Diagnostic accuracy of clinical tests for superior labral anterior posterior lesions: a systematic review

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CRD summary
This review assessed clinical diagnostic tests for superior labral anterior posterior lesions of the shoulder. It concluded that no single test was sensitive or specific enough to determine accurately the presence of a superior labral anterior posterior lesion, and that further research was required. This conclusion may be reliable but the possibility of selection biases should be borne in mind.

Authors' objectives
To assess the diagnostic accuracy of clinical tests for superior labral anterior posterior lesions of the shoulder.

Searching
The following databases were searched from 1996 to 2006: MEDLINE, AMED, CINAHL, and SPORTDiscus. Search terms were reported. In addition five relevant journals were handsearched and references of identified studies and relevant reviews were checked. Only studies reported in English and published in peer reviewed journals were eligible for inclusion in the review.

Study selection
Studies of patients with shoulder pain who underwent at least one clinical shoulder test for superior labral anterior posterior lesions, and which compared the results with findings on arthroscopy, were eligible for inclusion. Studies were required to report sufficient data to permit the calculation of test sensitivity and specificity. Studies of patients who had experienced trauma with the diagnosis of fractures, or who had any systemic disease were excluded from the review.

Included studies assessed a large number of different tests in predominantly male athletes.

Two reviewers independently selected the studies for inclusion, with disagreements resolved through discussion and reference to a third reviewer where necessary.

Assessment of study quality
Two reviewers independently assessed the studies for validity using the QUADAS (Quality Assessment of Diagnostic Accuracy Studies) tool, with disagreements resolved through consensus and consultation with a third reviewer. A scoring system for the 14 items was employed which gave a maximum score of 26. The median score was calculated. Studies scoring higher than the median were classified as high quality, those scoring equal to or lower than the median were classified as low quality.

Data extraction
Likelihood ratios (LRs) with 95% confidence intervals (CIs) were extracted (where reported) or were calculated from reported sensitivity and specificity data.

The authors did not state how many reviewers performed the data extraction.

Methods of synthesis
The studies were combined in a narrative synthesis grouped by the test(s) assessed. Differences between the studies were apparent from the discussion and the accompanying evidence tables.

Results of the review
Seventeen studies investigating 26 tests were included in the review. The median QUADAS score was 19 (range 9 to 24), with eight studies classified as high quality and nine as low quality.
Five clinical tests (active compression, compression rotation, biceps load, biceps load II, crank test) were each reported by one study to have a positive likelihood ratio greater than 10. However, none of these values were confirmed by the other studies assessing these tests, and the majority were of low quality.

The highest quality paper (QUADAS score 24) compared three tests and found the resisted supination external rotation test to have higher sensitivity (83%, 95% CI 66 to 92) and specificity (82%, 95% CI 52 to 95) in the diagnosis of superior labral anterior posterior lesions of the shoulder than the active compression and crank tests.

**Authors' conclusions**
No single test was sensitive or specific enough to determine accurately the presence of a superior labral anterior posterior lesion of the shoulder. Further research is required to determine the impact of subgrouping patients by mechanism of injury or the type of superior labral anterior posterior lesion on diagnostic accuracy and to determine the accuracy of combinations of tests.

**CRD commentary**
The review question and inclusion criteria were clear but relatively broad. The authors searched a number of relevant databases and other sources, but the decision to restrict the review to peer-reviewed published studies reported in English may have led to the introduction of publication and language bias, as well as the exclusion of some relevant studies. The authors reported using rigorous review methods for the selection of studies and the assessment of validity, but not for the extraction of data. The validity assessment used an appropriate tool and a reasonable method of quantification, but the use of a median score to determine whether studies were considered to be high or low quality is not likely to be informative or appropriate. The authors' cautious conclusions reflect the evidence of the review and are probably reliable, but the possibility of selection biases should be borne in mind.

**Implications of the review for practice and research**

**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated that further research is required to determine if subgrouping patients by injury mechanism or type of superior labral anterior posterior lesion would improve diagnostic accuracy; and to determine the accuracy of combinations of two or more tests.

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.