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ABSTRACT

Clinical Scenario: Femoroacetabular impingement (FAI) is a common injury among the athletic population and is often associated with a labral tear. FAI results from variations in the femoroacetabular joint caused by repetitive impact and may cause pain and dysfunction. **Focused Clinical Question:** The purpose of this study is to compare the effect of labral repair and labral debridement for the treatment of FAI on patient reported outcomes. **Search Strategy:** In order to be included in this review, studies had to include both labral debridement and labral repair as treatment options for FAI. Studies were found using multiple databases including PubMed, CINAHL Plus with Full Text, ProQuest Nursing Collection, and Cochrane Library. The terms used to find the studies were “femoroacetabular impingement,” “hip impingement,” “hip labral repair,” and “hip labral debridement,” as well as synonyms and abbreviations for such terms. Studies were excluded if they contained patients that were older than 80 years old, had advanced osteoarthritis, Legg-Calve-Perthes disease, osteonecrosis, or history of previous hip trauma. References found in each study were also used in order to find similar studies. A total of eleven studies were found that were included. **Evidence Quality Assessment:** A single evaluator used the PEDro Scale and the Oxford 2011 Level of Evidence (OCEBM) in order to determine the quality of the evidence obtained from each study. Each study was assessed using the standard scales. The PEDro scores of the studies ranged from 4/10 to 7/10. All studies included were either level 2 or level 3 on the OCEBM scale. **Results and Summary of Search:** Six out of 11 studies found significantly better patient-reported outcomes when labral repair was performed rather than labral debridement. The other studies found a slight improvement in patient-reported outcomes with labral repair; however, the improvement was not significant. The studies measured patient-reported outcomes using standard scales and questionnaires such as the Modified Harris Hip Score, the Merle d’ Aubigne-Postel Score, the SF-12, and patient satisfaction surveys. This allowed for an accurate measure in the difference between pre-operative and post-operative function. All studies were completed with older populations. A younger, athletic population would also need to be studied to better understand the long-term effects of both surgical interventions. This would allow athletic trainers to better understand how the surgical intervention would affect their patient population. **Clinical Bottom Line:** Labral repair may result in better patient-reported outcomes than labral debridement. The strength of recommendation (SORT) score for this review is B. **Implications:** The results of these studies indicate that when possible, labral repair should be done in order to maximize hip function and patient satisfaction post-surgically. Athletic trainers may use this information to better understand the rehabilitation needs of patients undergoing either surgical intervention.

CLINICAL SCENARIO

- Femoroacetabular Impingement (FAI) is a result of bony variations within the junction of the acetabulum and the head of the femur.¹
- The bony variations within the femoroacetabular joint are caused by repetitive impact.²
- FAI can result in damage to the labrum and ultimately lead to articular cartilage damage.¹
- Treatment methods for FAI can be either conservative or surgical.
- Two surgical methods for the treatment of FAI with an associated labral tear are labral repair and labral debridement.
- Labral debridement involves the removal of the damaged labrum while preserving as much of the stable labrum as possible.²
- Labral repair involves the reattachment of the damaged labrum using multiple suture anchors.²
- Results were measured using patient-reported outcomes which involve questionnaires measuring the patient’s hip function

FOCUSED CLINICAL QUESTION

In patients with femoroacetabular impingement, what is the effect of labral repair compared to labral debridement on patient reported outcomes?

SEARCH STRATEGY

- Databases**
 - PubMed
 - CINAHL Plus with Full Text
 - ProQuest Nursing Collection
 - Cochrane Library
- Search Terms**
 - “femoroacetabular impingement”
 - “hip labral repair”
 - “hip labral debridement”
- Inclusion Criteria**
 - Symptomatic FAI
 - Associated labral tear
 - Labral debridement or labral repair
 - Patients ≥17 years old
- Exclusion Criteria**
 - Osteonecrosis
 - Osteoarthritis
 - History of previous hip trauma
 - Leg-Calve-Perthes disease
 - Patients > 80 years old

EVIDENCE QUALITY ASSESSMENT

- A total of 11 articles met the inclusion criteria
- PEDro scores ranged from 4/10 to 7/10
- Oxford 2011 Level of Evidence score was 3 for nine articles and 2 for two articles

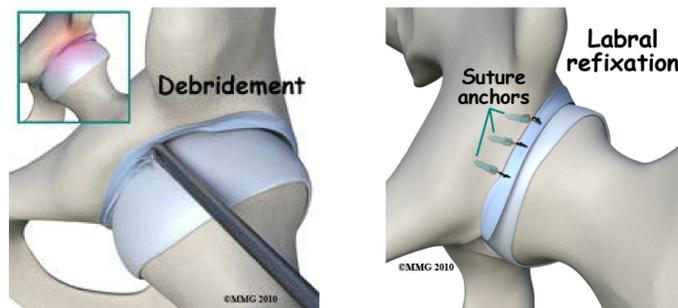


Figure 1. The torn labrum is debrided from its attachment point on the acetabulum (Left). The torn labrum is reattached to the acetabulum using suture anchors (Right).

RESULTS AND SUMMARY OF SEARCH

- Patient-reported outcomes using standard scales and questionnaires including the Modified Harris Hip Score (mHHS), the Merle d’ Aubigne-Postel Score, and the Visual Analog Scale (VAS)
- mHHS measures hip function on a scale from 0-100, 100 being the best outcome³
- The Merle d’Aubigne-Postel Score measures hip function through pain, mobility, and walking mobility on a scale with the highest possible score being 18.⁴
- VAS measures pain on a 10mm scale with 10 being the worst pain imaginable and 0 being no pain¹
- 6 out of 11 studies found significantly better outcomes when labral repair was performed rather than labral debridement
- The other 5 studies found better outcomes with labral repair; however, the difference was not considered statistically significant

Table 1. Post-Surgical Modified Harris Hip Scores of FAI Studies

Author	Debridement	Repair	P-value
Polesello, et. al. ⁵	95.70	90.91	P= 0.382
Larson, et. al. ⁶	84.9	94.3	P=0.001*
Schilders, et. al. ³	88.84	93.59	P=0.042*
Menge, et. al. ⁷	90	85	P=0.173
Larson & Giveans ⁸	88.9	94.3	P=0.029*
Philippon, et. al. ⁹	81	87	P=0.10

Table 1. The mean post-surgical Modified Harris Hip Scores were recorded for each study that included mHHS as a patient-reported outcome. (Abbreviations: FAI= femoroacetabular impingement, mHHS=modified Harris Hip Score) *Statistically significant value

RESULTS AND SUMMARY OF SEARCH, CONT.

Table 2. Merle d’Aubigne-Postel Scores of FAI Studies

Author	Measurement Time	Debridement	Repair	P-value
Anwander, et. al. ⁴	10 years post-surgical	15	16.7	P=0.028*
Espinoza, et. al. ¹⁰	Pre-surgical	12	12	N/A
	1 year post	14	17	P=0.0001*
	2 year post	15	17	P=0.01*

Table 2. The mean post-surgical Merle d’Aubigne-Postel Scores were recorded for each study that included Merle d’Aubigne-Postel Scores as a patient-reported outcome. No pre-surgical measurement was reported in Anwander, et. al.’s study. (Abbreviations: FAI= femoroacetabular impingement, N/A= not applicable) *Statistically significant value

Table 3. Visual Analog Scale Scores of FAI Studies

Author	Measurement Time	Debridement	Repair	P-value
Larson, et. al. ⁶	Pre-surgical	6.5	5.7	P=0.004*
	3.5 years post-surgical	1.7	0.7	
Cetinkaya, et. al. ¹	Pre-surgical	8.2	8.0	P>0.05
	Minimum 2.5 years post-surgical	2.1	2.3	
Larson & Giveans ⁸	Pre-surgical	ND	ND	P=0.597
	1 year post	ND	ND	

Table 3. The mean post-surgical Visual Analog Scale scores were recorded for each study that included VAS as a patient-reported outcome. (Abbreviations: FAI= femoroacetabular impingement, ND= no data reported, VAS= visual analog scale) *Statistically significant value

CLINICAL BOTTOM LINE

- Labral repair may be a better surgical intervention than labral debridement.
- More research is necessary for a more definite conclusion.
- Both surgical interventions are effective in improving hip function.
- The Strength of Recommendation (SORT) score is B.

IMPLICATIONS

- When possible, labral repair should be the surgical intervention of choice to maximize the patient’s hip function and patient-satisfaction.
- As a clinician with a patient with femoroacetabular impingement and an associated labral tear, it is important to educate the patient about the difference between labral debridement and labral repair.
- Clinicians should be aware of the implications of each surgical intervention in order to better understand the patient’s rehabilitative needs.

REFERENCES

- Cetinkaya S, Toker B, Ozden VE, Dikmen G, Taser O. Arthroscopic labral repair versus labral debridement in patients with femoroacetabular impingement: A minimum 2.5 year follow-up study. *Hip Int.* 2015;26(1):20-24.
- Krych AJ, Thompson M, Knutson Z, Scoon J, Coleman SH. Arthroscopic labral repair versus selective labral debridement in female patients with femoroacetabular impingement: A prospective randomized study. *Arthroscopy.* 2013;29(1):46-53.
- Schilders E, Dimitrakopoulou A, Bismil Q, Marchant P, Cooke C. Arthroscopic treatment of labral tears in femoroacetabular impingement: A comparative study of refixation and resection with a minimum two-year follow-up. *Bone Joint J.* 2011;93(8):1027-1032.
- Anwander H, Siebenrock KA, Tannast M, Steppacher SD. Labral reattachment in femoroacetabular impingement surgery results in increased 10-year survivorship compared with resection. *Clin Orthop Relat Res.* 2016;475(4):1178-1188.
- Polesello GC, Lima FR, Guimaraes RP, Riccioli W, Queiroz MC. Arthroscopic treatment of femoroacetabular impingement: Minimum five-year follow-up. *Hip Int.* 2014;24(4):381-386.
- Larson CM, Giveans MR, Stone RM. Arthroscopic debridement versus refixation of the acetabular labrum associated with femoroacetabular impingement. *Am J Sports Med.* 2012;40(5):1015-1021.
- Menge TJ, Briggs KK, Dornan GJ, Mcnamara SC, Philippon MJ. Survivorship and outcomes 10 years following hip arthroscopy for femoroacetabular impingement. *J Bone Joint Surg.* 2017;99(12):997-1004.
- Larson CM, Giveans MR. Arthroscopic debridement versus refixation of the acetabular labrum associated with femoroacetabular impingement. *Arthroscopy.* 2009;25(4):369-376.
- Philippon MJ, Briggs KK, Yen Y-M, Kuppersmith DA. Outcomes following hip arthroscopy for femoroacetabular impingement with associated chondrolabral dysfunction: Minimum two-year follow-up. *J Bone Joint Surg Br.* 2009;91B(1):16-23.
- Espinoza N, Beck M, Rothenfluh DA, Ganz R, Leunig M. Treatment of femoro-acetabular impingement: Preliminary results of labral refixation: Surgical technique. *J Bone Joint Surg.* 2007;89A(5):36-53.