

## Shoulder: Instability vs. Laxity

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During the recent World Series it was amazing to see how far the pitchers were able to externally rotate their shoulders. They have developed a sling shot where speed is dependent on how far they can externally rotate.

Passive examination of these throwing arms would reveal an excessive anterior translation. In examining for excessive humeral translation a grading system +1 to +3 is used.<sup>1</sup> Plus one means that the humeral head can be moved farther in an A-P and/or P-A direction than the contralateral shoulder without passing the lateral rim of the glenoid. Plus two means that the humeral head can be subluxated over the glenoid rim and immediately returns to neutral after pressure is released. Plus three means that the humeral head can be locked over the glenoid rim. Plus one and plus two could be totally asymptomatic and considered just hyperlax.

Laxity of the glenohumeral joint is defined as an asymptomatic hypermobile joint with the ability to maintain its centering in the glenoid fossa. Loss of this centering ability during shoulder activity associated with symptoms is a definition of instability. Therefore it is possible to examine a +2 anterior and +2 posterior laxity with a diagnosis of hyperlaxity and an anterior instability with a +1.<sup>2</sup> Speer states<sup>2</sup> that he has never seen a +3 without symptoms. The above are evaluated with specific apprehension tests that are not discussed in this article.

Patients with instability do not necessarily have a history of a previous dislocation or even a feeling that their shoulder is "going out of place." They may present with fatigue, discomfort, pain, apprehension, paresthesia or numbness as their main problems,<sup>3</sup> or with an impingement syndrome secondary to the instability.

Often a patient may present with hypermobility on testing in more than one direction. They may not have a history of trauma and on examination show laxity of other areas such as a hyperextended elbow or a thumb that on wrist flexion can reach their forearm. These patients with overuse are often accidents waiting to happen. On the other hand, patients through repetitive microtrauma due to butterfly swimming or gymnastics can also develop multidirectional instability. Examination of other joints in their body may prove normal regarding mobility.

It is important that the demonstration of instability reproduces the symptoms of the patient. The relocation test which pushes the humeral head posterior may relieve a patient with a positive apprehension sign, i.e., pain on excessive anterior translation, indicating an instability factor as a cause of shoulder pain. Shoulder pain not relieved by the relocation test may be due to a primary impingement<sup>4</sup> and impingement symptoms that are relieved by the relocation test are probably due to the instability causing a secondary impingement.

The main goal of conservative treatment for instability is to intensively bring the neuromuscular system (especially the rotator cuff) to its maximum in order to overcome the loss of the static restraints.

## *References*

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