

KEY PROCEDURES

ACROMIOCLAVICULAR AND CORACOCLAVICULAR LIGAMENT RECONSTRUCTION FOR ACROMIOCLAVICULAR JOINT INSTABILITY

Mitchell i. Kennedy, BS, Liam A. Peebles, BA, Matthew T. Provencher, MD, Robert F. LaPrade, MD, PhD

Investigation performed at The Steadman Clinic and The Steadman Philippon Research Institute, Vail, Colorado

Published outcomes of this procedure can be found at: *Arthroscopy*. 2018 Jun; 34(6): 1979-95.

COPYRIGHT © 2019 BY THE JOURNAL OF BONE AND JOINT SURGERY, INCORPORATED



Click the arrow above or go to surgicaltechniques.jbjs.org to view the video article described in this summary.

Abstract

Numerous operative techniques have been described for acromioclavicular and coracoclavicular ligament reconstruction for the treatment of acromioclavicular joint instability. Injuries of this nature are commonly sustained by contact-sport athletes in high-impact collisions or falls. Traumatic injury to the acromioclavicular joint and ligamentous structures can range in severity, as can the degree of subsequent joint instability. Injuries classified between Type I and Type III are generally treated nonoperatively, whereas Type-IV injuries may be treated similarly to the treatment described in this article for Type-V injuries. The use of free tendon grafts in conjunction with suspensory devices has demonstrated reliable postoperative outcomes and low rates of unplanned reoperation. We present a surgical technique involving harvest of a semitendinosus autograft from the hamstrings, in addition to allograft augmentation. These free tendon grafts reestablish acromioclavicular joint stability following Rockwood Type-V or VI injuries to the joint. Note that there are differences in the outcomes of free tendon graft, suspensory devices, and modified Weaver-Dunn techniques commonly used to treat acromioclavicular joint instability. Although comparable outcomes have been reported for these modalities, treatment with hook plates and Kirschner wires has demonstrated the highest complication rates when used with this procedure. The Weaver-Dunn technique has been found to yield the lowest postoperative American Shoulder and Elbow Surgeons scores among the aforementioned techniques. Additionally, although other procedures may be less invasive, this technique is beneficial because it reinforces horizontal stability in addition to the vertical stability provided by other procedures, resulting in optimal overall shoulder stability. The procedure is performed as follows: (1) harvest the semitendinosus hamstring autograft, (2) dissect the acromioclavicular joint and prepare the acromion by passing

Disclosure: The authors indicated that no external funding was received for any aspect of this work. On the **Disclosure of Potential Conflicts of Interest** forms, which are provided with the online version of the article, one or more of the authors checked “yes” to indicate that the author had a relevant financial relationship in the biomedical arena outside the submitted work and “yes” to indicate that the author had other relationships or activities that could be perceived to influence, or have the potential to influence, what was written in this work (<http://links.lww.com/JBJSST/A265>).

sutures through a drilled tunnel, (3) prepare the coracoid in a fashion similar to that of the acromion, (4) prepare the clavicle and establish the trapezoid-clavicular attachment using an AC TightRope (Arthrex), (5) reduce the clavicle via contraction of the AC TightRope, (6) pass grafts and perform fixation of the trapezoid, (7) perform fixation of the acromioclavicular and conoid ligaments, and (8) skin closure with sutures. We acknowledge the inherent potential for complications when performing this procedure, and this is addressed at the appropriate points of concern throughout the video.

Acknowledgment

NOTE: Illustrations showing suspensory device, ligament transfer, free graft, and hook-plate in Video 12 have been reprinted from: Moatshe G, Kruckeberg BM, Chahla J, Godin JA, Cinque ME, Provencher MT, LaPrade RF. Acromioclavicular and Coracoclavicular Ligament Reconstruction for Acromioclavicular Joint Instability: A Systematic Review of Clinical and Radiographic Outcomes. *Arthroscopy*. 2018;34(6):1979-95. With permission from Elsevier

Mitchell i. Kennedy, BS¹

Liam A. Peebles, BA¹

Matthew T. Provencher, MD¹

Robert F. LaPrade, MD, PhD¹

¹The Steadman Clinic and The Steadman Philippon Research Institute, Vail, Colorado

Email address for R.F. LaPrade: laprademdphd@gmail.com

ORCID iD for M.i. Kennedy: [0000-0001-7979-2802](https://orcid.org/0000-0001-7979-2802)

ORCID iD for L.A. Peebles: [0000-0001-9558-8465](https://orcid.org/0000-0001-9558-8465)

ORCID iD for M.T. Provencher: [0000-0002-8859-3415](https://orcid.org/0000-0002-8859-3415)

ORCID iD for R.F. LaPrade: [0000-0002-9823-2306](https://orcid.org/0000-0002-9823-2306)

References

1. Moatshe G, Kruckeberg BM, Chahla J, Godin JA, Cinque ME, Provencher MT, LaPrade RF. Acromioclavicular and coracoclavicular ligament reconstruction for acromioclavicular joint instability: a systematic review of clinical and radiographic outcomes. *Arthroscopy*. 2018 Jun;34(6):1979-1995.e8. Epub 2018 Mar 21 https://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=29573931&dopt=Abstract.
2. Chillemi C, Franceschini V, Dei Giudici L, Alibardi A, Salate Santone F, Ramos Alday LJ, Osimani M. Epidemiology of isolated acromioclavicular joint dislocation. *Emerg Med Int*. 2013;2013:171609. Epub 2013 Jan 28.
3. Warth RJ, Martetschläger F, Gaskill TR, Millett PJ. Acromioclavicular joint separations. *Curr Rev Musculoskelet Med*. 2013 Mar;6(1):71-8.
4. Pallis M, Cameron KL, Svoboda SJ, Owens BD. Epidemiology of acromioclavicular joint injury in young athletes. *Am J Sports Med*. 2012 Sep;40(9):2072-7. Epub 2012 Jun 15.
5. Lynch TS, Saltzman MD, Ghodasra JH, Bilimoria KY, Bowen MK, Nuber GW. Acromioclavicular joint injuries in the National Football League: epidemiology and management. *Am J Sports Med*. 2013 Dec;41(12):2904-8. Epub 2013 Sep 20.
6. Dragoo JL, Braun HJ, Bartlinski SE, Harris AH. Acromioclavicular joint injuries in National Collegiate Athletic Association football: data from the 2004-2005 through 2008-2009 National Collegiate Athletic Association Injury Surveillance System. *Am J Sports Med*. 2012 Sep;40(9):2066-71. Epub 2012 Aug 6.
7. Beitzel K, Mazzocca AD, Bak K, Itoi E, Kibler WB, Mirzayan R, Imhoff AB, Calvo E, Arce G, Shea K; Upper Extremity Committee of ISAKOS. ISAKOS Upper Extremity Committee consensus statement on the need for diversification of the Rockwood classification for acromioclavicular joint injuries. *Arthroscopy*. 2014 Feb;30(2):271-8.