
Specific kinematics and associated muscle activation in individuals with scapular dyskinesis

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Setting the scene:

Knowledge of the kinematics and associated muscular activity in individuals with scapular dyskinesis may provide insight into the injury mechanism and inform the planning of treatment strategies. Scapular kinematics and associated muscular activation during arm movements in individuals with scapular dyskinesis were investigated in this study.

What did they do?

Scapular movements during arm raising/lowering movements were classified as abnormal single pattern (inferior angle prominence, pattern I; medial border prominence, pattern II; excessive/inadequate scapular elevation or upward rotation, pattern III), abnormal mixed patterns, or normal pattern (pattern IV). Scapular kinematics and associated muscular activation were assessed with an electromagnetic motion-capturing system and surface electromyography. More scapular internal rotation was found in pattern II subjects and mixed pattern I and II subjects than in control subjects during arm lowering. Scapular posterior tipping was less in pattern I subjects during arm lowering. Higher upper trapezius activity was found in pattern II subjects during arm lowering. In addition, lower trapezius and serratus anterior activity were less in mixed pattern I and II subjects during arm lowering.

Takeaway home message:

Specific alterations of scapular muscular activation and kinematics were found in different patterns of scapular dyskinesis. The findings also validated the use of a comprehensive classification test to assess scapular dyskinesis. To restore normal scapular movements, it may be necessary to inhibit the upper trapezius and activate the lower trapezius and serratus anterior in patients with medial border and inferior angle of scapular prominence. Because most of the changes occurred during the arm lowering phase, assessing scapular dyskinesis in this phase is especially important.