

RESEARCH UPDATE: PHYSICAL EXAMINATION TESTS OF THE SHOULDER

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A comprehensive physical therapy examination involves many factors including a detailed subjective examination, postural assessment, range of motion measures, strength/selective tissue tension testing, palpation, and special tests. Ideally, a special test will help the clinician identify the pain-generating structures in order to define a specific diagnosis and plan of care. Additionally, a valid and reliable special test may eliminate the need for costly diagnostic testing procedures. When considering special tests, the clinician would find it most desirable to have a test that is both 100% specific and 100% sensitive. Specificity is the ability of a test to rule in the diagnosis when it is found to be positive. Sensitivity is the ability of a test to rule out the diagnosis if it is found to be negative. To simplify, the clinician can use "SPin" (Specificity, Positive, Rule In) and "SNout" (Sensitivity, Negative, Rule Out) as a helpful way to remember these terms.

A recent meta-analysis by Hegedus et al (2008) critiqued the research on the diagnostic accuracy of individual orthopaedic physical examination tests. Specifically, researchers sought to evaluate the Neer test for impingement, the Hawkins-Kennedy test for impingement, and the Speed test for superior labral pathology.

Although forty-five studies were examined, only half demonstrated high quality and only two had adequate sample size. *The Neer test revealed pooled sensitivity and specificity to be 79% and 53%, respectively. For the Hawkins-Kennedy test, pooled sensitivity and specificity was 79% and 59%, respectively. For superior labral tears (SLAP), the summary found the sensitivity and specificity of the Speed's test to be 32% and 61%.*

While other tests were examined, they were excluded from the meta-analysis due to either a lack of a significant number of studies or a lack of heterogeneity between studies. Of the tests studied, the list of tests with a high sensitivity and specificity is very short: the Hornblower's sign and the External Rotation Lag sign for tears of the rotator cuff, the Biceps Load II for SLAP lesions, and the Apprehension, Relocation, and Anterior Release tests for anterior instability. For rotator cuff integrity, the Drop Arm test demonstrated value as a specific test for tear of any rotator cuff muscle, but the statistical strength of this was very low. Furthermore, the Belly Press test and the Bear Hug test appear to be valuable for ruling in subscapularis tears when positive.

Recommendations from this meta-analysis are as follows:

- The Hawkins-Kennedy test may serve as a screen for impingement and the Supraspinatus/Empty Can test may confirm impingement.

- The External Rotation Lag Sign (ERLS) may have value as a specific test for any rotator cuff tear.
- The Hornblower's Sign may be diagnostic for severe degeneration or absence of the teres minor muscle.
- The ERLS may be diagnostic of an infraspinatus tear.
- The Bear Hug and Belly Press tests may be valuable for ruling in a subscapularis tear.
- The Biceps Load II appears diagnostic for SLAP lesions.
- The Apprehension, Relocation, and Anterior Release tests all appear to be diagnostic of anterior instability, especially when "apprehension" is used as a "positive" finding instead of the presence of pain.
- For AC joint pathology, pain with palpation may be valuable as a screen to rule out pathology (e.g. SNout). The Active Compression test may have value as a confirmatory test to rule in pathology due to high specificity (e.g. SPin).

The clinical significance of this study clearly is that special tests can be a valuable assessment tool for the shoulder examination but should not be the lone finding used in physical therapy prognosis or diagnosis. Use of special tests is a complement to a detailed history and specific questioning in the subjective examination which should direct the clinician to the patient's condition. That being said, it is then vital that the clinician have a solid understanding of biomechanics and tissue healing. In reality, special tests should confirm what the physical therapist already knows.

REFERENCE:

Hegedus EJ, Goode A, Campbell S, et al. Physical examination tests of the shoulder: a systematic review with meta-analysis of individual tests. *Br J Sports Med.* 2008; 42(2): 80-92.