

Biomechanics of the Shoulder

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Abstract

The shoulder is a complex of 5 joints and disturbances at any of these joints are likely to interfere with the smooth rhythm observed in movements of this complex. The overall ratio of scapulothoracic to glenohumeral movement of 1:2 is made possible by a clockwork mechanism that involves movements at these 2 articulations with axial rotation of the clavicle that connects the shoulder girdle to the torso. Stability of the scapulothoracic, glenohumeral joints and acromio clavicular joints rely not only on the intrinsic capsular ligaments, bony architecture and musculature, but also on extrinsic ligaments that need to be addressed in management of instability at these joints. Of the soft tissues, premature degeneration and tears of the rotator cuff tendons pose special clinical problems by disturbance of the delicate balance between the cuff and the deltoid muscle.

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