

Evaluation of Spin in the Abstracts of Bioinductive Implant

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DISCLOSURES: Arman Kishan (N), Steve Li (N), Kiyanna Thomas (N), Henry Maxwell Fox (N), Jacob D. Mikula (N), Breck Turner (N), Sarah Nelson (N), Umasuthan Srikumaran (1; Tigon Medical, Fx Shoulder. 2; Fx Shoulder. 3B; Tigon Medical, Fx Shoulder. 4; ROM3, Sonogen, Tigon Medical. 5; Fx Shoulder. 6; Arthrex, Inc, DePuy, A Johnson & Johnson Company, Thieme. 7B; Thieme. 9; AAOS, American Shoulder and Elbow Surgeons, IASES)

INTRODUCTION: The management of rotator cuff tears poses a clinical challenge, marked by ongoing debates on optimal treatment approaches. Graft augmentation, specifically the bioinductive implant, has gained attention for its purported efficacy and positive patient reported outcomes, but early studies, often industry-funded, may introduce bias. The objective of this study is to investigate the presence of "spin" bias, defined as overemphasizing intervention benefits without sufficient evidence, in abstracts of the literature studies on the bioinductive implant.

METHODS: Following the guidelines outlined in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA), we conducted a comprehensive search of PubMed, Embase, Cochrane, CINAHL, Web of Science, and Scopus. Two independent reviewers screened studies for inclusion. Data extraction included study characteristics, spin types, and conflicts of interest. The abstracts of the included articles were scrutinized to detect the presence of 11 commonly observed types of spin, with thorough examination of full texts conducted in cases of disagreement or for the purpose of clarification. A standardized classification system was employed. Chi-squared and Student's *t*-test were used to assess associations among study characteristics and spin.

RESULTS SECTION: The initial systematic search identified 355 studies; 13 duplicates were removed, and after screening and full text review, 17 studies from 9 journals met the inclusion criteria for analysis, all but one of which were primary studies. Most studies (15 out of 17) exhibited spin, with the predominant type being the selective reporting or overemphasis on efficacy outcomes (9 out of 17 studies, 53%). Notably, 30% did not disclose conflicts of interest. A statistically significant correlation was observed between the level of evidence of the article ($P = .014$) and time since publication ($P = .029$) in relation to the presence of spin. Associations were found between level of evidence, funding source, and presence of spin. Spin presence was significantly positively correlated with time since publication ($P = .029$). Similarly, a significant association ($P = .040$) was observed between funding category and the presence of spin. There was no statistically significant relationship between journal impact factor ($P = .377$) or Scopus CiteScore ($P = .389$) and presence of spin.

DISCUSSION: Abstracts of primary studies on the efficacy of the bioinductive implant in treatment for rotator cuff tear often exhibit spin, with a tendency to favor its use. The prevalence of spin in the abstracts of papers on the bioinductive implant underscores the need for critical appraisal by readers. Similar patterns have been observed elsewhere in orthopaedic literature, highlighting the potential influence of stakeholders. Even if unintentional, author misinterpretation or misrepresentation of data was common, emphasizing the importance of readers scrutinizing early studies for unbiased clinical decision-making. Importantly, the lack of association between impact factor and Scopus CiteScore further suggests that readers, especially clinicians, should not regard the caliber of a journal as an indicator of unbiased reporting.

CLINICAL RELEVANCE: The study's clinical relevance lies in its revelation of potential bias, or "spin," in abstracts concerning the bioinductive implant's efficacy in treating rotator cuff tears. As physicians heavily depend on abstracts for decision-making, the identified tendency to overemphasize benefits in early literature raises significant concerns. Clinicians should approach these studies with caution, considering the correlation between study characteristics (e.g., level of evidence, time since publication, funding source) and the presence of spin. The findings underscore the necessity for a critical evaluation of the reliability of clinical evidence and caution against relying solely on journal impact factors as indicators of unbiased reporting. This emphasizes the importance of informed decision-making in the management of rotator cuff tears, particularly when considering interventions like the bioinductive implant.

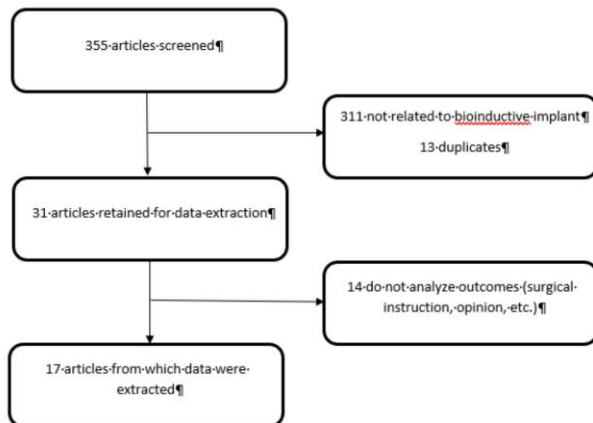


Figure 1: Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

Variable	P value
Level of Evidence	.014
Funding	.040

Table 1. X² Analysis of Level of Evidence and Funding With Presence of Spin

Variable	Mean	P Value
Impact Factor	2.27	.377
Scopus CiteScore	4.45	.389
Time since publication (months)	37.4	.029

Table 2. Student's *t*-test with Factors Associated With Presence of Spin