

Bilateral Hip Arthroscopy: Direct Comparison of Primary Acetabular Labral Repair and Primary Acetabular Labral Reconstruction



With regard to the recent article by White et al. entitled “Bilateral Hip Arthroscopy: Direct Comparison of Primary Acetabular Labral Repair and Primary Acetabular Labral Reconstruction,”¹ we commend the authors for publishing a difficult study and initiating an international discussion on the appropriate management of the labrum in primary hip arthroscopy. The management of the labrum has profound implications on both functional outcome and chondral integrity following hip arthroscopy.²⁻⁴ Although the authors present compelling data, we believe there are significant limitations that should be emphasized as readers digest both the internal and external validity of the study, namely, the conclusion that labral reconstruction may be broadly preferred over labral repair in the primary hip arthroscopy setting.

Our first concern is the lack of generalizability of this study. Dr. White and colleagues report a failure rate of 31% for primary labral repairs at 2-year follow-up.¹ This failure rate is significantly higher than what is reported in the literature. For context, in a recently published study by Cvetanovich et al., 386 primary labral repairs at 2-year follow-up were reviewed, with a reported revision rate of 1.2% and conversion rate to total hip arthroplasty of 1.7%.⁵ Similarly, Newman et al., Sawyer et al., Byrd et al., and Menge et al. in separate reports, noted a much lower failure rate and excellent survivorship of traditional arthroscopic hip procedures, including 2 studies evaluating 10-year outcomes of arthroscopic hip labral repair and debridement.⁶⁻⁹ Collectively, these low failure rates are consistent with our respective high-volume hip arthroscopy practices, with excellent clinical outcomes following primary labral repair using proper indications.

Similarly, the current study reports a revision rate for labral reconstruction of 0%.¹ While there are few comparative studies in the literature to compare with these findings, the reported failure rate of 0% differs from White et al.’s previous study on clinical outcomes following labral reconstruction.¹⁰ In their previous study, 131 hips underwent arthroscopic labral reconstruction and were followed for 2 years, with a reported 13.7% revision rate and 10% conversion to total hip arthroplasty, both of which are significantly higher than the current paper’s findings¹ and higher than the recent literature suggests for primary labral repair or debridement.⁶⁻⁹ Because no a priori power analysis was

performed, the difference in failure rates may potentially be explained by the small sample size of White et al.’s current study.¹ A total of 29 patients was likely not adequately powered to detect true differences between the 2 groups, thus reflecting failure rates of both repair and reconstruction that are not consistent and generalizable with the literature,⁶⁻⁹ the author’s own previously published report,¹⁰ and the wider hip arthroscopy community.

Our next and greater concern is the risk of bias in White et al.’s study. It had an innovative retrospective design, comparing repair and reconstruction in the 2 hips of each of 29 patients. This nicely avoids some of the systematic error, or bias, that could be caused by differences in the characteristics of patients in the 2 groups. However, it does not help to avoid differences in the hips of these patients, in the condition of the labra, the cartilage, or the bony shapes of these hips. Indeed, White et al. make it clear that there were systematic differences in these factors. It is also likely that there were systematic and confounding differences in other important but unmeasured factors as well. Among these may be the temporal difference between the procedures, the accuracy of reshaping bone to treat impingement, and the management of the capsule to avoid instability. All labral repairs were performed between 2009 and 2011, while all reconstructions were performed between 2013 and 2014. It would be reasonable to assume, in line with every surgeon’s learning curve, that Dr. White’s skill improved in these areas between 2009 and 2014, to the benefit of the patients treated later in the study, or those in the reconstruction group (2013-2014). As such, without knowledge of the surgeon’s overall failure rates during these specific time periods of his career, the learning curve alone may fully explain the results of this study. Along these lines, all labral repairs were performed well before modern capsular preservation techniques were developed and revolutionized hip arthroscopy outcomes.¹¹⁻¹³ Given that 23 out of the 29 included patients (79.3%) were female, a gender more prone to microinstability,¹⁴ it is plausible that the high labral repair failure rate in this study could be explained, at least in part, by postoperative microinstability from inadequate capsular preservation, especially in individuals with less robust native labral tissues or other instability risk factors.¹⁵

In addition, the subjectivity of a surgical failure in this study increases the risk for both surgeon and selection bias. In this study, the surgeon ultimately decides a surgical failure, as defined solely by revision rate. As stated by White et al. in the Limitations section of their study,¹ “there is potential for personal bias toward one procedure versus the other on the part of the surgeon that cannot be measured.” As surgeons, we have the ability to navigate or influence our patients in the decision-making process, often unintentionally, toward certain procedures through our own bias or opinions. A recent study in patients with persistent low back pain found 89% of negative beliefs were learned from health care providers.¹⁶ It is therefore possible that surgeon preference for one procedure over another may bias treatment decisions and patient outcomes, raising questions as to the study’s internal validity. Further, the propensity to undergo revision surgery (i.e. to be designated as a failure) is likely to be systematically different in the 2 groups: we suggest that patients and their surgeons are more likely to decide to revise a painful hip with a repaired labrum to a reconstruction than to do the same in a hip that has already failed a reconstruction. These examples illustrate the high risk of bias in White et al.’s study. Many of these known and unknown confounders appear to work in the direction of exaggerating the benefit of reconstruction and erroneously diminishing the benefit of labral repair. We believe that these factors could account for the observed data if the truth is that there is no difference between reconstruction or repair, or even if reconstruction is in fact inferior.

As high-volume hip arthroscopists, we know that labral reconstruction is an excellent procedure, and it is frequently performed in our respective practices. However, this procedure is not without significant risk. Originally developed for revision settings and select primary cases with labral ossification or hypoplasia,^{3,17,18} it is our opinion that labral reconstruction may be unsafe in primary situations when a labral repair may suffice.³ Biomechanically, there are inherent disadvantages to labral reconstruction. First, at time zero, a labral reconstruction construct inherently reproduces only 66% of the normal distractive stability of a native hip.¹⁹ This predisposition to instability may be compounded by the fact that labral reconstruction frequently requires (1) significant acetabular rim resection, which may iatrogenically create a setting of borderline or frank dysplasia from a previously normal acetabular socket; and (2) more capsular disruption than typical labral repair procedures, thereby preventing or limiting adequate capsular repair.²⁰ Additionally, labral reconstruction is a technically difficult procedure that requires longer operative times and traction times compared with labral repair, thereby predisposing patients to possible traction-related complications and

neuropraxias at a greater rate than labral repair procedures.²¹ Lastly, it is notable that patients undergoing labral reconstruction in the primary setting often have poor options short of total hip arthroplasty in the revision setting, particularly due to extensive disruption of the native labrum and capsule. Unfortunately, this can create a significant problem in our younger patients, one that we fear may become more evident in the future as many of these short-term outcome cohorts reach mid and long term.

At the current time, there are no mid- or long-term studies on labral reconstruction. As stated above, White et al. have previously alluded to a 10% hip arthroplasty rate,¹⁰ which is a much higher rate than what we experience in our respective practices following primary labral repair.^{5,21} Although this result could be explained by the inherent practice biases seen in hip surgeons performing both arthroscopic and arthroplasty procedures, it does question the long-term durability of allograft tissue used in a labral reconstruction as compared with labral repair, especially in a younger patient population.

Finally, no discussion of this topic is complete without mentioning some of the economic factors that have shaped this debate. Labral reconstruction is typically performed with allograft tissue and often involves double the number of anchors compared with labral repair.²⁰ Additionally, due to increased complexity, both operative times and hospital length of stay may be longer than primary labral repair procedures. Such factors not only limit the cost-effectiveness of the procedure²² but also potentially expose it to sponsor bias.²³

In summary, we commend Dr. White and his colleagues for pushing the boundaries in hip arthroscopy and challenging us to think differently. We believe that labral reconstruction has a place in revision surgery and in primary surgery when the labrum is irreparable, such as labral hypoplasia or ossification. However, we are inclined to think that **in the primary treatment of most labral tears, native labral tissue is likely to function better and last longer in our patients than allograft tissue.** Until we have unbiased and generalizable evidence from a randomized controlled trial, **we recommend the continued use of labral repair in most primary surgery.**

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