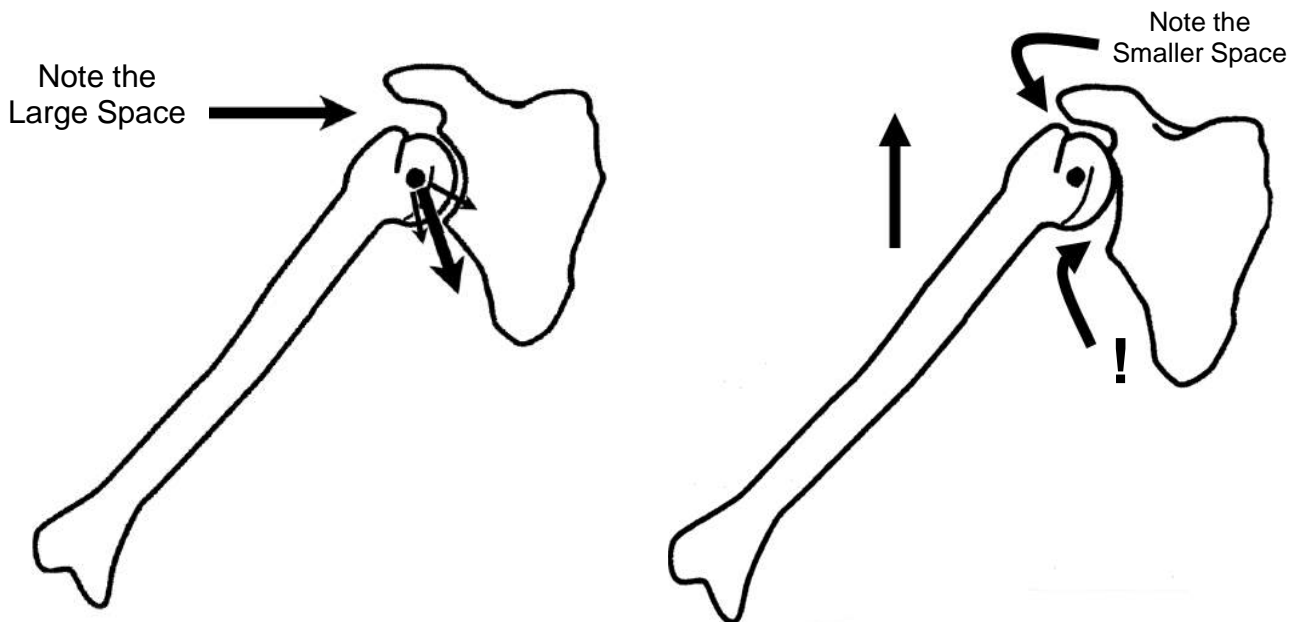


# The Role of the Rotator Cuff Muscles and Biceps Tendon as Depressors of the Humeral Head

(Or, their role in Pulling the Humeral Head Down Into the Glenoid Socket During Arm Elevation)

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- The deltoid and the rotator cuff normally work together to CENTER the humeral head in the socket (glenoid) during abduction of the shoulder. In fact, through much of shoulder elevation, these muscles pull the humeral head inward and downward (**see drawing below at lower LEFT**).
- Dysfunction or a tear of the rotator cuff results in an imbalance in this force couple that allows abnormal superior sliding of the humeral head on the shoulder socket. This causes pain and leads to arthritis (**see drawing below at lower RIGHT**).
- The long head of the **biceps** muscle also has a depressor effect on the humeral head.
- When the biceps is cut the humeral head can slide two-to-six millimeters upward when the arm is raised 45, 90, and 120 degrees in the plane of the scapula.



**Intact Upper Rotator Cuff**  
(intact supraspinatus)  
The large arrow shows how the rotator cuff muscles work together to pull the humeral head inward and downward.

**Absent/Deficient Upper Rotator Cuff**  
(absent supraspinatus)  
Note the upward sliding of the humeral head. This can cause arthritis.

