tendon graft for ACL reconstruction were included. The nine most severe types of spin commonly found in abstracts were used as an evaluation tool to assess the articles. Further evaluation included year of publication, number of citations, journal impact factor, and AMSTAR-2 score.

RESULTS:

The electronic database search resulted in 986 articles, of which 13 met our inclusion criteria. After review of these papers, it was found that 53.8% (7/13) of the included articles contained one of the nine most severe forms of spin. Of the types of spin evaluated, type 3 spin (selective reporting of or overemphasis on efficacy outcomes or analysis favoring the beneficial effect of the experimental intervention) was found to be the most prevalent (4/13, 30.8%). The other common types of spin found included type 5: conclusion claims the beneficial effect of the experimental treatment despite high risk of bias in primary studies (2/13, 15.4%); and type 9: conclusion claims the beneficial effect of the experimental treatment despite reporting bias (2/13, 15.4%). A detailed accounting of the prevalence of each type of spin can be found in Table 1. There was no relationship between the presence or total types of spin when comparing the articles by publication year, journal impact factor, number of citations per year, or A MeaSurement Tool to Assess systematic Reviews-2 (AMSTAR-2) rating.

DISCUSSION AND CONCLUSION:

This study demonstrated the presence of spin in more than half of the meta-analysis and systematic review abstracts pertaining to quadriceps tendon graft for ACL reconstruction. Orthopedic surgeons should learn to recognize spin as they review articles when deciding the treatment course for ACL injuries. Additionally, strict criteria should be considered to reduce the prevalence of spin in orthopedic literature.

Nine Most Severe Types Of Spin	Abstracts With Spin
1. Conclusion contains recommendations for clinical practice not supported by the findings	0 (0%)
2. Title claims or suggests a beneficial effect of the experimental intervention not supported by the findings	1 (7.7%)
3. Selective reporting of or overemphasis on efficacy outcomes or analysis favoring the beneficial effect of the experimental intervention	4 (30.8%)
4. Conclusion claims safety based on non-statistically significant results with a wide confidence interval	1 (7.7%)
5. Conclusion claims the beneficial effect of the experimental treatment despite high risk of bias in the primary studies	2 (15.4%)
6. Selective reporting of or overemphasis on harm outcomes or analysis favoring the safety of the experimental intervention	1 (7.7%)
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	0 (0%)
9. Conclusion claims the beneficial effect of the experimental treatment despite reporting bias	2 (15.4%)

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"