

# Editorial Commentary: There Is Value in Standardizing the Position of the Arm During Magnetic Resonance Imaging Arthrogram of the Shoulder When Evaluating for Suspected Instability (and It Doesn't Have to Be Painful to the Patient!)



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**Abstract:** Evaluating and treating a shoulder with suspected instability remains a challenge for all. Most authors and surgeons would agree that clinical history and physical examination of the patient are the most important aspects of this evaluation. Over the past 15 years, however, radiographic imaging has become a much more prevalent (and essential) component. Magnetic resonance imaging arthrogram has become the gold standard to evaluate a patient for suspected instability and is currently considered the most appropriate advanced study by the American College of Radiologists to do so in both traumatic and atraumatic presentations.

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**D**oes position matter? Absolutely! Evaluating and treating a shoulder with suspected instability remains a challenge for all. Most authors and surgeons would agree that clinical history and physical examination of the patient are the most important aspects of this evaluation. Over the past 15 years, however, radiographic imaging has become a much more prevalent (and essential) component. Magnetic resonance imaging arthrogram (MRA) has become the gold standard to evaluate a patient for suspected instability and is currently considered the most appropriate advanced study by the American College of Radiologists to do so in both traumatic and atraumatic presentations.<sup>1,2</sup>

While the utility of standard MRA in the evaluation of the unstable shoulder has been established, we have learned over time that significantly more information

may be gathered from these radiographic studies by changing the position of the shoulder/arm at the time of imaging. Schaeffeler et al.<sup>3</sup> and Modi et al.<sup>4</sup> have studied the role of the abduction–external rotation view in MRA and have helped us understand that our sensitivity and specificity for the detection of labral and capsular pathology can be significantly increased by using this position. Unfortunately, this position is quite uncomfortable for patients with anterior instability and is relatively contraindicated in the setting of acute episodes of instability for fear of causing a recurrent dislocation event.

Dewing et al.<sup>5</sup> and Galvin et al.<sup>6</sup> have demonstrated that evaluating the capsular area as measured on axial views of the MRA also aids our ability to properly diagnosis instability. The study by White, Kothandaraman, Lin, Rao, Greenhouse, Barfield, Chapin, Slone, Friedman, and Eichinger, “Shoulder Position During Magnetic Resonance Arthrogram Significantly Affects Capsular Measurements,”<sup>7</sup> takes this concept of the potential diagnostic value of capsular measurements and standardizes the position of the patient’s arm while obtaining the MRA. By studying this in their patient population with instability, the authors have been able to correlate known instability to increased posterior capsular measurements on the adducted and externally

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rotated axial image but not on the adducted and internally rotated axial image. The authors should be commended for identifying this exciting correlation. The position of the arm when the images are obtained as we know matters (as shown in studies by Schaeffeler et al. and Modi et al.), but importantly the adducted and externally rotated position is comfortable and safe for the patient and an easily reproducible position for the radiology technicians to achieve. Although the study design of White et al.<sup>7</sup> does not allow direct conclusions regarding the diagnostic ability of increased capsular measurements in this position, the correlation identified lays out the opportunity to design a future study to do exactly that. As they say, you need to walk before you can run, and without studies such as this we would be running blind.

### References

1. Amini B, Beckmann NM, Beaman FD, et al. ACR Appropriateness Criteria® Shoulder Pain—Traumatic. *J Am Coll Radiol* 2018;S171-S188.
2. Small KM, Adler RS, Shah SH, et al. ACR Appropriateness Criteria® Shoulder Pain—Atraumatic. *J Am Coll Radiol* 2018;S388-S402.
3. Schaeffeler C, Waldt S, Bauer JS, et al. MR arthrography including abduction and external rotation images in the assessment of atraumatic multidirectional instability of the shoulder. *Eur Radiol* 2014;24:1376-1385.
4. Modi CS, KarthiKeyan S, Marks A, et al. Accuracy of abduction-external rotation MRA versus standard MRA in the diagnosis of intra-articular shoulder pathology. *Orthopedics* 2013;36:e337-e342.
5. Dewing CB, McCormick F, Bell SJ, et al. An analysis of capsular area in patients with anterior, posterior, and multidirectional shoulder instability. *Am J Sports Med* 2008;36:515-522.
6. Galvin JW, Parada SA, Li X, Eichinger JK. Critical findings on magnetic resonance arthrograms in posterior shoulder instability compared with an age-matched controlled cohort. *Am J Sports Med* 2016;44:3222-3229.
7. White CC, Kothandaraman V, Lin J, et al. Shoulder position during magnetic resonance arthrogram significantly affects capsular measurements. *Arthroscopy* 2020;37:17-25.