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The Effect of Anterior Versus Posterior Glide Joint Mobilization on External Rotation Range of Motion in Patients with Shoulder Adhesive Capsulitis

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**Question:** Does the direction of force applied during mobilisation of the glenohumeral joint influence range of motion outcomes in patients with adhesive capsulitis?

**Study Design:** Randomised clinical trial. Glenohumeral external rotation (ER) active range of motion (AROM), pain, and a modified functional questionnaire were measured to compare the effectiveness between the two groups. A standard goniometer was used to measure ER AROM after each treatment session. Pretest and posttest pain measures were assessed utilising a visual analog scale. Each participant answered a 5-item functional questionnaire which had been adapted from a previously developed 21-item questionnaire (L’Insalata et al 1997).

**Participants:** Fifty-eight patients with a diagnosis of adhesive capsulitis or frozen shoulder were referred by orthopaedic physicians to physiotherapy. Thirty-eight failed to meet the authors stated inclusion/exclusion criteria. Subjects (n = 20) were randomised into one of two treatment groups: the anterior mobilisation (AM) group or the posterior mobilisation (PM) group. Two subjects from the PM group left the study prior to completion.

**Intervention:** The AM group received the following treatment protocol: continuous ultrasound (1.5 W/cm² for 10 minutes) to the anterior shoulder capsule, an anteriorly directed joint mobilisation protocol, and three minutes of upper-body ergometry. The PM group underwent a similar intervention programme except that the ultrasound was directed toward the posterior shoulder capsule and the mobilisation technique was directed posteriorly.

**Results:** After six treatment sessions the authors reported a significant difference in ER measures between groups with the PM group (mean increase 31.3° ± 7.4°) demonstrating a statistically significant increase (P < 0.001) as compared to the AM group (mean increase 3.0° ± 10.8°). Patients in both groups experienced significant decreases in pain (P = 0.01).

**Conclusion:** The authors conclude that PM techniques are superior to AM techniques for increasing glenohumeral ER motion.
Arguably, the greatest threat to this study relates to the homogeneity of the two groups. Adhesive capsulitis is reported to progress over a period of four stages. Each phase is highlighted by functional limitations and pathologic changes. At the start of the study the AM group had a mean duration of symptoms of 8.4 months (range 2 to 12 months) whereas the PM group had a mean duration of symptoms of 10.9 months (range 4 to 60 months). During the 'freezing stage' (3 to 9 months) and the 'frozen stage' (9 to 13 months) the ability of the patient to experience significant ROM changes are limited by pain and pathologic changes (Hannafin et al 2000). It is possible that the AM group failed to respond to the treatment protocol, whereas the PM group demonstrated significant increases, due in part to the particular stage of healing experienced by each group member (Hannafin et al 2000). Providing each group members' mean duration of symptoms would allow the reader to better compare the demographics of each group.

Based upon the threats to study design, the results are less clear as to the optimal manual therapy treatment protocol for patients with AC. Additionally, this study is unable to demonstrate the efficacy of utilising manual therapy or a combined self-stretching and mobilisation therapy program versus only a self-stretching program (Diercks et al 2004). Future prospective investigations should be conducted comparing outcomes of a self-stretching programme (Diercks et al 2004) with outcomes from a physiotherapy programme, utilising both self-stretching and manual therapy treatments.

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REFERENCES