

DISORDERS OF THE SHOULDER: POSTERIOR CAPSULE TIGHTNESS

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Background: In literature it has been shown that posterior capsule flexibility is a preparatory factor in shoulder problems. Posterior stretching exercises are very important in implementing exercise programs. However, no study has been encountered to show the influence of the flexibility in posterior capsule in different shoulder pathologies.

Purpose: To compare posterior capsule tightness in different shoulder problems.

Design and Setting: Controlled clinical trial

Patients or Other participants: 70 patients diagnosed with shoulder impingement syndrome (n=32), partial rotator cuff tear (n=16) or frozen shoulder (n=22) and 15 healthy peers participated in the study.

Methods: Horizontal adduction was assessed in side-lying position for posterior capsule stiffness. Pain was measured via the visual analogue scale, shoulder range of motion and active total elevation was assessed by goniometer and active internal rotation was determined by measuring the distance between T5 and the thumb. In order to compare the posterior capsule flexibility of the groups, the difference between healthy side and affected side was analysed by Paired Samples test. Correlation of posterior capsule and pain and range of motion was analysed by Pearson Correlation Test.

Results: It was found that the affected side of the posterior capsules of the patients with impingement syndrome ($p < 0.001$), partial rotator cuff tear ($p = 0.003$) and frozen shoulder ($p < 0.001$) were stiffer than their healthy side. There were no significant differences among groups of the difference of the stiffness in posterior capsule between the affected and the healthy side ($p > 0.05$). Active total elevation ($p = 0.013$, $r = 0.269$), active internal rotation ($p = 0.009$, $r = -0.318$) and range of motion of the flexion ($p < 0.001$, $r = 0.412$) of the shoulder and the posterior capsule stiffness of affected side are found to be correlated. Posterior capsule stiffness is also correlated with night pain intensity ($p = 0.002$, $r = -0.340$). Although no significant difference was seen; the difference of posterior capsule stiffness between healthy and affected side among groups was greatest in patients with frozen shoulder (frozen shoulder $X \pm SD = 3.77 \pm 3.43$ cm, impingement syndrome $X \pm SD = 2.53 \pm 3.06$, rotator cuff tear $X \pm SD = 2.68 \pm 3.02$ cm and the control group $X \pm SD = 0.63 \pm 1.47$).

Conclusions: This study emphasized that the susceptibility of posterior capsule in frozen shoulder, impingement syndrome and rotator cuff tears stiffness varied between different shoulder problems. Also it is related to active total elevation, internal rotation and flexion of the shoulder and night pain.

Clinical Relevance: While implementing exercise program for such patients, especially stretching exercises could be helpful for increasing range of motion and decreasing the night pain.