

Athletes with Subscapularis Tendon Tear Can Return to Full Sports Activity

Normal shoulder movement and function requires that all parts of the rotator cuff are intact and working together. If even one muscle/tendon units that make up the rotator cuff is damaged, there is an imbalance in the force and load placed on the shoulder joint leading to abnormal joint biomechanics (movement).

The largest muscle in the rotator cuff is the subscapularis. This muscle helps rotate the shoulder and arm inward (internal rotation). The subscapularis also helps stabilize the shoulder in the socket and prevent forceful anterior (forward) dislocations.

The subscapularis also helps balance the force applied on the shoulder from the posterior (back side of the) rotator cuff muscles. It surrounds the entire shoulder joint like an envelope (front, back, side, and under the arm). Any weakness on one side of the shoulder due to the rotator cuff will affect how the rest of the cuff functions.

In this study, surgeons from Germany report on the results of open surgery to repair full-thickness subscapularis tears. As the largest of the muscle/tendon units, it is also one of the strongest. But as the authors of this study point out, subscapularis tears are more common than previously recognized.

The 30 patients in this study ranged in age from 15 to 64. The majority of the group was male who injured the arm during sports. The mechanisms of injury were reported as 1) a fall backward on the outstretched arm, 2) a direct blow to the shoulder, 3) an anterior (forward) shoulder dislocation, or 4) backward motion of the shoulder (extension) when the arm was in an abducted position. Abduction places the arm away from the body either out to the side or up over head as when throwing a ball forward.

In all patients, the subscapularis tendon was fully torn or ruptured. This is called a full-thickness tear. Some were severely torn, pulling the tendon away from the bone. Severity of tear was also judged by how far the torn tendon retracted (pulled away) from the bone when torn.

Treatment is usually surgical, especially for athletes who want to get back into action as soon as possible. In this study, surgery was done. Any other damage to the shoulder (muscles, ligaments, or joint) was also repaired at the same time.

Surgical techniques used differed depending on the location and severity of tendon tear/rupture. Type of sport the athlete played was also considered when planning the specific surgical approach. Attention was paid both to functional demand and to the patient's age.

The authors described their operative technique for the subscapularis and for those athletes who also tore the long head of the triceps tendon. After surgery, shoulder motion into external (outward) rotation was restricted for six weeks.

A shoulder splint was worn for the first three weeks. No lifting and no vigorous activity were permitted for three months. Physical therapy training helped the athletes return to their chosen sports six months after surgery.

A closer look at the results showed an 87 per cent satisfaction rate with the final outcomes. Motion, strength, and function were good with very few problems or complications. Two patients reported ongoing joint stiffness. There were no cases of infection or nerve damage following surgery.

The surgeons involved in this study took the opportunity to test the value of clinical tests used to evaluate patients before surgery (range-of-motion, muscle strength, arm lift-off test, belly press test). They were looking for pre-operative factors that might predict post-operative results.

They found that putting off surgery after the initial injury was a risk factor for less than optimal results. The longer the tendon remains un-repaired, the more likely the damaged area fills in with fat cells. The more fat infiltration present, the more likely it is that the repair will fail (re-rupture).

The authors concluded that early repair of full thickness subscapularis muscle/tendon tears gives the best results. When restored quickly, there is less chance for scar tissue or fat to fill in and greater likelihood that full function can be restored. Patients with subscapularis muscle/tendon tears do return to their pre-injury level of sports participation. And that's the best news.

Reference: Christoph Bartl, MD, et al. Open Repair of Isolated Traumatic Subscapularis Tendon Tears. In American Journal of Sports Medicine. March 2011. Vol. 39. No. 3. Pp. 490-496.