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Variable reporting of functional outcomes and return to play in superior labrum anterior and posterior tear

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Background: Outcomes assessments after superior labrum anterior and posterior (SLAP) tear/repair are highly varied, making it difficult to draw comparisons across the literature. This study examined the inconsistency in outcomes reporting in the SLAP tear literature. We hypothesize that there is significant variability in outcomes reporting and that although most studies may report return to play, time to return reporting will be highly variable.

Methods: The PubMed, Medline, Scopus, and Embase databases were systematically reviewed for studies from January 2000 to December 2014 reporting outcomes after SLAP tear/repair. Two reviewers assessed each study, and those meeting inclusion criteria were examined for pertinent data. Outcomes included objective (range of motion, strength, clinical examinations, and imaging) and subjective (patient-reported outcomes, satisfaction, activities of daily living, and return to play) measures.

Results: Of the 56 included studies, 43% documented range of motion, 14% reported strength, and 16% noted postoperative imaging. There was significant variation in use of patient-reported outcomes measures, with the 3 most commonly noted measures reported in 20% to 55% of studies. Return to play was noted in 75% of studies, and 23% reported time to return, with greater rates in elite athletes. Eleven studies (20%) did not report follow-up or noted data with <12 months of follow-up.

Conclusions: The SLAP literature is characterized by substantial variability in outcomes reporting, with time to return to play noted in few studies. Efforts to standardize outcomes reporting would facilitate comparisons across the literature and improve our understanding of the prognosis of this injury.

Level of evidence: Level IV; Systematic Review

Keywords: SLAP tear; outcomes; patient-reported outcomes; return to play; quality assessment; overhead athlete

Clinical research in orthopedics is becoming increasingly reliant on subjective, patient-reported outcomes (PROs). Although, historically, objective measures were largely used, studies have found these quantitative metrics do not reliably

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explain variations in functional outcomes.[11,17,25,29] As a result, increasing weight has been placed on PROs as tools to assess patient health and function.[31] In addition to objective measures, these patient-centered outcomes are a means for clinicians to document and evaluate patient progress after interventions and over time. In shoulder surgery specifically, these outcomes tools incorporate various measures of function—motion, strength, stability, pain, and satisfaction—into 1 score, which facilitates comparisons across different types of interventions and pathologies.

These subjective outcomes can be useful to patients and clinicians, but their use is associated with several challenges. First, numerous such tools have been described, which has resulted in variable reporting across the shoulder and orthopedic literature.[19,22,23,30,36] This lack of consensus regarding the appropriate metric and resulting heterogeneous reporting limit our ability to draw comparisons across studies. Further precluding comparison across the literature is a similar lack of agreement with respect to range of motion, strength, and imaging reporting.

In competitive overhead athletes specifically, superior labrum anterior and posterior (SLAP) tear is a common injury pattern,[15] with return to play (RTP) being a vital measure of treatment success in this group. Treatment in these patients remains somewhat controversial.[3,19,24] Not all SLAP tears require surgical intervention, and approximately 70% to 80% of patients who undergo surgical fixation can expect to return to their previous sports.[4,9,21,34] The marginal benefits of SLAP repair surgery have led some surgeons to consider biceps tenodesis as an alternative procedure.[4,5,8,10,14,33]

Further investigation is needed to help determine which patients are likely to succeed with nonoperative treatment, those who will predictably do well with surgical repair, and those who may require biceps tenodesis. Most clinical studies on this topic are from single institutions and lack the power necessary to definitively draw conclusions about the superiority of specific management options. Therefore, pooling data from multiple studies is important to achieve the power necessary to determine the most appropriate treatment. Such a task requires uniformity in outcomes reporting.

The goal of this study was to examine the variability in outcomes reporting in the SLAP tear literature. We hypothesized that there would be significant variability across types of metrics reported (ie, range of motion, strength, and imaging) and individual PRO tools and that most studies would report RTP, particularly those studying elite athletes, but that the time to return reporting would be highly variable.

Materials and methods

This systematic review included studies retrieved from the PubMed, Medline, Scopus, and Embase computerized databases. Searches were executed to identify all literature in a 15-year period (January 2000 through December 2014) pertaining to clinical trials of outcomes after SLAP tear or repair. Articles were retrieved by an electronic search of Medical Subject Headings and keyword terms and their respective combinations (Table I). Inclusionary criteria consisted of any study reporting clinical outcomes for patients with any type of SLAP tear, at baseline or after an intervention (ie, outcomes associated with nonoperative or operative management). Exclusionary criteria included animal, biomechanics, cadaveric, and basic science studies, in addition to review articles, surgical technique guides, and case reports. Also excluded were studies reporting outcomes on only combined lesions (eg, SLAP and rotator cuff tear, SLAP and Bankart lesion) and those reporting salvage options for failed SLAP repair.

The literature search is outlined in Fig. 1. The initial title search yielded a subset of possible articles that were then further included or excluded according to the contents of the article's abstract, wherein articles were again selected based on the aforementioned inclusion and exclusion criteria. The full text was reviewed of articles selected in both the title and abstract phase. In addition, the reference sections from articles undergoing full-text review were scanned to identify any additional studies that were not identified from the original literature search. Appropriate studies for final inclusion were then selected at this stage. The title, abstract, and full-text selection process was performed independently by 2 of the study authors (M.E.S., A.C.L.), with any discrepancies discussed and resolved by mutual agreement.

Several metrics were collected from each study that met final inclusionary criteria. These included level of evidence, number of patients, mean patient age, gender, shoulder dominance, follow-up time, type of SLAP tear, and athletic activity level of included patients. Outcomes collected included objective and subjective outcome measures (Table II).

Clinical outcomes

For each study, range of motion outcomes were reported in any of the following planes: forward elevation/flexion, abduction, external rotation (at the side or in abduction), internal rotation (at the side or in abduction), elbow flexion, extension, forearm supination, pronation, and cross-body adduction. Range of motion noted

Table I Database search for systematic review*

Database	Search terms
PubMed, Medline, Scopus, Embase	Keyword: ("SLAP" OR "SLAP tear" OR "SLAP lesion" OR "SLAP repair" OR "SLAP rehabilitation" OR "Superior labral anterior and posterior lesion" OR "Superior labrum, anterior and posterior" OR "Type II Slap" OR "Type II SLAP Outcome")

* Search terms entered into PubMed, Medline, Scopus, and Embase search engines to identify English language studies from January 2000 to December 2014