

Sports-Related Injuries

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Rather than the regular soft tissue article this month, I thought that a series of recent informative nuggets concerning sports-related injuries might be worthwhile.

Rehabilitation of the larger muscles of the shoulder (*deltoid, pectoralis major, and latissimus dorsi*) should be delayed until normal scapular and rotator cuff function is achieved.¹

In a patient with a rupture of the subscapularis, you will usually find increased passive external rotation on the symptomatic side. This should be tested with the patient in a supine position, with the arm adducted and the elbow flexed to 90 degrees. This increase in external rotation ranges from 10 to 40 degrees, compared to the normal arm.²

The lift-off test for subscapularis weakness is performed by passively placing the patient's affected arm behind the body and then lifting the hand off of the lower back. The patient is asked to maintain this position when the examiner releases the hand. If the arm drops against the patient's lower back, this is a positive lift-off test result, and it indicates that the subscapularis is torn and cannot maintain active internal rotation.²

To properly test for elbow ligamentous sprain for pain and laxity on the medial side (ulnar collateral ligament), apply a valgus stress with the elbow flexed to between 20 and 30 degrees, with the forearm pronated. Pronation relieves stress on the flexor mass during valgus stress, to eliminate the medial musculature as a source of pain.³

In the golf swing, pain at the end of the backswing is probably due to the supraspinatus, which is the prime mover, rather than the deltoid.⁴

In tennis, muscle activation in the serve and forehand groundstrokes is greatest for the subscapularis, the *pectoralis major* and the *serratus anterior muscles*. The backhand involves largely the middle deltoid, supraspinatus, and the infraspinatus.⁵

Overuse tendon injuries are different from acute tendon injuries in two ways:

1. absent or few inflammatory cells, and;
2. predominant degenerative changes thought to result from cell matrix adaptation to failed self-repair.

This is why overuse tendon injuries fall under the category of tendinosis, which is tendon degeneration without signs of inflammation.⁶ Lateral epicondylitis or "tennis elbow" is a common example of tendinosis.⁷

The transverse humeral ligament is no longer believed to be the main ligament keeping the biceps

tendon in the *bicipital sulcus*. The superior glenohumeral ligament and the coracohumeral ligament that forms a sling around the biceps tendon are the main ligaments preventing medial dislocation of the biceps tendon.⁸

There is still much controversy regarding the function of the biceps tendon pertaining to the shoulder. It appears that at less than 90 degrees of shoulder abduction the biceps functions as a passive humeral head stabilizer, while with more than 90 degrees, it functions as an elevator of the arm.⁸

Primary bicipital tendinopathy is rare (five percent). Most of the time it is secondary to impingement or glenohumeral instability.⁸

Chronic tendonitis does not refer to inflammation of the tendon. It refers to inflammation of the paratenon (previously called peritendinitis, tenosynovitis, tenovaginitis) along with degeneration of the tendon. Another way of expressing chronic tendonitis is "paratenonitis with tendinosis."⁷

Cortisone use has never demonstrated accelerated healing or a return to normal function. While it suppresses inflammation by inhibiting capillary dilation, inflammatory cell migration and tissue edema, it inhibits capillary and fibroblast proliferation and collagen synthesis during the repair phase of healing.⁹

References

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