

ligament in knee arthroscopy: Ultrasound and anatomic study. *J Knee Surg* 2019;32:764-769.

8. Bert JM. First do no harm. Protect the articular cartilage when performing arthroscopic knee surgery. *Arthroscopy* 2016;32:2169-2174.

## Regarding “Operative Versus Nonoperative Treatment of Femoroacetabular Impingement Syndrome: A Meta-analysis of Short-Term Outcomes”



We recently read with interest the article titled “Operative Versus Nonoperative Treatment of Femoroacetabular Impingement Syndrome: A Meta-analysis of Short-Term Outcomes.”<sup>1</sup> The authors conducted a meta-analysis of patient-reported outcomes of both treatment strategies and concluded that patients with femoroacetabular impingement (FAI) syndrome treated with hip arthroscopy have superior hip-related outcomes in the short term compared with patients receiving physical therapy. We have some queries about the statistical methods and interpretation of those pooled analysis results.

The first concern relates to the heterogeneity of input values used in the meta-analysis. Dwyer et al.<sup>1</sup> not only conducted a pooled study indiscriminately using unadjusted and adjusted mean differences in International Hip Outcome Tool 33 (iHOT-33) scores but also pooled the 6- and 12-month follow-up scores even though all 3 included trials reported 6-month follow-up scores.<sup>2-4</sup> Also, the authors even used a fixed-effects model in their pooled study and considered an  $I^2$  statistic of 41% as low heterogeneity, but usually in medicine, there is consensus that a random-effects model is recommended to avoid overestimation of the study results.<sup>5</sup> The study concluded that hip arthroscopy is associated with superior hip-related outcomes in the short term compared with physical therapy for FAI; however, if the meta-analysis were performed using matched data and appropriate statistical methods, one might generate the opposite findings.

Our second concern is about the interpretation of the meta-analysis results. Even though the authors showed a superior International Hip Outcome Tool 33 (iHOT-33) score for the hip arthroscopy group compared with the physical therapy group in their pooled results,<sup>1</sup> is it prudent to generalize this to all hip-related outcomes? As the authors mentioned in the “Discussion” section,

the number of included studies was relatively small and the trial designs were variable, so we think it would be more sensible to reserve conclusions about the superiority of one treatment strategy over the other until larger-scale robust trials can be performed.

With the ongoing debate about which strategy is better for treating FAI syndrome, we worry that this report could unnecessarily mislead people. We hope that the authors address the points presented because the overall discussion of the presented points will only serve to benefit the research community at large.

Chul-Ho Kim, M.D., Ph.D.

Jae Youn Yoon, M.D.

Jun-Ki Moon, M.D.

Sunhyung Lee, M.D.

Hyojune Kim, M.D.

Soong Joon Lee, M.D.

Pil Whan Yoon, M.D., Ph.D.

*Department of Orthopedic Surgery, Seoul National University Boramae Hospital, Seoul, Republic of Korea*

**Note:** The authors report no conflicts of interest in the authorship and publication of this letter. Full ICMJE author disclosure forms are available for this letter online, as [supplementary material](#).

© 2020 by the Arthroscopy Association of North America

<https://doi.org/10.1016/j.arthro.2020.05.009>

## References

1. Dwyer T, Whelan D, Shah PS, Ajrawat P, Hoit G, Chahal J. Operative versus nonoperative treatment of femoroacetabular impingement syndrome: A meta-analysis of short-term outcomes. *Arthroscopy* 2020;36:263-273.
2. Griffin DR, Dickenson EJ, Wall PDH, et al. Hip arthroscopy versus best conservative care for the treatment of femoroacetabular impingement syndrome (UK FASHIoN): A multicentre randomised controlled trial. *Lancet* 2018;391:2225-2235.
3. Mansell NS, Rhon DI, Meyer J, Slevin JM, Marchant BG. Arthroscopic surgery or physical therapy for patients with femoroacetabular impingement syndrome: A randomized controlled trial with 2-year follow-up. *Am J Sports Med* 2018;46:1306-1314.
4. Palmer AJR, Ayyar Gupta V, Fernquest S, et al. Arthroscopic hip surgery compared with physiotherapy and activity modification for the treatment of symptomatic femoroacetabular impingement: Multicentre randomised controlled trial. *BMJ* 2019;364:l185.
5. Schmidt FL, Oh IS, Hayes TL. Fixed- versus random-effects models in meta-analysis: Model properties and an empirical comparison of differences in results. *Br J Math Stat Psychol* 2009;62:97-128.