

## ABSTRACT

### **Mobilization of the Thoracic Spine as an Adjunct to Treatment of Shoulder Impingement Syndrome**

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#### **Purpose**

The purpose of this study was to determine the extent to which thoracic mobilization was effective in increasing range of motion and decreasing pain in subjects with hypomobile, hyperkyphotic spines who were also being treated with exercise and manual therapy..

#### **Methodology**

The research design utilized in this study was a single-subject A – B experimental design in which baseline measurements were taken during six sessions and intervention measurements were taken during five sessions. Range of motion was measured with the goniometer and pain was measured with both the horizontal visual analog scale and Neer's impingement sign technique.

The subject selected for the study possessed a Stage II Impingement Syndrome and was compatible with all the other inclusion/exclusion criteria.

Data were analyzed using a two step process: (1) measurements taken during the baseline phase were entered into scatter diagrams, celeration lines were drawn that extended into the intervention phase of the diagrams, then intervention phase measurements were entered into the scatter diagrams as well; and (2) the binomial test was computed to determine if the differences between celeration lines and actual measurements were statistically significant.

#### **Findings**

Range of motion measurements were taken in flexion, external rotation with adduction, external rotation with 90 degrees of abduction, and internal rotation with extension. In each instance, the subject reached a plateau during the baseline phase that extended into the treatment phase so range of motion measurements taken during the treatment phase did not reach statistical significance.

Regarding the other variable, the subject's pain measurements declined during the baseline phase to the point that a near pain-free status had been reached by the beginning of the intervention phase. Thus, the minor changes that occurred in the intervention phase were not sufficient to produce statistical significance with either measure.

## **Conclusions**

This subject responded well to treatment consisting of exercise and manual therapy to the glenohumeral joint during the baseline phase, thereby making significant improvement during thoracic mobilization in the intervention phase virtually impossible. The results of this study do not conclusively determine that thoracic mobilization is not an effective adjunct to treatment for shoulder impingement syndrome, only that it was not effective with this patient because he responded so well to the baseline treatment.

Recommendations for further research include selecting a larger sample of subjects who have not responded well to exercise and manual therapy of the shoulder girdle, plus altering the research design to include a control group.