

History and Physical Examination for Identifying Rotator Cuff Tears

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Clinical Question

Which history and physical examination findings are most useful for identifying full-thickness rotator cuff tears?

Evidence-Based Answer

There are no historical features that reliably identify full-thickness rotator cuff tears. The physical examination maneuvers that best identify the presence of a full-thickness rotator cuff tear are the internal rotation lag test, the external rotation lag test, and a positive “belly-off” sign. The best maneuver to help confirm the absence of a full-thickness rotator cuff tear of the subscapularis is a negative internal rotation lag test. (Strength of Recommendation: B, based on a meta-analysis of heterogeneous diagnostic cohort studies and a single diagnostic cohort study.)

Evidence Summary

A 2013 meta-analysis of five high-quality diagnostic cohort trials ($N = 432$) examined findings from the history and/or physical examination in patients referred to orthopedists for suspected rotator cuff disease.¹ The trials detailed diagnostic sensitivity and specificity, and used surgery, ultrasonography, or magnetic resonance imaging as the reference standard with prespecified diagnostic criteria. No historical findings were helpful in identifying rotator cuff tears. The physical examination maneuver with the greatest positive likelihood ratio (LR+) for any full-thickness rotator cuff tear was the external rotation lag test ($LR+ = 7.2$); for subscapularis tears, the internal rotation lag test was the most useful ($LR+ = 5.6$). The internal rotation lag test was associated with the lowest negative likelihood ratio (0.04) for subscapularis tears.

A diagnostic cohort study examined the diagnostic validity of physical examination maneuvers in 139 patients with shoulder pain who were referred to two tertiary shoulder orthopedic practices.² Arthroscopy was the reference standard in patients who underwent surgery, whereas magnetic resonance imaging or ultrasonography was used in nonsurgical patients. The external rotation lag test had the greatest likelihood of detecting full-thickness tears of the supraspinatus ($LR+ = 7.8$) and infraspinatus ($LR+ = 6.3$).

Researchers developed an algorithm to help diagnose rotator cuff tears.³ In patients older than 50 years with a positive “belly-off” sign, external rotation lag test, or weak abduction, a rotator cuff tear should be suspected and magnetic resonance imaging considered. Patients in this study had been referred for orthopedic surgery and may have a higher prevalence of rotator cuff tears than that seen in primary care settings.

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