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Sports Update: Evaluation of the Unstable Shoulder

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Following are three new articles regarding evaluation of the unstable shoulder.

Kim SH, Ha KI, Han KY. Biceps load test: a clinical test for superior labrum anterior and posterior lesions (SLAP) in shoulders with recurrent anterior dislocations. *AM J Sports Med* 1999;27(3):300-303.

Yes, another test for superior labrum tears of the shoulder! There has been an explosion of new tests for labrum tears of the shoulder. Among those developed and studied over the last few years have included the Crank test, O'Brien's sign (active compression test) and the anterior slide test. The new biceps load test was designed and tested on patients with recurrent anterior dislocations. This subpopulation may respond differently than patients without a history of dislocation; therefore, extrapolation beyond this population is not recommended. The test is performed as follows:

- The patient is supine.
- The examiner sits on same side and abducts the shoulder to 90 degrees abduction with a light grasp on the wrist and elbow (forearm of patient is in a supinated position).
- The patient is allowed to relax, and an apprehension test is performed.
- When the patient becomes apprehensive with external rotation, the examiner stops externally rotating;
- The patient is then asked to flex the elbow against the resistance of the examiner.
- The examiner asks if the patient feels any difference with the contraction.

If the patient feels less apprehensive or more comfortable, the test is negative for a superior labrum tear. If the patient feels no change or the shoulder becomes more painful, the test is positive for a superior labrum

tear. The authors recommend repeating the test if positive, paying particular attention to instructions regarding the patient's need to flex at the elbow only and the examiner's need to keep the force in direct line with the muscle.

The test was performed on 75 patients (64 men, 11 women) with an age range of 16 to 41 years; the average age was about 25 years old. The biceps load test demonstrated a sensitivity of 90.9%; a specificity of 96.9%; a positive predictive value of 83%; and a negative predictive value of 98%, with a kappa coefficient of .85.

The authors suggest that in the position of abduction/external rotation, the biceps tendon acts to stabilize the shoulder through tightening of the capsule, reducing load to the inferior glenohumeral ligament and exerting a slight internal rotation force on the humeral head.

Levy AS, Lintner S, Kenter K, Speer KP. Intra- and interobserver reproducibility of the shoulder laxity examination. *Am J Sports Med* 1999;27(4):460-463.

This study evaluated the ability of four physicians (an orthopedic shoulder surgeon, two fellows and a resident) to rate the amount of shoulder instability in 43 asymptomatic Division I collegiate athletes. Using the standard anterior drawer, posterior drawer and sulcus signs as the tests used, examiners were blinded to whom they tested, and both intra- and interexaminer testing was performed. Three months after the initial evaluation, the same athletes were re-evaluated.

The grading system used was by Altcheck et al. This system uses a grading of 0-3. A zero would indicate no instability; grade 1 involves movement to the rim of the glenoid. A grade 2 is designated when the examiner feels the humeral head translate over the glenoid rim but does not lock. A grade 3 indicates the humeral head has locked over the rim. Another commonly used system by Cofield and Mansat uses the same descriptors; however, it uses the numbers 1-4 to indicate the same respective findings as the Altcheck 0-3 grades.

The intra- and interobserver agreement was quite poor using the grading system described; however, when the 0 and 1 grades were combined, there was some improvement. The overall intra-observer reproducibility was 74%. The kappa values were, however, less than 0.5 (no better than chance). When grades 0 and 1 were combined for interobserver agreement, reproducibility was 78%. The kappa values were greater than 0.5

only in posterior and inferior laxity evaluation.

Unfortunately, this indicated that clinical examination findings alone may not be reliable and must be combined with the history. The examination alone does not seem very reproducible, even with the same expert examiner. Some shortcomings of the study may have included patient positioning and the degree of force used by the examiners. Also, there are other stability tests for the shoulder other than the anterior and posterior drawer tests and the sulcus sign.

Oliashirazi A, Mansat P, Cofield RH, Rowland CM. Examination under anesthesia for evaluation of anterior shoulder instability. *Am J Sports Med* 1999;27(4):464-468.

Given the previous description of poor examiner agreement on testing for instability with the standard clinical examination, this study points to the need for testing under anesthesia for patients with equivocal in office findings. The researchers used 30 patients with unilateral traumatic recurrent instability and examined them under anesthesia. These authors are well known for the development of one of the grading systems used for rating shoulder instability. Some interesting findings were that using their system and requiring that a positive finding was at least translation two grades greater than the contralateral, uninjured side, the test sensitivity was 83% and the test specificity was 100%.

Contrasted to testing for anterior, posterior and inferior instability with neutral rotation where no significant difference was found between sides, they found a rotationally dependent sensitivity for anteroinferior testing. When the shoulder was externally rotated 40 and 80 degrees, humeral head translation was significantly greater than the contralateral, uninjured side; the difference was more pronounced at 80 degrees external rotation. In other words, there was significantly more laxity appreciated with the arm externally rotated 80 degrees in the unstable shoulder compared to the stable shoulder.

These findings might indicate some strategy for evaluating patients who are not anesthetized; however, further study needs to be performed to determine the degree to which rotation of the humerus affects the perception of the examiner when determining instability and the degree to which this represents true instability.



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