

Docking technique to repair torn elbow ligament yields favorable results in teen baseball players

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A study at Hospital for Special Surgery (HSS) found that a surgical procedure known as the "docking technique" to repair a torn elbow ligament in teenage athletes yielded favorable results. The outcomes were better than those in previously published reports on reconstruction of the ulnar collateral ligament (UCL), also known as Tommy John surgery, in this age group and may be attributed to technique-specific factors, according to the study authors.

The paper, titled, "The Docking Technique for Elbow Ulnar Collateral Ligament Insufficiency: Two-Year Follow Up in Adolescent Athletes," will be presented at the annual meeting of the American Academy of Orthopaedic Surgeons on March 21 in Chicago.

"Over the last decade, the incidence of ulnar collateral [ligament tears](#) has dramatically increased in the adolescent population due to widespread participation in overhead sports such as baseball," said David W. Altchek, M.D., senior author of the study and co-chief of the Sports Medicine and Shoulder Service at HSS. Dr. Altchek is also medical director for the New York Mets baseball team and medical consultant for the [National Basketball Association](#).

Dr. Altchek noted that previous reports suggest that clinical outcomes following UCL reconstruction in teenage athletes are inferior to results in higher-level adult athletes. He and his colleagues set out to determine

if UCL surgery using the docking technique would result in improved outcomes in adolescent athletes.

The ulnar collateral ligament links and stabilizes bones of the upper and lower arm where they meet at the elbow. UCL injury is most common in professional and [amateur athletes](#) involved in overhead throwing sports such as baseball, softball, football, lacrosse and tennis. A UCL tear can occur suddenly or it can develop over time due to [repetitive stress](#) on the elbow.

When the ligament is torn, an individual still retains full range of motion and can go about daily activities. But a professional or aspiring pro athlete cannot perform at his usual level, and this is when surgery is considered. "The reason for surgery in the majority of cases is to get a serious athlete back to playing baseball or an overhead sport," explained Joshua Dines, M.D., an orthopedic surgeon in the Sports Medicine and Shoulder Service at HSS and one of the study authors. "An intact ulnar collateral ligament isn't needed for 98 percent of what people do in the game of life."

Patient selection and patient counseling are very important, according to Dr. Dines. "We carefully evaluate each patient to determine his or her goals and to see which treatment option would be best, and patient expectations are critical," he said. "We generally start with a conservative strategy of rest, anti-inflammatory medication and physical therapy. If those treatments fail and a young athlete wants to get back to his or her previous level of competition, surgery is considered." Patients must also be prepared for nine to 12 months of recovery and rehabilitation after the procedure. Dr. Dines is also a team physician for the U.S. Davis Cup Tennis Team and assistant team physician for the New York Mets.

The original UCL reconstruction surgery, first performed in 1974 by Dr.

Frank Jobe on Tommy John, who played for the Los Angeles Dodgers, involves taking a tendon from the patient's forearm or hamstring and then grafting it into the elbow to act as a replacement for the injured UCL. Surgeons weave the harvested tendon in a figure eight pattern through bone tunnels drilled in the ulna (lower arm bone) and humerus (upper arm bone) and suture the tendon into place. To do so, muscles are detached and the ulnar nerve needs to be moved.

Considered less traumatic than traditional UCL reconstruction or Tommy John surgery, the docking technique entails gently splitting the muscles rather than detaching them, requires that fewer holes be drilled in the humerus, and allows the ulnar nerve to remain in place. The muscle splitting technique allows surgeons to gain access to the bone by gently prying apart muscle fibers, similar to the way you can poke a finger through a knitted sweater. By minimizing the number of holes drilled into the bone, there is decreased risk of a postoperative fracture.

In the Hospital for Special Surgery study, 46 adolescent athletes (mean age 17 years, range 12-18 years) underwent UCL reconstruction using the docking technique. The majority of patients were baseball players, along with three gymnasts and three javelin throwers. Patients were evaluated at a minimum of two years postoperatively based on their ability to return to athletic activity.

At the most recent follow up, 89 percent (41 out of 46) of patients had excellent results (were able to return to the same or a higher level of competition). The study also had one good, two fair and two poor results. The fair result was noted in a revision case, and the two poor results occurred in patients who had concomitant capitellar osteochondritis dissecans (OCD) lesions. There were four postoperative complications in four patients (two gymnasts and two javelin throwers) who developed ulnar neuritis following reconstruction.

The study concludes that the docking technique results in favorable clinical outcomes in adolescent athletes with a UCL tear at two-year follow-up. Overall, results were better than those in previously published reports and may be attributed to technique. The paper also notes that athletes with coexisting elbow conditions or injuries should be counseled that they may experience inferior clinical outcomes from UCL surgery. Additionally, gymnasts and javelin throwers may be at increased risk for postoperative complications due to their sport's increased stress on the elbow.

Provided by Hospital for Special Surgery

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