Joint Mobilization to Decrease Glenohumeral-Joint Impingement

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Impingement of the glenohumeral joint often involves the tendinous insertion of the supraspinatus or infraspinatus muscle on the humeral head pressing against the undersurface of the acromion process. The approximation of bony surfaces is increased as one elevates the humerus for use during functional activities. The underlying impingement has been anecdotally reported to be managed successfully with interventions including ice, ultrasound, and other therapeutic modalities, even though evidence-based literature fails to support such an approach.\textsuperscript{1,2}

Achieving full elevation of the humerus requires not only adequate abduction and flexion ranges of motion but also adequate inferior-glide accessory motion.\textsuperscript{3} Inadequate inferior gliding of the humerus is believed to be associated with the contact of the humeral head against the undersurface of the acromion, which compresses the soft-tissue components between the bony structures. Inferior glide of the humeral head is obtained only when the inferior capsuloligamentous tissue possesses extensibility sufficient to permit normal arthrokinematics.

Joint mobilization has been used successfully to restore humeral elevation in individuals with adhesive capsulitis by increasing the extensibility of the inferior aspect of the glenohumeral ligaments and adjacent capsular components.\textsuperscript{4} Adequate extensibility prevents approximation from occurring, maintains the space between the humeral head and the acromion, and subsequently improves the mechanics of humeral elevation and prevents bony approximation from occurring. With this in mind, one could therefore hypothesize that using a humeral-head inferior-glide joint-mobilization technique would reduce the impingement of the tendinous insertions of the supraspinatus and infraspinatus muscles on the greater tuberosity.

Joint Mobilization

Grades III and IV joint-mobilization techniques would be most appropriate because they are believed to improve tissue extensibility and increase the nutritional status of the joint. Grade III inferior-humeral-head glides would
incorporate a large-amplitude oscillatory movement at the end range of the available accessory motion, and a Grade IV glide would involve a slower, rhythmic oscillation at the end range of the accessory motion (Figure 1). The intervention can be performed from either a supine or a seated position and is most effective after application of a thermal agent that has the capability of increasing the temperature of the tissue within the inferior capsular region while simultaneously promoting muscle relaxation in the surrounding muscles (Figures 2 and 3). The target tissue in the axilla region should be placed in a stretch before the mobilization technique to facilitate tissue elongation. Caution should be taken when applying thermal agents—some might not be capable of penetrating to the depth of the tissue to achieve the goal of increasing tissue temperature. Treatment can be concluded with a sustained stretch of the inferior capsuloligamentous structures during the cooling phase for optimal results.

**Summary**

As with all other interventions, the effectiveness of the glenohumeral inferior glide to reduce glenohumeral-impingement symptoms should be assessed on a case-by-case basis. Improvement can be noted by a decrease in pain, an increase in range of motion, or an improvement in overall function of the glenohumeral joint.

**References**


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