

# Correction of Posterior Shoulder Tightness is Associated with Symptom Resolution in Patients with Internal Impingement

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**Objective:** Glenohumeral internal rotation deficit (GIRD) and posterior shoulder tightness has been linked to internal impingement. The purpose of this study was to determine if improvements in GIRD and/or decreased posterior shoulder tightness are associated with a resolution of symptoms.

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**Methods:** Twenty-two patients (11 men, 11 women; age  $41 \pm 3$  yr) diagnosed with internal impingement were studied. Inclusion criteria were GIRD  $>10$  deg, a positive relocation test and posterior superior shoulder pain. Passive internal rotation (IR) and external rotation (ER) range of motion (ROM) was assessed at 90 deg of shoulder abduction. Posterior shoulder tightness was assessed with cross chest adduction in side-lying. Treatment involved stretching and mobilization of the posterior shoulder. The Simple Shoulder Test (SST) was administered on initial evaluation and discharge. Changes in GIRD, ER ROM and posterior shoulder tightness were compared between patients with complete resolution of symptoms (SST 12/12) versus patients with residual symptoms (SST  $<12/12$ ) using independent t-tests. Based on the variability of GIRD and posterior shoulder tightness in patients with internal impingement reported in previous studies it was estimated that an 11 deg difference in GIRD improvement and an 8 deg difference in posterior shoulder tightness improvement could be detected between patients with and without resolution of symptoms at  $P < 0.05$  with 80% power in a sample of 22 patients. Mean  $\pm$  SD reported.

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