

Editorial Commentary: MRI Findings Are Only One Part of the Equation in National Football League Athletes: Shoulder Instability in Contact Athletes



Jeremy M. Burnham, M.D., and James P. Bradley, M.D.

Abstract: Shoulder instability is a common problem in contact sports such as the National Football League. Although many elite level football athletes will have shoulder magnetic resonance imaging (MRI) findings consistent with labral tearing on MRI, these imaging findings are not always correlated with symptomatic instability or functional limitations. It is crucial in all patients, not just National Football League athletes, to treat the patient, and not the MRI.

See related article on page 66

Shoulder instability is a relatively common problem in elite contact sports such as high-level American football.¹ Although many labral tears can be treated nonoperatively, most tears resulting in symptomatic instability require surgical stabilization.¹ The study “Recurrent Labral Tearing on Magnetic Resonance Imaging Is Not Predictive of Diminished Participation Among National Football League Athletes” by Knapik, Gebhart, Sheehan, Tanenbaum, Salata, and Voos² provides interesting insight into the prevalence of recurrent labral tears in National Football League (NFL) players at the NFL Scouting Combine and during their first year of NFL competition.²

The authors reported that 10% of NFL Scouting Combine athletes had previous surgery for labral tears of the shoulder, and that recurrent tearing was present on magnetic resonance imaging (MRI) in 32% of these shoulders, in line with previously published data.^{1,3,4} Their finding that no relationship existed between recurrent tearing and NFL games played or started in the athletes’ rookie year is an important one, because this lack of an association between imaging findings and sport limitations underscores the importance of a thorough history and physical examination. Many factors other

than MRI characteristics contribute to the functional implications of labral tears in high-level athletes, including the severity of symptoms, the position of the player, and the ability of the tear to be repaired. In fact, baseline MRIs on all asymptomatic athletes participating in the NFL Scouting Combine would likely demonstrate a high prevalence of radiographic labral pathology,⁵⁻⁷ especially in at-risk positions such as linemen, linebackers, and defensive backs.^{3,4} It is therefore paramount to distinguish between imaging findings that are discordant with the physical examination and history, and truly symptomatic injuries requiring treatment.

In some respects, these high-level football athletes can be compared with overhead athletes and throwers. For instance, Lesniak et al.⁶ reported that there was no correlation between the presence of labral pathology seen on MRI and time spent on the disabled list in asymptomatic major league baseball pitchers, and other studies in baseball players have shown similar results.⁸ A high prevalence of labral pathology on MRI and a lack of association with symptomatic injury has also been reported in swimmers, volleyball players, and handball players.^{5,9} The presence of labral injury on MRI should not be ignored however, because MRI has been suggested to be more sensitive in detecting labral tears than physical examination.¹⁰ Furthermore, symptomatic shoulder instability can result in significant morbidity, with joint health and career longevity implications, for contact athletes.⁴ A missed or delayed diagnosis resulting in recurrent instability could be devastating.

The results by Knapik et al. encourage further investigations in this NFL population. Games played and/

University of Pittsburgh Medical Center

The authors report the following potential conflicts of interest or sources of funding: J.P.B. receives consultancy fees from Arthrex. Full ICMJE author disclosure forms are available for this article online, as [supplementary material](#).

© 2017 by the Arthroscopy Association of North America
0749-8063/17901/\$36.00

<http://dx.doi.org/10.1016/j.arthro.2017.07.026>

or started is certainly a valid and relevant metric, although more granular data might reveal subtle functional limitations. Furthermore, it would be interesting to see how many of these recurrent labral tears were repaired at some point after the follow-up period. It is possible that the recurrent tears did not become symptomatic until after the first season, or that symptoms were managed nonoperatively until the offseason. Regardless of that, Knapik et al. provides valuable information on the impact of MRI-diagnosed recurrent labral tears in NFL prospects at the NFL Scouting Combine. We commend the authors on a well-performed study, and their results support a crucial tenet of sports medicine: "Treat the athlete, not the MRI."

References

1. Leclerc LE, Asnis PD, Griffith MH, Granito D, Berkson EM, Gill TJ. Shoulder instability in professional football players. *Sports Health* 2013;5:455-457.
2. Knapik DM, Gebhart JJ, Sheehan J, Tanenbaum JE, Salata MJ, Voos JE. Recurrent labral tearing on magnetic resonance imaging is not predictive of diminished participation among national football league athletes. *Arthroscopy* 2018;34:66-72.
3. Kaplan LD, Flanigan DC, Norwig J, Jost P, Bradley J. Prevalence and variance of shoulder injuries in elite collegiate football players. *Am J Sports Med* 2005;33:1142-1146.
4. Brophy RH, Gill CS, Lyman S, Barnes RP, Rodeo SA, Warren RF. Effect of shoulder stabilization on career length in national football league athletes. *Am J Sports Med* 2011;39:704-709.
5. Fredericson M, Ho C, Waite B, et al. Magnetic resonance imaging abnormalities in the shoulder and wrist joints of asymptomatic elite athletes. *PM R* 2009;1:107-116.
6. Lesniak BP, Baraga MG, Jose J, Smith MK, Cunningham S, Kaplan LD. Glenohumeral findings on magnetic resonance imaging correlate with innings pitched in asymptomatic pitchers. *Am J Sports Med* 2013;41:2022-2027.
7. Schwartzberg R, Reuss BL, Burkhart BG, Butterfield M, Wu JY, McLean KW. High prevalence of superior labral tears diagnosed by MRI in middle-aged patients with asymptomatic shoulders. *Orthop J Sports Med* 2016;4:2325967115623212.
8. Del Grande F, Aro M, Jalali Farahani S, Cosgarea A, Wilckens J, Carrino JA. High-resolution 3-T magnetic resonance imaging of the shoulder in nonsymptomatic professional baseball pitcher draft picks. *J Comput Assist Tomogr* 2016;40:118-125.
9. Jost B, Zumstein M, Pfirrmann CW, Zanetti M, Gerber C. MRI findings in throwing shoulders: Abnormalities in professional handball players. *Clin Orthop Relat Res* 2005;434:130-137.
10. Abrams GD, Safran MR. Diagnosis and management of superior labrum anterior posterior lesions in overhead athletes. *Br J Sports Med* 2010;44:311-318.