Clinical assessment of the scapula: a review of the literature

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Introduction

This paper summaries the reliability and where available the validity of a number of clinical tests for assessment of both static and dynamic scapular position.

The paper refers to evidence of what the resting position of the scapula should be and the abnormalities that occur including tilting and winging. The paper acknowledges the validity of observation of the scapula's resting position has not been established.

The paper also reviews the observation of scapular motion and report on 4 trials that identify scapular dyskinesis. However, asymmetry is a common finding in both symptomatic and asymptomatic populations.

Methods

The paper also discusses the measurement of static scapular position but admit that it is dependent on the therapist's palpation skills. It describes and discusses the reliability of measures including the measurement of the distance between the posterior border of the acromion and table/wall; Baylor square and double square technique, pectoralis minor muscle length, the distance from the medial scapula border to the 4^{th} thoracic spinous process, and the 'scapular distance' measurement. The paper also details measures of scapular position at different degrees of elevation including the lateral scapular slide test (LSST) and the measurement of scapular upward rotation using inclinometry.

The use of a hand held dynamometer (HHD) to assess scapular muscle strength is discussed and gives a description of positional testing for middle, lower and upper trapezius and Serratus anterior. While HHD is a reliable test, it is dependent on the tester's strength also.

The final section describes measures of scapular dynamic control including the medial rotation test (MRT), and scapular retraction/repositioning tests (SRT) and modified scapular assistant tests (SAT) which both adjust the position of the scapula to alter symptoms.

Results

Overall, the paper suggests it is valid and reliable to use visual observation of scapular dyskinesis. It also identifies a number of reliable tests for the measurement of the static and dynamic scapular positioning: the measurement of the distance between the posterior border

of the acromion and the table, the Baylor square technique, the measurement of the distance from the medial scapular border to T4 or T3, the LSST, inclinometry and the assessment of the 'scapular distance'. The tests which are unreliable include measurement of the distance between the posterior border of the acromion and the wall, the modified LSST, and the double-square test with some question over the reliability of the pectoralis minor muscle length test. There is no evidence of reliability or validity of the MRT. While there is sufficient reliability of the SAT and SRT there is not information available on their validity. There are studies supporting the validity of visual observation of scapular dyskinesis, the assessment of the distance from the medial scapular border to the third thoracic spinous proves, the measurement of the pectoralis minor muscle length and digital inclinometry.

Conclusion

They raise the question of the need to treat altered scapular motion because asymmetry is common in both asymptomatic and symptomatic populations.

Review

Did the review address a clearly focused question? Can't tell – while patients with shoulder pain are the likely population studied some of the literature that it refers to are cadaveric studies and use asymptomatic populations. The tests are described briefly and the results i.e. reliability and validity are not clear until the discussion section.

Did the authors look for the appropriate sort of papers? There is no information on the type of papers they sourced. The paper probably used the best evidence available but this appears to be low quality.

Do you think the important, relevant studies were included? Can't tell – no information on how they sourced the papers and it is not clear if they omitted any papers of interest.

Did the review's authors do enough to assess the quality of the included studies? No – there is no mention of the quality of the studies that were included.

If the results of the review have been combined, was it reasonable to do so? The results were not combined in a meta-analysis way. Conclusions were drawn from the combined information.

What are the overall result of the reviews? This is mainly a descriptive paper with some information on the reliability and validity of a number of tests. Overall, the paper suggests it is valid and reliable to use visual observation of scapular dyskinesis. It also identifies a number of reliable tests for the measurement of the static and dynamic scapular positioning: the measurement of the distance between the posterior border of the acromion and the table, the

Baylor square technique, the measurement of the distance from the medial scapular border to T4 or T3, the LSST, inclinometry and the assessment of the 'scapular distance'. The tests that are unreliable include measurement of the distance between the posterior border of the acromion and the wall, the modified LSST, and the double-square test. There is some question over the reliability of the pectoralis minor muscle length test. There is no evidence of reliability or validity of the MRT. While there is sufficient reliability of the SAT and SRT there is no information available on the validity. There are studies supporting the validity of visual observation of scapular dyskinesis, the assessment of the distance from the medial scapular border to the third thoracic spinous process, the measurement of the pectoralis minor muscle length and digital inclinometry.

How precise are the results? No idea – conclusions drawn on relatively weak information.

Will the results help locally? Yes – it will give a weak level of evidence to a few methods of measuring scapular positioning.

Were all important outcomes considered? Can't tell

Are the benefits worth the harms and costs? There is no harm / costs using these assessment techniques except possibly time wasting, given there is insufficient evidence that identifying asymmetry or treating it is valid or worthwhile.