RESEARCH UPDATE: CHALLENGING 2000 YEARS OF CONVENTIONAL WISDOM

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For 2000 years, individuals with shoulder dislocations have been immobilized with their upper extremity resting on the trunk in the hopes of preventing recurrence[1,2]. While this has been the standard practice, no literature on the scientific basis of this exists. Redislocation rate varies from 47% to 100%[3-7]. Within the last few years, researchers have proposed a new position for immobilization, *external* rotation, after anterior shoulder dislocations. While the concept may seem radical, it certainly is thought-provoking, and it truly challenges us to "think outside the box."

A cadaveric study by Itoi and others[8] sought to determine the position of a Bankart lesion following immobilization in different positions. Researchers found that with the arm in adduction and from full internal rotation to 30° of external rotation, the Bankart lesion was "coapted", or re-united, with the glenoid. With the arm in 30° of flexion or abduction, the edges of the lesion were coapted in neutral and internal rotation but were separated in external rotation. The study suggested that positions that increase soft tissue tension, such as adduction and ER or abduction and neutral rotation, may be preferable to the conventional position. Similarly, Miller et al[9] found that the glenoid-labrum contact in ten cadaveric shoulders immobilized in external rotation was much higher, potentially increasing the healing of a Bankart lesion.

Itoi and colleagues[10] sought to use MR imaging to measure the affect of arm rotation on the approximation of Bankart lesions following dislocation of the shoulder. Eighteen patients with traumatic anterior dislocations were included in the study. Twelve

had recurrent dislocations, and six were initial dislocators. MR imaging of the glenohumeral joint was taken at neutral and at the range of external rotation that felt most comfortable to the patient. Imaging studies showed that in internal rotation, the joint cavity of the glenoid was wide open. With the arm in external rotation, the anterior joint cavity was closed and the labrum lay on the glenoid rim.

The same group of researchers then followed up this study with a prospective study to determine if positioning the arm in external rotation would reduce the rate of recurrence[11]. Forty patients with initial dislocations were assigned to conventional internal rotation and 10° of external rotation. The first ten were alternatively assigned, and then the remaining thirty were randomly assigned. Both groups were immobilized for three weeks, and compliance rates were reported. Recurrence rate was 30% in the internal rotation group and 0% in the external rotation group. It is interesting to note that in the subjects younger than thirty years old, recurrence in internal was 45% and 0% in external. The average follow up was 15.5 months. An anterior apprehension test was performed at follow-up, and the test was positive in 14% of internal and 10% of external.

Deyle and Nagel[12] described a six-week immobilization period in 30° of abduction and neutral rotation in a 19 year-old recreational basketball player. In addition to the prolonged immobilization, the patient had protected range of motion activity for 6 additional weeks. At 20 month follow up, the patient had no recurrent instability. Recently, Itoi et al[13] did a randomized, controlled trial of 168 patients with initial anterior dislocations who were randomly assigned to be treated with immobilization for three weeks in either internal rotation or external rotation. After a two-year follow up, the recurrence rate was 26% and 42% in external and internal rotation, respectively.

Additionally, in subjects aged thirty years or younger, the relative risk reduction was 46%.

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