Labral Degeneration Predicts Inferior Mid-Term Outcomes in Hip Labral Repair: A Multicenter Comparative Analysis


**Purpose:** To analyze and compare the mid-term outcomes of hip arthroscopy for patients with and without labral degeneration from multiple orthopaedic centers. The purpose of this research is to develop an understanding of the impacts of labral degeneration on patient outcomes following arthroscopic treatment of labral tears. **Methods:** A prospective multicenter hip arthroscopy registry was queried for primary surgeries from January 2014 to October 2017 with completed 2-year International Hip Outcome Tool-12 (iHOT-12) reports. Patients were placed into cohorts based on the presence or absence of labral degeneration noted intraoperatively during hip arthroscopy. Degeneration was defined as yellowing, ossification, or calcification present in at least 50% of the labrum. Differences in baseline variation between groups were assessed with a Wilcoxon rank-sum test or \( \chi^2 \) test. Two-year outcomes were assessed with iHOT-12. Multivariate logistic regression models were fitted while controlling for age, body mass index, sex, and preoperative iHOT-12 scores to identify significant predictors of achieving the clinically significant thresholds of minimal clinically important difference, substantial clinical benefit, and patient-acceptable symptom scale. **Results:** In total, 735 patients met inclusion criteria, of whom 613 had complete outcomes information. Relative to the control group, the labral degeneration group was significantly older (mean age 44 ± 11 years vs 33 ± 12 years; \( P < .01 \)). Both groups experienced statistically significant improvement in iHOT-12 scores from baseline to final follow-up (\( P < .001 \)); however, patients with labral degeneration reported inferior 2-year iHOT-12 scores when compared with patients without degeneration (\( P < .001 \)). In the logistic regression models, labral degeneration was a significant negative predictor of achieving iHOT-12 minimal clinically important difference (odds ratio [OR] 0.47; 95% confidence interval [95% CI] 0.28-0.79), patient acceptable symptom state (OR 0.50; 95 CI 0.32-0.77), and substantial clinical benefit (OR 0.58; 95% CI 0.37-0.89). **Conclusions:** The results of our study conclude that patients with non-degenerative labral tissue at the time of repair have superior patient-reported outcomes at mid-term follow-up. The presence of labral degeneration was a negative predictor of achieving clinically significant thresholds after controlling for patient age, body mass index, sex, and baseline iHOT-12 scores. **Level of Evidence:** III, retrospective comparative prognostic trial.

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The hip acetabular labrum plays important anatomical and biomechanical roles in the proper functioning of the hip joint, and hip labral pathology is a common cause of hip pain. Labral pathology resulting in pain has commonly been attributed to tearing, but other factors, such as payment or honoraria for lectures, presentations, speakers’ bureaus, manuscript writing, or educational events from Liberty Surgical. D.K.M. reports royalties or licenses from Smith & Nephew and Zimmer Biomet; and payment for expert testimony from Pacira Pharmaceuticals. ICMJE author disclosure forms are available for this article online, as supplementary material.


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Address correspondence to Dominic S. Carreira, M.D., Peachtree Orthopedics, 2001 Peachtree Road NE #705, Atlanta, GA 30309. E-mail: Carreira.research@gmail.com

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degeneration, also may affect outcomes. These factors are less well understood.

Labral degeneration is defined as calcification and breakdown of the labral fibrocartilage, which has been characterized as a strongly calcifying tissue type. Degenerated labral tissue often presents as calcified or ossified tissue with yellowish discoloration. Degeneration of the labral tissue is a pathology most common in older patients and patients undergoing revision hip-preservation surgeries. With respect to the etiology of labral tears, labral degeneration has been cited as a cause. The presence of severe degeneration of the acetabular labrum may influence intraoperative decision-making, as labrums with severe degeneration may not be suitable candidates for labral repair.

While labral degeneration has been associated with increased pain and lower hip function preoperatively, the postoperative outcomes of patients who present with labral degeneration are not well-documented in the literature. Most analyses of patients with labral degeneration focus on the outcomes of labral reconstruction rather than repair. Other analyses have only focused on the outcomes of labral degeneration in the setting of osteoarthritis. In particular, the midterm outcomes of patients without arthritis who present with labral degeneration and are treated with arthroscopic labral repair are unknown. Analyzing midterm outcomes are useful in that they permit time for patients to fully complete their surgical recovery.

The goal of this study is to analyze and compare the mid-term outcomes of hip arthroscopy for patients with and without labral degeneration from multiple orthopaedic centers. The purpose of this research is to develop an understanding of the impacts of labral degeneration on patient outcomes following arthroscopic treatment of labral tears. It was hypothesized that patients who present with labral degeneration at the time of labral repair will report inferior outcome scores at the 2-year follow-up than patients who do not present with significant labral degeneration.

**Methods**

Our multicenter hip arthroscopy study group established a registry where patients undergoing labral repair were prospectively enrolled by 5 high-volume, board-certified, fellowship-trained surgeons in different areas of the United States. Enrollment in the registry occurred between January 2014 and October 2017. Informed consent was obtained from each patient before enrollment in the registry. The collection and storage of data was granted according to institutional requirements, and institutional review board approval (Piedmont Healthcare institutional review board, Atlanta, GA) was granted to review the deidentified data registry. Patient-reported outcomes were collected via online surveys sent out 2 years after the date of surgery, and the surveys were live for a 3-month window after activation. Data from the registry were analyzed retrospectively after the formulation of the present study’s hypothesis.

Inclusion criteria were patients undergoing primary arthroscopic labral repair for the pathology of a labral tear. Exclusion criteria were a Tönnis grade of 2 or greater, patients without a complete record of preoperative information, intraoperative information, and postoperative radiographic angles, or patients with less than 2-year outcome data. Preoperative information included patient demographics, comorbidities, symptoms, and preoperative diagnoses. Intraoperative information included the number of implants used for labral repair and intra-articular pathologies such as labral tearing, cartilage damage, and labral degeneration. Patients were not excluded based on the etiology of their injury (acute traumatic vs chronic degenerative) or their age. Data from patients with documented 2-year outcomes were reviewed, including the presence of labral degeneration at the time of hip arthroscopy.

Hips with labral degeneration, defined as calcification, ossification, and/or yellowish discoloration of at least 50 percent of the labral substance at any segment upon visual inspection and/or probing, were included in the labral degeneration group. Hips that exhibited yellowing, ossification, or calcification in less than 50% of the labral tissue were included in the mild or no degeneration group. The presence or absence of degeneration was recorded immediately following the arthroscopic procedure. The cutoff of 50% was decided upon by the coinvestigators before data collection. Labral degeneration was classified at the discretion of the participating surgeon at the time of arthroscopy.

The presence of acetabular cartilage damage also was noted intraoperatively and was classified according to the Beck scale of severity, with grade I classified as minimal cartilage loss with slight chondromalacia, grade II classified as debonding from the subchondral bone, grade III classified as cartilage cleavage and thinning, and grade IV classified as full-thickness cartilage loss on the acetabular rim. Similar to the classifications for labral degeneration, all of the participating surgeons agreed before patient enrollment on the qualifications for each grade of severity to improve interrater reliability.

The International Hip Outcome Tool from 2012 (iHOT-12), a validated measure of health-related quality of life, was administered preoperatively and postoperatively via an electronic survey. Greater iHOT-12 scores correspond with a greater quality of life. iHOT-12 scores were compared between the 2 groups preoperatively and at a 2-year follow-up. Within the iHOT-12 score, the proportion of patients in each group who met the validated clinically significant thresholds of minimal clinically important difference (MCID), substantial clinical benefit (SCB), patient-acceptable symptom scale (PASS), and maximal outcome...
improvement were individually analyzed. Differences in baseline variation in iHOT-12 scores between groups were assessed with a Wilcoxon rank-sum test or $\chi^2$ test. Multivariate logistic regression models were fitted while controlling for age, body mass index (BMI), sex, and preoperative iHOT-12 scores to identify significant predictors of achieving clinical thresholds.

Results

In total, 794 hip arthroscopies were documented among the 5 centers from 2014 to 2017. Among those, 59 were revision surgeries and were excluded from the cohorts; 122 patients were excluded because of incomplete 2-year follow-up reports. Complete 2-year outcomes information was recorded for 613 patients who met the inclusion criteria. The flow chart presented in Figure 1 outlines the processes of inclusion and stratification.

Of the 613 patients who underwent arthroscopic primary labral repair, 140 patients had labral degeneration and 473 did not have substantial labral degeneration as identified intraoperatively. A post hoc power analysis was performed for a power of 0.8 and alpha of 0.05 to determine that a sample size of 200, with 100 patients in each group, was necessary to achieve the desired statistical power for analysis. Analysis of baseline variation found that patients with substantial labral degeneration were more likely to be older ($P < .001$) and reported lower preoperative iHOT-12 scores ($P = .037$). Both groups reported significant improvement in iHOT-12 scores from baseline to 2-year follow-up with the no-degeneration cohort improving from 37 to 76 and the degeneration group improving from 33 to 66 on iHOT-12 ($P < .001$). Both of these mean improvements met MCID. While still improving from baseline, the labral degeneration group exhibited significantly lower iHOT-12 scores at 2-year follow-up than the control group (76 ± 23 vs 66 ± 27, $P < .001$). Patients with labral degeneration also achieved the clinically significant thresholds of MCID, PASS, and SCB less frequently at 2-year follow-up than patients with mild or no labral degeneration ($P = .016; P < .001; P = .001$). The proportion of patients in the labral degeneration group who achieved maximal outcome improvement was lower than the proportion of patients in the no-degeneration group; however, this difference was not significant ($P = .070$). These analyses are summarized in Table 1.

The proportion of patients who exhibited acetabular cartilage damage at the time of arthroscopy and the severity of cartilage damage classified according to the

Table 1. Demographics, Preoperative, and 2-Year Follow-Up International Hip Outcome Tool 12 Scores From Patients Undergoing Primary Hip Arthroscopy, Separated by the Presence or Absence of Labral Degeneration

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Overall, N = 613</th>
<th>Control, N = 473 $^*$</th>
<th>Degenerated Labrum, N = 140 $^*$</th>
<th>P Value$^*$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, y</td>
<td>36 (13)</td>
<td>33 (12)</td>
<td>44 (11)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Body mass index</td>
<td>24.5 (3.9)</td>
<td>24.6 (3.9)</td>
<td>24.2 (3.7)</td>
<td>.4</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>378 (62%)</td>
<td>286 (60%)</td>
<td>92 (66%)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>235 (38%)</td>
<td>187 (40%)</td>
<td>48 (34%)</td>
<td>.037</td>
</tr>
<tr>
<td>Preoperative iHOT-12</td>
<td>36 (18)</td>
<td>37 (19)</td>
<td>33 (17)</td>
<td></td>
</tr>
<tr>
<td>Time of follow-up, y</td>
<td>2.01 (0.18)</td>
<td>2.01 (0.13)</td>
<td>2.03 (0.26)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Two-year iHOT-12</td>
<td>74 (24)</td>
<td>76 (23)</td>
<td>66 (27)</td>
<td></td>
</tr>
<tr>
<td>iHOT-12 MCID</td>
<td>500 (82%)</td>
<td>396 (84%)</td>
<td>104 (74%)</td>
<td>.016</td>
</tr>
<tr>
<td>iHOT-12 PASS</td>
<td>443 (72%)</td>
<td>359 (76%)</td>
<td>84 (60%)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>iHOT-12 SCB</td>
<td>267 (44%)</td>
<td>223 (47%)</td>
<td>44 (37%)</td>
<td>.001</td>
</tr>
<tr>
<td>iHOT-12 MOI</td>
<td>415 (68%)</td>
<td>326 (69%)</td>
<td>77 (55%)</td>
<td>.070</td>
</tr>
</tbody>
</table>

$iHOT$-12, International Hip Outcome Tool-12; MCID, minimal clinically important difference; MOI, maximal outcome improvement; PASS, patient-acceptable symptom scale; SCB, substantial clinical benefit.

$^*$Statistics presented: mean (standard deviation); number (% of sample).

$^*$Statistical tests performed: Wilcoxon rank-sum test; $\chi^2$ test of independence.
Beck Scale (I, II, III, IV) was determined for each group. For the no degeneration cohort, 15% had grade I cartilage damage, 19% had grade II, 14% had grade III, and 8.3% had grade IV. For the degeneration cohort, 20% had grade I, 9.4% had grade II, 14% had grade III, and 7.8% had grade IV. A $\chi^2$ test of independence was performed to test for associations. There was no significant difference between the proportion of patients with acetabular cartilage damage between the 2 groups ($P = .091$, Table 2).

After we controlled for patient age, BMI, sex, and preoperative iHOT-12 score using multivariate logistic regression models, we found labral degeneration to be an independent negative predictor for all clinically significant thresholds: MCID, PASS, and SCB. These predictions were noted using odds ratios with 95% confidence intervals. The results of these analyses are presented in Table 3.

For the 613 surgeries included in the study, there were 7 complications: 1 patient in the nondegeneration group experienced neuropraxia postoperatively and 6 patients reported persistent pain after the operation, 5 in the nondegeneration group and 1 in the degeneration group. No statement of significance could be made regarding differences between the cohorts in regard to complications.

Table 2. Proportion of Each Cohort That Presented Acetabular Cartilage Damage According to the Beck Classification System, as Noted During Hip Arthroscopy

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Overall, N = 613</th>
<th>Control, N = 473</th>
<th>Degenerated Labrum, N = 140</th>
<th>$P$ Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetabular cartilage damage (Beck grade)</td>
<td></td>
<td></td>
<td></td>
<td>.091</td>
</tr>
<tr>
<td>0</td>
<td>230 (44%)</td>
<td>168 (42%)</td>
<td>62 (48%)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>87 (17%)</td>
<td>61 (15%)</td>
<td>26 (20%)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>89 (17%)</td>
<td>77 (19%)</td>
<td>12 (9.4%)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>75 (14%)</td>
<td>57 (14%)</td>
<td>18 (14%)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>43 (8.2%)</td>
<td>33 (8.3%)</td>
<td>10 (7.8%)</td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>89</td>
<td>77</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

*Statistics presented: number (% of sample).

Statistical tests performed: Wilcoxon rank-sum test; $\chi^2$ test of independence.

Table 3. Multivariate Logistic Regression Model Controlling for Age, BMI, Sex, and Preoperative iHOT-12 Scores to Identify Significant Predictors of Achieving Clinical Thresholds at Two-Year Follow-Up

<table>
<thead>
<tr>
<th></th>
<th>MCID</th>
<th>PASS</th>
<th>SCB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
<td>CI</td>
<td>$P$ Value</td>
</tr>
<tr>
<td>Preoperative iHOT-12</td>
<td>0.98</td>
<td>0.96-0.99</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Age, y</td>
<td>1.00</td>
<td>0.98-1.02</td>
<td>&gt;.9</td>
</tr>
<tr>
<td>Body mass index</td>
<td>0.98</td>
<td>0.92-1.04</td>
<td>.4</td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>0.72</td>
<td>0.46-1.12</td>
<td>.14</td>
</tr>
<tr>
<td>Labral Degeneration</td>
<td></td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Degenerated labrum</td>
<td>0.47</td>
<td>0.28-0.79</td>
<td>.004</td>
</tr>
</tbody>
</table>

BMI, body mass index; CI, confidence interval; iHOT-12, International Hip Outcome Tool-12; MCID, minimal clinically important difference; OR, odds ratio; PASS, patient-acceptable symptom scale; SCB, substantial clinical benefit.

Discussion

Our analysis found that although both patients who presented with and without labral degeneration did improve post-hip arthroscopy, patients with labral degeneration reported iHOT-12 scores that were significantly lower than patients without significant labral degeneration. This finding supports our stated hypothesis. Patients with degeneration were also significantly less likely to meet the clinically significant thresholds of MCID, PASS, and SCB than patients without degeneration. It is important to note that patients with substantial labral degeneration still demonstrated significant improvement in patient-reported outcomes following labral repair, highlighting that labral repair is a viable treatment option for patients with labral tears who exhibit degeneration. Our study presents a multicenter, large-sample size investigation of the impacts of labral degeneration on mid-term postoperative outcomes following hip arthroscopy for labral repair.

By analyzing the outcomes of 613 patients from 5 centers across the United States, our data improve upon analyses that have been limited by small sample sizes and a focus on specific patient populations. In addition, our analyses excluded patients with a Tönnis grade of 2 or greater. This inclusion criterion focused our analysis
on labral degeneration apart from the impacts of osteoarthritis. In addition to avoiding the confounding influence of hip osteoarthritis, our investigation analyzed whether the presence of acetabular cartilage damage could confound our associations. No significant differences were found between the groups in terms of the proportion of patients with acetabular cartilage damage. These data further confirm that labral degeneration alone is responsible for poorer outcomes following hip arthroscopy.

Our investigation classified labral degeneration as calcification, ossification, and/or yellowish discoloration at least 50% of the labral substance at any segment of the labrum upon visual inspection and/or probing. Previous investigations have characterized labral degeneration according to these characteristics; however, as of now, no classification method has been developed for labral degeneration. Therefore, our classification scheme is a novel method for classifying labral degeneration. An analysis of the interrater reliability of this classification scheme was performed at the initiative of the registry and recorded moderate reliability (Cohen’s kappa coefficient of 0.51) with 79% average agreement between investigators.

Degeneration of the hip acetabular labrum is associated with greater hip pain in patients with labral tears. In a study of 80 patients with labral degeneration, defined in this study as labral calcification, degeneration was associated with greater hip pain and poorer functional scores preoperatively, measured via the Hip Disability and Osteoarthritis Outcome Score, than patients without degeneration. Our data demonstrated that patients with both labral tears and degeneration reported lower preoperative iHOT-12 scores than patients with labral tears without degeneration, supporting these previous findings that labral degeneration is associated with greater pain preoperatively.

Data support the assertion that labral degeneration is associated with age, as elderly populations exhibit a greater prevalence of degeneration than younger populations. A study of 1,151 hips found that older patients were likely to have unsalvageable labral tears characterized by tissue degeneration. The association of degenerate labrums with increasing age may exist also in the absence of pain. Our data provide further evidence that labral degeneration is more prevalent among older patient populations. Because patients with labral degeneration tend to be older and report greater pain preoperatively, age and preoperative functional scores could act as confounding factors in an analysis of the impacts of labral degeneration. Our analysis controlled for these patient characteristics by using logistic regression models to control for patient age, BMI, sex and preoperative iHOT-12 scores. This analysis confirmed that labral degeneration impacts outcomes independently of these patient characteristics.

While significant associations have been noted between labral degeneration and age, the link between labral degeneration and other age-related pathologies, such as osteoarthritis, is less clear. Because the labrum acts as a soft-tissue cushion that protects articular cartilage, degeneration of the labrum has been hypothesized to result in further degenerative joint pathologies. An investigation into age-related degenerative pathologies demonstrated an association between labral degeneration, the early development of osteoarthritis, and hip pain. However, another study reported no association between labral degeneration and the presence or severity of osteoarthritis, demonstrating that labral degeneration may be present in the absence of osteoarthritis. By excluding patients with a Tönnis osteoarthritis grading of 2 or greater, our study formed a cohort of patients with labral degeneration apart from osteoarthritis, providing evidence that degeneration of the labrum does not necessarily coincide with other degenerative changes of the hip.

Most current studies do not isolate degeneration as a variable of analysis. Investigations that do analyze the surgical outcomes of patients with labral degeneration have focused on degeneration in the setting of osteoarthritis. A study of 21 patients undergoing hip arthroscopy for femoroacetabular impingement found that labral calcification was associated with lower postoperative Hip Disability and Osteoarthritis Outcome Scores regardless of patient age. In this cohort, which included patients with osteoarthritis, 67% of patients who presented with labral calcification were noted to have synovial inflammation and articular cartilage damage. Although 74% of the patients with articular cartilage damage displayed isolated lesions on the acetabulum, 26% of the patients displayed diffuse cartilage damage on the acetabulum and femoral head. This cartilage damage would have been a likely cause of pain and could have confounded the results of the study. Because patients with osteoarthritis generally do not have favorable outcomes following arthroscopic treatment of labral tears, the presence of osteoarthrosis could be a confounding factor in the outcomes of patients with labral degeneration undergoing hip arthroscopy. Our data show that labral degeneration alone is a negative predictor of achieving clinically significant thresholds, by excluding patients with a Tönnis osteoarthrosis score of 2 or greater.

Acetabular cartilage damage also has been demonstrated to impact the outcomes of hip arthroscopy. A study of 20 patients older than the age of 60 who underwent arthroscopic labral repair found that all patients who converted to total hip arthroplasty within 2 years had grade III or grade IV acetabular cartilage damage. Our finding no significant differences between our cohorts in terms of the severity of acetabular
cartilage damage ensured that chondrosis did not act as a confounding factor. Thus, labral degeneration appears to impact surgical outcomes independently of acetabular cartilage damage.

Reports focusing on the surgical outcomes of patients with labral degeneration have focused on the technique of labral reconstruction using an allograft, which neglects to consider patients with labral degeneration who undergo labral repair. The decision to pursue labral reconstruction over labral repair may occur intraoperatively; however, preoperative decision-making is often necessary for the procurement of the graft needed for reconstruction. Degenerate labral tissue has been cited as an indication for labral reconstruction over other surgical interventions\(^2\); however, magnetic resonance imaging (MRI) is generally used as the diagnostic tool to assess labral degeneration and the sensitivity of uncovering this pathology is imperfect.\(^2\)

Therefore, it is likely that many patients with labral degeneration are treated via a labral repair because of the lack of preparation for a reconstruction. Thus, our data on degeneration in the context of labral repair are useful.

The outcomes of patients with labral degeneration who underwent labral reconstruction have been generally positive. A study of 34 patients undergoing labral reconstruction for a variety of pathologies, including labral degeneration, reported significant improvements in the modified Harris Hip Score (mHHS), iHOT-12, Hip Outcome Score, and SF-12 physical score.\(^1\) Another study of 131 hips reported significant improvement in mHHS, Lower Extremity Functional Scale, and visual analog pain scale after labral reconstruction; however, the study reported a failure rate of 13.7%, with 18 patients requiring revision surgery.\(^1\)

The outcomes of our patients with labral degeneration who underwent labral repair mirror those of patients with degeneration who underwent labral reconstruction in that functional scores did improve after both interventions.

Given our findings that labral degeneration negatively impacts the outcomes of patients following hip arthroscopy who underwent labral repair, further investigation is necessary related to the role of repair versus reconstruction. For patients with challenging labral pathologies, including degeneration, a study by Scanaliato et al.\(^2\) found no significant differences in patient-reported outcomes between the group who underwent repair (N = 99) and the group who underwent reconstruction (N = 63). Controlling for the factor of degeneration in outcome studies is limited. A multicenter study of 416 patients also found no significant differences between patients who underwent labral repair or labral reconstruction using iHOT-12, the mHHS and the Hip Outcome Score.\(^2\) A review comparing the outcomes of patients who underwent labral repair versus labral reconstruction does improve patient functional scores postoperatively; however, the outcomes are not any greater than those of patients who underwent labral repair.\(^1\)

Other investigations did find differences between the outcomes of repair and reconstruction. In a study of 312 hips, failure, defined as need for revision hip surgery, was 3.29 times more likely in patients aged 40 and older who underwent labral repair versus reconstruction. This difference was not found in patients younger than 40 years.\(^3\) Another investigation of 29 patients found that labral repairs had a 31% failure rate, defined as need for revision surgery within 5 years, whereas no hips that underwent labral reconstruction failed.\(^4\) The decision to pursue reconstruction instead of repair is generally planned preoperatively by factoring the patient’s physical examination, age, and the severity of labral degeneration as noted on MRI.\(^2\) Given the results of our study and previous investigations it may be worthwhile to plan for a possible labral reconstruction for older patients, patients with greater preoperative pain, and patients with degeneration as noted on MRI; however, the evidence is not definitive.

Despite significant differences between the outcomes of the degeneration and control cohorts, our data show significant improvement in patient-reported outcomes for patients with degeneration following labral repair, with healthy labral tissue correlated with superior outcomes. Evidence for whether labral repair or reconstruction is a more effective intervention for patients with labral tears exhibiting degeneration remains unclear. Further research is warranted to investigate the optimal surgical interventions for this patient population.

**Limitations**

Because a registry was used for data collection, reporting and selection biases are limitations of this study. Given the multicenter nature of this study, differences in inter- and intrarater reliability are possible when grading the extent of labral degeneration. In addition, the patient population in this study is composed of patients whose labral degeneration was noted intraoperatively during labral repair, excluding patients with more advanced labral degeneration noted preoperatively who were not candidates for labral repair. Because acetabular cartilage damage was not included in our multivariate analysis, it is still possible that the presence of cartilage damage could have been a confounding factor in our results, given the number of unknowns.

**Conclusions**

The results of our study conclude that patients with nondegenerate labral tissue at the time of repair have superior patient-reported outcomes at mid-term follow-
up. The presence of labral degeneration was a negative predictor of achieving clinically significant thresholds after controlling for patient age, BMI, sex, and baseline iHOT-12 scores.

References


