

# Editorial Commentary: Evidence-Based Guidelines for Management of the Hip Capsule During Arthroscopy: Has It Become Personal?



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**Abstract:** The management of the capsule during hip arthroscopy for femoroacetabular impingement syndrome has been in the spotlight during the last decade. Although there is robust biomechanical evidence that preserving the anatomic integrity of the iliofemoral ligament is important for the stability of the hip joint, the effect of capsular management on patient outcomes is often debated in clinical studies. Mid-term and long-term follow-up studies have shown that capsular closure is associated with decreased risk of hip arthroscopy failure, but no difference in patient outcomes based on capsular management has been found by some case series studies. What is driving the controversy in the literature? It seems to stem from the variation in surgical techniques used to perform hip capsulotomy or capsular repair, worldwide. Given that improvement in patient outcomes must be prioritized, it is time to use the existing knowledge appropriately to establish evidence-based guidelines for the management of hip capsule during hip arthroscopy.

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An abundance of biomechanical evidence exists for the pivotal role of the anatomic integrity of the hip capsule in the stability of the hip joint.<sup>1</sup> Although the biomechanical function of the repaired hip capsule may not be equivalent to the function of the intact hip capsule, numerous laboratory studies have showed that repairing the hip capsule during hip arthroscopy significantly improves the rotational stability of the hip joint and, therefore, is recommended.<sup>2-4</sup> Regardless of the results of in vitro studies, patient-reported outcomes have been guiding clinical practice over the years.<sup>5</sup>

In the article of McGovern, Bucci, Nickel, Ellis, Wells, and Christoforetti, "Arthroscopic Capsular Management of the Hip: A Comparison of Indications and Clinical Outcomes for Periportal Versus Interportal

Capsulotomy,"<sup>6</sup> the authors discussed the agreement between biomechanical and clinical data showing the beneficial role of capsular repair in patients undergoing hip arthroscopy for femoroacetabular impingement syndrome (FAIS). Their study focused on the comparison of 2-year outcomes of the periportal capsulotomy versus interportal capsulotomy in patients undergoing hip arthroscopy.<sup>6</sup> All patients underwent capsular repair upon the conclusion of the procedure, and no significant difference in short-term outcomes was detected between patients who underwent periportal versus interportal capsulotomy.<sup>6</sup> This is a clinically meaningful comparison, although it is limited by variation in surgical technique within the study group, and the selection of interportal versus periportal capsulotomy was based on the senior author's standard of practice.<sup>6</sup> The results of the study by McGovern et al.<sup>6</sup> corroborate the findings of previous biomechanical studies showing that repairing the capsule results in significant improvement hip stabilization, regardless of capsulotomy technique.<sup>1,2</sup> This evidence has provided surgeons with flexibility related to the shape and size of capsulotomy performed during hip arthroscopy to achieve adequate joint visualization and correction of the existing structural abnormalities.<sup>7,8</sup>

Recent comparative meta-analyses suggested that there was not enough evidence to support the

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superiority of capsular repair in hip arthroscopy.<sup>9,10</sup> Is this true? When interpreting the results of clinical studies comparing the outcomes between repaired and unrepaired hip capsulotomy in hip arthroscopy patients, we often forget that the management of the hip capsule has become “too personal.” A simple proof is a list of the different capsulotomy and capsular repair techniques described in the existing papers (let alone that patients included in these studies did not always have similar pathology or demographic-anatomic characteristics and followed different postoperative rehabilitation protocols).<sup>7,9-16</sup>

Let’s start with a list of hip capsulotomy techniques reported in articles comparing the outcomes of hip arthroscopy patients with or without capsular repair, including this article by McGovern et al.<sup>6</sup>: “2.5-cm interportal capsulotomy between the anterolateral and mid-anterior portal using a knife,” “4-cm interportal capsulotomy between the anterolateral and midanterior portal using a knife,” “interportal capsulotomy between the anterolateral and midanterior portal with anteromedial and/or posterolateral extension as needed,” “interportal capsulotomy using a shaver,” “periportal capsulotomy,” and “T-capsulotomy between the anterior, anterolateral, and distal anterolateral portals using a knife.”<sup>6,7,9-16</sup> Let’s continue with a list of hip capsular repair techniques reported in those articles: “repair of the interportal capsulotomy using 2 PDS sutures or 2 Vicryl sutures or 3 to 5 sutures as needed,” “partial or complete repair of the interportal capsulotomy based on the surgeon’s preference,” “repair of the vertical limb of the T capsulotomy using 2 to 4 sutures.”<sup>6,7,9-16</sup>

It is obvious that to interpret the findings of studies comparing the outcomes of repaired versus unrepaired capsulotomy or the different capsular repair techniques (as in the study of McGovern et al.<sup>6</sup>) in hip arthroscopy, one must pay attention to the surgical technique itself. It is time to “stop arguing,”<sup>8,17-23</sup> use the existing knowledge on this subject appropriately, and establish evidence-based guidelines for management of the hip capsule during hip arthroscopy. I believe that a scoping review on the topic would be ideal to highlight the above issues in the published literature, followed by an international expert consensus using widely accepted methodologies to facilitate the process of developing these guidelines.

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### References

1. Kuhns BD, Weber AE, Levy DM, et al. Capsular management in hip arthroscopy: An anatomic, biomechanical, and technical review. *Front Surg* 2016;3:13.
2. Ekhtiari S, de Sa D, Haldane CE, et al. Hip arthroscopic capsulotomy techniques and capsular management strategies: A systematic review. *Knee Surg Sports Traumatol Arthrosc* 2017;25:9-23.
3. Philippon MJ, Trindade CAC, Goldsmith MT, et al. Biomechanical assessment of hip capsular repair and reconstruction procedures using a 6 degrees of freedom robotic system. *Am J Sports Med* 2017;45:1745-1754.
4. Weber AE, Neal WH, Mayer EN, et al. Vertical extension of the T-capsulotomy incision in hip arthroscopic surgery does not affect the force required for hip distraction: Effect of capsulotomy size, type, and subsequent repair. *Am J Sports Med* 2018;46:3127-3133.
5. Kroenke K, Monahan PO, Kean J. Pragmatic characteristics of patient-reported outcome measures are important for use in clinical practice. *J Clin Epidemiol* 2015;68:1085-1092.
6. McGovern RP, Bucci G, Nickel BA, Ellis HB, Wells JE, Christoforetti JJ. Arthroscopic capsular management of the hip: A comparison of indications and clinical outcomes for periportal versus interportal capsulotomy. *Arthroscopy* 2020;37:86-94.
7. Bolia IK, Fagotti L, Briggs KK, Philippon MJ. Midterm outcomes following repair of capsulotomy versus non-repair in patients undergoing hip arthroscopy for femoroacetabular impingement with labral repair. *Arthroscopy* 2019;35:1828-1834.
8. Matsuda DK. Hip capsule: To repair or not? *Arthroscopy* 2017;33:116-117.
9. Acuña AJ, Samuel LT, Roth A, Emara AK, Kamath AF. How capsular management strategies impact outcomes: A systematic review and meta-analysis of comparative studies. *J Orthop* 2020;19:237-243.
10. Liu L, Zhang Y, Gui Q, et al. Effect of capsular closure on outcomes of hip arthroscopy for femoroacetabular impingement: A systematic review and meta-analysis. *Orthop Surg* 2020;12:1153-1163.
11. Atzmon R, Sharfman ZT, Haviv B, et al. Does capsular closure influence patient-reported outcomes in hip arthroscopy for femoroacetabular impingement and labral tear? *J Hip Preserv Surg* 2019;6:199-206.
12. Chambers CC, Monroe EJ, Flores SE, Borak KR, Zhang AL. Periportal capsulotomy: Technique and outcomes for a limited capsulotomy during hip arthroscopy. *Arthroscopy* 2019;35:1120-1127.
13. Domb BG, Chaharbakshi EO, Perets I, Walsh JP, Yuen LC, Ashberg LJ. Patient-reported outcomes of capsular repair versus capsulotomy in patients undergoing hip arthroscopy: Minimum 5-year follow-up—A matched comparison study. *Arthroscopy* 2018;34:853-863.e851.
14. Filan D, Carton P. Routine interportal capsular repair does not lead to superior clinical outcome following arthroscopic femoroacetabular impingement correction with labral repair. *Arthroscopy* 2020;36:1323-1334.
15. Frank RM, Lee S, Bush-Joseph CA, Kelly BT, Salata MJ, Nho SJ. Improved outcomes after hip arthroscopic surgery in patients undergoing T-capsulotomy with complete repair versus partial repair for femoroacetabular impingement: A comparative matched-pair analysis. *Am J Sports Med* 2014;42:2634-2642.

16. Westermann RW, Bessette MC, Lynch TS, Rosneck J. Does closure of the capsule impact outcomes in hip arthroscopy? A systematic review of comparative studies. *Iowa Orthop J* 2018;38:93-99.
17. Abrams GD. The Importance of capsular closure in hip arthroscopy: Is there a limit to the benefit? *Arthroscopy* 2018;34:864-865.
18. Abrams GD. Not repairing the hip capsule after arthroscopy—What were we thinking? *Arthroscopy* 2018;34:319-320.
19. Aoki SK. Hip arthroscopy capsular approaches: Periportal, puncture, interportal, T-cut...does it really matter? *Arthroscopy* 2019;35:1128-1129.
20. Jackson TJ. The hip capsule: To close or not to close? Is that still the question? *Arthroscopy* 2020;36:1335-1336.
21. Ochiai D. The hip capsule is no longer a problem to overcome, it is part of the solution. *Arthroscopy* 2019;35:1835-1836.
22. van Arkel RJ, Jeffers JR, Amis AA. Anatomical vandalism of the hip? Hip capsular repair seems a sound adjunct to hip arthroscopic surgery. *Arthroscopy* 2017;33:314-316.
23. Walters BL. #Capsule-ophilesRejoice! The evidence in support of diligent capsular management during hip arthroscopy can no longer be ignored. *Arthroscopy* 2020;36:124-126.