

**Am J Sports Med. 2010 Sep 20. [Epub ahead of print]**

**Subjective and Objective Outcome After Revision Arthroscopic Stabilization for Recurrent Anterior Instability Versus Initial Shoulder Stabilization.**

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Abstract

**BACKGROUND:** The value of arthroscopic revision shoulder stabilization after failed instability repair is still a matter of debate.

**HYPOTHESIS:** Arthroscopic revision shoulder stabilization using suture anchors provides equivalent subjective and objective results compared with initial arthroscopic instability repair.

**STUDY DESIGN:** Cohort study; Level of evidence, 3.

**METHODS:** Twenty consecutive patients who underwent arthroscopic revision shoulder stabilization using suture anchors (group 2) were matched for age, gender, and handedness (dominant or nondominant) with 20 patients who had initial arthroscopic instability repair using the same technique (group 1). At the time of follow-up, a complete physical examination of both shoulders and evaluation with the Rowe score, Walch-Duplay score, Melbourne Instability Shoulder Score, Western Ontario Shoulder Instability Index, and the Subjective Shoulder Value were performed. In addition, standard radiographs (true AP and axillary views) were taken to evaluate signs of osteoarthritis.

**RESULTS:** After a minimum follow-up of 24 months, no recurrent dislocations were observed in either group. The apprehension sign was positive in 2 cases of revision surgery (0 vs 2;  $P > .05$ ). No significant differences in the Rowe score (89 vs 81.8 points) were found between groups 1 and 2 ( $P > .05$ ). However, group 2 revealed significantly lower scores in the Walch-Duplay score (85.3 vs 75.5 points), Melbourne Instability Shoulder Score (90.2 vs 73.7 points), Western Ontario Shoulder Instability Index (89.8% vs 68.9%), and Subjective Shoulder Value (91.8% vs 69.2%) ( $P < .05$ ). Signs of instability arthropathy were found more often in patients with arthroscopic revision surgery (2 vs 5;  $P > .05$ ).

**CONCLUSION:** Arthroscopic revision shoulder stabilization is associated with a lower subjective outcome compared with initial arthroscopic stabilization. The objective results found in this study may overestimate the clinical outcome in this patient population.

RECENSIONE

La stabilizzazione artroscopica della spalla nelle lesioni capsulolabrali acute (primo o secondo episodio di lussazione) è odiernamente riconosciuta come la metodica più idonea ed ormai considerata equivalente nei risultati alla chirurgia aperta. Tuttavia ancora molto si discute sull'indicazione nelle instabilità croniche e soprattutto nelle recidive dopo una prima chirurgia artroscopica. Questo lavoro ben analizza la possibilità di trattamento artroscopico nelle recidive di lesione. Ha però dei lacks importanti: il n° di pazienti è limitato; è un lavoro di rivalutazione mentre un lavoro prospettico sarebbe stato sicuramente migliore e di maggior significatività, manca un vero gruppo di controllo; non vi è analisi con MR dopo l'intervento a valutare la qualità della riparazione effettuata che è ciò che più interessa in questi casi.

Complessivamente un buon lavoro comunque che merita di essere letto.

**Arthroscopy. 2010 Sep;26(9):1172-80.**

**Arthroscopic posterior stabilization and anterior capsular plication for recurrent posterior glenohumeral instability.**  
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Abstract

**PURPOSE:** The purpose of this study was to evaluate the outcomes and identify predictors of success for arthroscopic posterior Bankart reconstruction with modern suture anchor repair and anterior capsulolabral plication in a well-defined patient population-recurrent, traumatic, involuntary, unidirectional posterior shoulder instability.

**METHODS:** Patients with recurrent, traumatic, involuntary, unidirectional posterior shoulder instability who underwent arthroscopic repair with a minimum of 2 years' follow-up were identified and evaluated retrospectively with outcome measures in the form of objective and subjective scores. Statistical analysis was performed to identify predictors of success with significance set at .05.

**RESULTS:** Twenty-nine consecutive patients with a mean age of 26.3 years underwent posterior reconstruction and anterior balancing capsulolabral plication as needed with a mean follow-up of 5.5 years. Outcome scores averaged as follows: American Shoulder and Elbow Surgeons, 90.7; University of California, Los Angeles, 32.6; Simple Shoulder Test, 11.7; and Western Ontario Shoulder Instability, 82.9% of normal. Recurrent instability occurred in 3.4% of patients, 84.6% returned to sports, and 96.6% of patients believed surgery was successful and worthwhile. Patients who were younger (<30 years) or patients with more extensive pathology who required additional surgical procedures or received supplemental anterior plication sutures had less reliable or worse outcomes ( $P < \text{or} = .041$ ).

**CONCLUSIONS:** In a traumatic patient population with involuntary, unidirectional posterior shoulder instability, modern suture anchor repair of posterior labral lesions is effective and provides reliable outcomes. Younger patients and patients with worse pathology who required additional procedures had less reliable outcomes. Patients with supplemental anterior plication had more postoperative pain, and this adjunctive procedure may not be necessary for traumatic posterior labral tear surgery.

**LEVEL OF EVIDENCE:** Level IV, therapeutic case series

**Knee Surg Sports Traumatol Arthrosc. 2010 Oct 17. [Epub ahead of print]**

**Posterior shoulder instability: current concepts review.**

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Abstract

**PURPOSE:** Posterior shoulder instability has been difficult to diagnose and even more challenging to manage. However, it is being diagnosed and treated more frequently, particularly after sports injuries. The purpose of this article is to review literature concerning the management of these pathologies.

**METHODS:** A literature review was carried out in the main medical databases to evaluate the several studies concerning the open and arthroscopic treatment of posterior shoulder instability.

**RESULTS:** Because of better awareness of the pathology, better technical investigations, and a better understanding of shoulder biomechanics, more and more mechanical factors that can cause posterior instability have been described. Structural abnormalities can be divided into bony abnormalities and soft-tissue abnormalities. Each group can also be divided into abnormalities caused by trauma (macro- or microtrauma) or congenital. These abnormalities can be treated with non-anatomic and anatomic stability procedures. During the last decades, the latter have been described more frequently, most of them arthroscopically.

**CONCLUSION:** For surgical treatment to be successful, the instability must be attributable to mechanical factors that can be modified by surgery. Because of better knowledge of the pathology, a more specific surgery can be performed. This lesion-specific surgery has improved clinical results compared to non-anatomic stability procedures, particularly when that surgery has been performed arthroscopically.

## RECENSIONE

L'instabilità posteriore di spalla, certamente di meno frequente riscontro rispetto ai casi di instabilità anteriore, presenta sia delle oggettive difficoltà diagnostiche che delle peculiarità eziopatogenetiche la cui conoscenza è di fondamentale importanza ai fini del trattamento della stessa.

In questi articoli viene svolta una esauriente revisione delle letterature sia per quanto concerne le cause della instabilità posteriore sia per quanto concerne le possibilità di trattamento anche in relazione alle recenti metodiche artroscopiche, specialmente per quanto concerne la indicazione chirurgica in relazione alla causa eziopatogenetica delle lesioni.

Entrambi i lavori concludono per la validità della metodica artroscopica specialmente nel trattamento delle forme traumatiche e con lesioni non eccessivamente importanti, mentre aperta rimane l'ipotesi del trattamento nelle forme di instabilità volontaria da lassità articolare, patologia che suscita tutt'oggi contraddizione e dubbi anche per le instabilità anteriori.

In entrambi i lavori la casistica non è particolarmente ampia e sono lavori di livello III e IV quindi non ad alta validità statistica. Tuttavia possono comunque fornire valide indicazioni sul trattamento e la predetta revisione delle letterature è più che valida.

**BMC Musculoskelet Disord. 2010 Oct 8;11:230.**

**The association between retraction of the torn rotator cuff and increasing expression of hypoxia inducible factor 1 $\alpha$  and vascular endothelial growth factor expression: an immunohistological study.**

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Abstract

ABSTRACT:

**BACKGROUND:** Differing levels of tendon retraction are found in full-thickness rotator cuff tears. The pathophysiology of tendon degeneration and retraction is unclear. Neoangiogenesis in tendon parenchyma indicates degeneration. Hypoxia inducible factor 1 $\alpha$  (HIF) and vascular endothelial growth factor (VEGF) are important inducers of neoangiogenesis. Rotator cuff tendons rupture leads to fatty muscle infiltration (FI) and muscle atrophy (MA). The aim of this study is to clarify the relationship between HIF and VEGF expression, neoangiogenesis, FI, and MA in tendon retraction found in full-thickness rotator cuff tears.

**METHODS:** Rotator cuff tendon samples of 33 patients with full-thickness medium-sized rotator cuff tears were harvested during reconstructive surgery. The samples were dehydrated and paraffin embedded. For immunohistological determination of VEGF and HIF expression, sample slices were stained with VEGF and HIF antibody dilution. Vessel density and vessel size were determined after Masson-Goldner staining of sample slices. The extent of tendon retraction was determined intraoperatively according to Patte's classification. Patients were assigned to 4 categories based upon Patte tendon retraction grade, including one control group. FI and MA were measured on standardized preoperative shoulder MRI.

RESULTS: HIF and VEGF expression, FI, and MA were significantly higher in torn cuff samples compared with healthy tissue ( $p < 0.05$ ). HIF and VEGF expression, and vessel density significantly increased with extent of tendon retraction ( $p < 0.05$ ). A correlation between HIF/VEGF expression and FI and MA could be found ( $p < 0.05$ ). There was no significant correlation between HIF/VEGF expression and neovascularity ( $p > 0.05$ )

CONCLUSION: Tendon retraction in full-thickness medium-sized rotator cuff tears is characterized by neovascularity, increased VEGF/HIF expression, FI, and MA. VEGF expression and neovascularity may be effective monitoring tools to assess tendon degeneration

## RECENSIONE

Sempre maggiore attenzione viene posta alla biologia della riparazione ed alla biochimica e sempre maggiore interesse suscitano studi in merito ai fattori di crescita ed ai meccanismi biochimici di degenerazione/rigenerazione ed apoptosi cellulare nelle riparazione dei tendini della cuffia dei rotatori. Questo lavoro è ben fatto e molto interessante soprattutto relativamente alla rilevazione di una neoangiogenesi nel meccanismo di retrazione tendinea, spesso indentificato invece nella atrofia e nella "morte" cellulare.

Il gruppo di controllo però è veramente troppo esiguo e sproporzionato; inoltre non omogeneo (viene paragonato il tendine di una lesione di cuffia senza fratture con il tendine di pz affetti da frattura ma senza lesione di cuffia)

Certo ottimo sarebbe stato che vi fosse una analisi di tessuto tendineo prelevato in pazienti senza lesione tendinea a valutare se quanto viene rilevato accade anche in assenza di franche lesioni ed è quindi un processo legato alla vera e propria degenerazione tendinea o si attiva solo nelle lesioni per il "tentativo" di autoriparazione del tendine stesso.

Peccato anche per il n° di casi esaminati quasi al limite delle significatività statistica.

**J Bone Joint Surg Br. 2010 Oct;92(10):1397-402.**

**Treatment of massive rotator-cuff tears with a polyester ligament (Dacron) augmentation: clinical outcome.**

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## Abstract

We describe the clinical outcome of a technique of surgical augmentation of chronic massive tears of the rotator cuff using a polyester ligament (Dacron) in 21 symptomatic patients (14 men, seven women) with a mean age of 66.5 years (55.0 to 85.0). All patients had MRI and arthroscopic evidence of chronic massive tears. The clinical outcome was assessed using the Constant and Murley and patient satisfaction scores at a mean follow-up of 36 months (30 to 46). The polyester ligament (500 mm × 10 mm) was passed into the joint via the portal of Neviaser, medial to the tear through healthy cuff. The two ends of the ligament holding the cuff were passed through tunnels made in the proximal humerus at the footprint of the insertion of the cuff. The ligament was tied with a triple knot over the humeral cortex. All the patients remained free from pain ( $p < 0.001$ ) with improvement in function ( $p < 0.001$ ) and range of movement ( $p < 0.001$ ). The mean pre-operative and post-operative Constant scores were 46.7 (39.0 to 61.0) and 85.4 (52.0 to 96.0), respectively ( $p < 0.001$ ). The mean patient satisfaction score was 90%. There were two failures, one due to a ruptured ligament after one year and the other due to deep-seated infection. The MR scan at the final follow-up confirmed intact and thickened bands in 15 of 17 patients. This technique of augmentation gives consistent relief from pain with improved shoulder movement in patients with symptomatic massive tears of the rotator cuff.

## RECENSIONE

Questo lavoro non ha veramente nulla di significativo se non un dato: è il primo che parla in maniera positiva di una tecnica di augmentation. Spesso sono stati eseguiti tentativi di riparazione della cuffia dei rotatori mediante scaffold adiuvanti o addirittura sostitutivi del tessuto tendineo, ma i risultati sono stati spesso discordanti e nella maggior parte dei casi insoddisfacenti, tanto che alcune aziende hanno addirittura ritirato dal commercio i propri scaffold.

Contrariamente, gli autori riportano estremamente positivi anche con valutazione MR. Sarà interessante vedere se nel futuro verrà effettuata una rivalutazione a lungo termine di tali pazienti.

**J Bone Joint Surg Am. 2010 Sep;92 Suppl 1 Pt 2:226-39.**

**Latissimus dorsi tendon transfer for irreparable rotator cuff tears: a modified technique to improve tendon transfer integrity: surgical technique.**

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### Abstract

**BACKGROUND:** Latissimus dorsi tendon transfer is a well-established method for the treatment of massive irreparable posterosuperior defects of the rotator cuff. Subsequent rupture of the transferred tendon may contribute to the rate of failure of the index procedure. We hypothesized that modification of our technique of tendon harvesting would lead to greater fixation stability and a reduced failure rate.

**METHODS:** Forty-two patients (mean age, fifty-eight years) with a massive irreparable posterosuperior tear of the rotator cuff were managed with a latissimus dorsi tendon transfer. Sharp separation of the latissimus tendon from the humerus was performed in twenty-two patients (Group A), whereas the tendon harvest was carried out with a modified technique that involved removal of some bone along with the tendon at the humeral insertion in a subsequent group of twenty patients (Group B). The mean duration of follow-up was forty-seven months. Outcome measures included the Constant and American Shoulder and Elbow Surgeons (ASES) scores and a patient subjective satisfaction scale. Standard radiographs were made to determine the stage of osteoarthritis and proximal migration of the humeral head, and magnetic resonance imaging was performed to assess the integrity of the transferred muscle.

**RESULTS:** In Group A, the mean Constant score improved from 43.4 preoperatively to 64.8 points at the time of follow-up and the mean ASES score improved from 49.3 to 69.6 points ( $p < 0.05$ ). In Group B, the mean Constant score increased from 40.2 to 74.2 points and the mean ASES score, from 47.2 to 77.1 points ( $p < 0.05$ ). The Constant pain score improved from 5.6 to 11.9 points in Group A and from 5.2 to 13.8 points in Group B. The results in Group B were significantly superior to those in Group A ( $p < 0.05$ ). Magnetic resonance imaging revealed complete rupture at the tendon insertion with tendon retraction in four patients in Group A and none in Group B. The final outcome was rated as poor in 27% of the patients in Group A and in 10% in Group B.

**CONCLUSIONS:** Latissimus dorsi tendon transfer achieves satisfactory clinical results in most patients who have a massive irreparable posterosuperior tear of the rotator cuff. Harvesting the tendon along with a small piece of bone enables direct bone-to-bone transosseous fixation, resulting in better tendon integrity and clinical results.

## RECENSIONE

Dato il continuo incremento del n° di pazienti affetti da tale tipologia di lesione, il trattamento delle lesioni massive di cuffia è di sempre maggior interesse specialmente le opzioni non protesiche. Molti autori stanno ponendo la loro attenzione ai risultati con il transfer muscolo tendineo del gran dorsale. Sicuramente questa chirurgia che ha sempre di più nella artroscopia il suo futuro è fonte di ricerca e di attenta valutazione dei risultati. Questo lavoro pone l'attenzione sulla metodica chirurgica in questo caso modificata con il prelievo di una bratta ossea ai fini di una miglior osteointegrazione. Ottimo il metodo del

lavoro con revisione di casi mediante MR e con la presenza di un gruppo di controllo ben identificato. Valide anche le conclusioni data l'analisi statistica eseguita.

**Arthroscopy. 2010 Oct 14. [Epub ahead of print]**

**Computer-Navigated Surgery in Anterior Cruciate Ligament Reconstruction: Are Radiographic Outcomes Better Than Conventional Surgery?**

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#### **Abstract**

**PURPOSE:** The use of computer navigation systems in anterior cruciate ligament (ACL) has been the subject of debate. However, there is a lack of systematic review to analyze the radiographic outcomes after computer-navigated ACL reconstruction.

**METHODS:** We searched, in duplicate, Medline, Embase, and Web of Science databases for randomized controlled trials (RCTs)/quasi-RCTs comparing conventional versus computer-navigated ACL reconstruction. Two reviewers independently extracted the data. Radiographic outcomes reported in a majority of included trials were meta-analyzed using the Mantel-Haenszel test statistic.

**RESULTS:** After applying our eligibility criteria, we had 5 trials for systematic review and data synthesis. There was no evidence of statistical heterogeneity between all included studies. Both navigated and conventional ACL reconstructions placed the tibial tunnel in acceptable positions. The risk of notch impingement was reduced in the navigated group in comparison with the conventional group.

**CONCLUSIONS:** A computer navigation systems may reduce variation from optimal graft alignment and notch impingement. However, there is a need for further high-quality studies with long-term follow-up, so as to prove the clinical significance of these findings.

#### **RECENSIONE**

Questo lavoro è molto interessante in quanto pone l'attenzione sulla nuova tendenza all'uso delle computer navigation, già in pratica da alcuni anni nella chirurgia protesica, per la ricostruzione artroscopica del L.C.A.

Anche in questo caso viene evidenziato come la metodica non sia semplice e scevra da errori metodologici. Gli stessi autori pongono bene l'attenzione sia sui limiti del lavoro stesso ovvero la possibilità di rilevare le differenze con un gruppo di controllo, (quale gruppo e con che metodica eseguire le rilevazioni RX-MR o entrambe) e la necessità di trial a lungo termine anche dopo affinamento e standardizzazione delle tecniche. Tuttavia nella sua semplicità questo articolo può risultare utile a chi decida di approcciare a tale metodologia chirurgica in quanto pone già l'attenzione su alcuni tricks and pearls che possono essere di ausilio.

**Orthopedics. 2010 Oct 1;33(10):87-93. doi: 10.3928/01477447-20100510-58.**

**Navigated Knee Kinematics After Tear of the ACL and Its Secondary Restraints: Preliminary Results.**

**Monaco E, Maestri B, Labianca L, Speranza A, Kelly MJ, D'Arrigo C, Ferretti A.**

**Abstract**

In this study we evaluated the role of the anterior cruciate ligament (ACL) and its secondary restraint in controlling knee stability using a navigation system. The purpose of this study was to evaluate the kinematics of the knee in different conditions of instability: ACL intact, after transection of the posterolateral (PL) bundle, after transection of the anteromedial (AM) bundle, and after lesion of the anterolateral femorotibial ligament (ALFTL). Anterior tibial translation and rotation were measured with a computer navigation system in 6 knees in whole fresh-frozen human cadavers by use of a manual maximum load. Anterior translation was evaluated at 30°, 60°, and 90° of flexion; rotation at 0°, 15°, 30°, 45°, 60°, and 90° of flexion. Cutting the PL bundle does not increase anterior translation and rotation of the knee. Cutting the AM bundle significantly increased the anteroposterior (AP) translation at 30° and 60° of flexion ( $P=.01$ ), but does not increase rotation of the knee. Cutting the ALFTL increased anterior translation at 60° of flexion ( $P=.04$ ) and rotation at 30°, 45°, and 60° of flexion ( $P=.03$ ). The PL bundle does not affect anterior translation and rotation of the knee. The AM bundle is the primary restraint of the anterior translation but does not affect rotation of the knee. The lateral compartment becomes the primary restraint of rotation after ACL cut. The primary kinematic effect of an ACL injury is an increase in anterior tibial translation, but there is no significant change in maximum internal or external rotation. The lesion of the ALFTL increases tibial rotation and could be correlated to the pivot shift phenomenon.

**RECENSIONE**

Questo articolo, peraltro di autori italiani il che non guasta, pone l'attenzione sull'importanza dei danni collaterali nella instabilità di ginocchio. Troppo spesso in passato si è concentrata l'attenzione solo esclusivamente sulle lesioni del L.C.A. come fattore determinante e trascurando le eventuali lesioni associate (Leg. Collaterali e menisco e Zampa d'Oca) che invece hanno uno specifico determinismo sulle instabilità rotatorie.

Questo è un bell'articolo di analisi biomeccanica su specimen della differente tipologia di instabilità in funzione della lesione legamentosa occorsa rilevando come l'instabilità rotatoria sia determinata dalla lesione associata del legamento collaterale femoro tibiale.

Certo questo dato è noto e non stiamo parlando di una scoperta eccezionale, ma la rilevanza è soprattutto sulla indicazione al trattamento in quanto si sottolinea come la riparazione del solo L.C.A. in presenza anche di lesioni associate non è sufficiente a ripristinare una completa funzionalità del ginocchio.