

Surgical Treatment of Thumb UCL Injuries with Suture Augmentation



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Opinion

It is common for elite athletes to sustain thumb ulnar collateral ligament (UCL) injuries while playing their respective sport. Typically, the mechanism of injury is a radially directed force to the thumb, usually from a fall on the abducted thumb through means such as a ski fall or from sliding into a baseball base. The main goal for this patient population is to return them to sport the quickest and safest way possible.

In addition to the athlete population, many individuals rupture their UCL through every day activities, which can be acute or chronic. With the thumb providing up to 40% of hand function, stability and prevention of post-traumatic arthritis are of utmost importance to the hand surgeon. Injury to the structures surrounding the MCP joint results in a significant impairment of the hand and has been shown to lead to a loss of 22% of hand function. Due to the commonality of the injury and the importance of the MCP joint in the function of the thumb, the treatment of UCL ruptures is significant in the practice of orthopedics. This is done by many means, including direct repair and tendon and free tendon graft. Here we will highlight our preferred method which is surgical UCL repair with suture augmentation.

The current technique we prefer, and use is the Arthrex Suture Tape Augmentation originally described by Giacomo & Shin et al. [1], which has been shown to give increased stability into the thumb after surgery with limited postoperative immobilization. This technique involves creating drill holes for anchors into the proximal phalanx and metacarpal head at the origin and insertion of the ulnar collateral ligament, then loading Fiber Wire suture and Suture Tape onto a 3.5 mm Swivel Lock Anchor and inserting the loaded anchor into the proximal phalanx. A stitch is then thrown into the UCL at its distal free torn end with suture from the anchor at the proximal phalanx. The suture augmentation "Internal Brace" is then completed when the second anchor is inserted in the metacarpal head with suture tape coming from the distal anchor while the thumb is held in 30 degrees of flexion for appropriate

tensioning. The only variation from the original technique is use of a 3.5 mm Swivel Lock Anchor in the proximal phalanx rather than a 2.5 mm Push Lock Anchor as we feel the Swivel Lock is easier for insertion and has been shown to have greater pull-out strength. Postoperatively, the patient is seen in hand therapy on post op day #4 and placed in a hand based thermoplastic thumb spica orthosis. The patient begins motion on post op day 10 with the guidance of a hand therapist. The patient begins using the hand without the splint at 4 weeks postoperatively and returns to sport at 6 weeks postoperatively without restriction.

In previous research it has been shown that there is a wide range of time frames for return to sports utilizing the suture augmentation technique for repair of the thumb UCL. Carlson recommended a 6-8 week return to sport for basketball athletes [2]. Werner et al. [3] showed a mean 7 week return to play for collegiate football players. For athletes in season, Sochacki et al. [4] showed 34.8 days in the National Football League and Jack et al. [5] showed a mean of 56.2 days for Major League Baseball Players.

In the past five years, we have performed 55 UCL repairs using the Suture Tape Augmentation. We have had no patients return with re-ruptured UCLs and returned all patients to activity without any complications or laxity in the thumb. Four patients were high level alpine skiers, who returned to racing 4-6 weeks from surgery without complication. We believe that the increased strength and stability gained from suture augmentation allows athletes to return to their sport quicker and safer than conservative treatment or traditional surgical repair relying only on the integrity of the suture to ligament repair. The thumb MCP joint functions to provide a stable base for flexion and extension motion as well as a post for opposition and pinch. Because of this, stability of the MCP joint is essential for hand function. The UCL provides critical stability to the thumb MCP joint during pinch and grip and is therefore important to the function.

Summary

In conclusion, the stability of the MCP joint is important to both the general population and the elite athletes. In our experience, surgical fixation with suture augmentation has led to increased stability postoperatively with excellent results. It is therefore our recommendation to perform this procedure to release athletes back to their sport and the general population back to activities of daily living quicker and safer.

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