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Shoulder Rehabilitation Part III

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The previous two articles on shoulder rehabilitation discussed basic generalities of shoulder rehabilitation and rehabilitation for tendinitis. All of this information is pertinent for the following discussion of rehabilitation of shoulder hypo- and hypermobility.

Shoulder hypo- and hypermobility usually refer to the passive shoulder tissue such as the glenoid labrum, capsule, and ligaments, especially the inferior glenohumeral ligament, but the rotator cuff muscles are also significant. The inferior glenohumeral ligament is shaped like a hammock and is considered the main static stabilizer to both anterior and posterior shoulder dislocation in the abducted position.¹ The subscapularis muscle is also important in aiding the inferior glenohumeral ligament in preventing anterior dislocation up to 90 degrees abduction, but Rowe² found that in 158 shoulders operated on for recurrent anterior dislocation, the subscapularis muscle was normal in 83 percent. Rowe also states that the most common lesion resulting in recurrent shoulder dislocation and subluxation is loss of stability along the rim of the glenoid due to avulsion of the capsule and labrum from the rim, which is known as Bankart's lesion. The rotator cuff muscles also act as dynamic shoulder stabilizers and their weakness can add to the problem of instability. In swimmers and pitchers there is often overdevelopment of the internal rotators over the external rotators. This may cause abnormal anterior translation of the humeral head causing traction stress on both the muscular and ligamentous structures resulting in recurrent subluxation or dislocations.

Conservative rehabilitation of shoulder instability must stress the rebuilding of the muscles that restrain the direction of the instability. For anterior instability the anterior deltoid and subscapularis would be the principal muscles to build. For posterior instability the posterior cuff (infraspinatus and teres minor) and posterior deltoid would be the main muscles to strengthen. It is important when rebuilding these muscles that further stretching of the capsule in the direction of the instability is not created. For example, the anterior muscles should be strengthened in a range that does not cause pain in a range of excessive external rotation, abduction and extension while the posterior muscles should be strengthened in a range that does

not overly stress abduction and internal rotation. The terminal ranges of these movements may be stressed only when adequate healing and strengthening has taken place. All phases of exercises as discussed in the previous two articles, including concentric and eccentric strengthening, should be followed.

As with other areas of our structure (spine, etc.) hypomobility may coexist with hypermobility. Anterior instability may be associated with tightness of the posterior deltoid, posterior capsule, and rhomboids which may require stretching. A tight posterior deltoid can push the head of the humerus too far forward in the glenoid when it contracts.³ Unfortunately, if there is a severe lesion of the capsule or labrum (Bankhart lesion), conservative strengthening of the rotator muscles will not be enough.

Conservative treatment for acute instability requires immobilization with gentle active or assistive exercise within one to three weeks.⁴ Young patients may require three to four weeks of immobilization while older patients (over 30 years) may only require one week of immobilization since they have lower incidence of recurrent dislocation.⁴ Early painless movement is important to prevent the build-up of excessive scar tissue resulting from immobilization.

Hypomobility of the shoulder is mostly caused by adhesions of the shoulder capsule and periarticular tissues. Passive examination will reveal a harder end-feel than the normal capsular shoulder end-feel. In advanced arthrosis of the shoulder, even a bone-to-bone end-feel may be felt. The earliest passive motion to be limited is usually lateral rotation. Rehabilitation must be directed at both the contractile tendons and muscles besides the inert capsular ligamentous tissue. Therapeutic muscle stretching⁵ and contract/relax techniques should be used for the contractile components while prolonged stretching should be used for the passive structures. Sapega et al.⁶ discuss the use of "prolonged low-intensity stretching at elevated tissue temperatures and cooling the tissue before releasing the tension." The patient is instructed to lie supine with the shoulder in as much abduction, extension, and lateral rotation as possible, holding in his hand a one or two pound weight if tolerated (i.e., minimal discomfort, not painful), for up to an hour. During this period moist heat is applied. At the end of this period an ice pack is applied for ten to fifteen minutes while the shoulder is still being stretched.

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