

## The Ankle Instability Treatment: A Shift in Paradigm?

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### ABSTRACT

Despite being the most frequent sports injury worldwide, ankle instability has received very little attention over the years from evidence-based medicine, a trend that has only been countered in recent years. Several papers have been published that might change the paradigm of the treatment patients in with Ankle instability, so it is paramount important that surgeons keep up to date with the best high quality available. This study intends to be an alert to that fact and a guide for the search of the newest information.

**Keywords:** Ankle; Ankle instability; Arthroscopy; Ligament repair; Suture tape augmentation

### DESCRIPTION

Despite being the most frequent sports injury worldwide, ankle instability has received very little attention over the years from evidence-based medicine, a trend that has only been countered in recent years. Important papers have been published helping to understand the pathway to both dysfunction [1] and pathomechanics [2,3] of Chronic Ankle Instability (CAI). Regarding treatment, both conservative and surgical treatment had some major developments, which are going to be the scope of this study.

Starting with conservative treatment, there is no big news to report, since it has been well established the important value of rehabilitation, both as non-surgical treatment and post-operative rehabilitation. Nonetheless, there have been published three Randomized Controlled Trial (RCT), two of those that helped to cement the idea that we had already, about the importance of sensorimotor function and its rehabilitation [4,5], and another one [6], in conjunction [7], that showed that even though Virtual Reality assisted rehabilitation might be a certainty in the future, nowadays still lacks certain needed aspects to be implemented as Gold Standard.

Moving to surgical treatment, high quality studies have been published this last couple of years, that might lead to a change in paradigm. Open *versus* Arthroscopic ligamentous repair has been a hot topic especially since the publication of the All-Inside

Technique in 2013 [8]. Some papers have been published with a penchant for arthroscopic procedure, including four Meta-analysis, two from 2020 [9,10] and two from 2021 [11,12]. In all these four papers the complication rates were equivalent or fewer than with open procedure and better AOFAS score were achieved through arthroscopy.

Regarding the structures involved in the repair, a Level I evidence paper was published by Ko, et al. [13] stating that there is no difference between repairing ATFL and CFL or ATFL alone, going along with the anatomical study published by Cordier, et al. [14]. On the same topic, the use of the Gould modification on the Arthroscopic procedure appears to have no clinical relevance one year after surgery [15] which contradicts the traditional Bostrom-Gould technique.

Another point of debate has been the use Suture Tape Augmentation (STA), both in primary and revision cases: a systematic review of 2022 [16] found no major clinical differences in primary cases between the groups with and without STA, although the first group appeared to have less recurrence of instability and more nerve irritation. As for revision cases, we are not aware of any high-quality study comparing the use of STA. Nonetheless, there have been published two retrospective studies reaching the same conclusion: Similar clinical outcomes after open or arthroscopic Bostrom, with or without an identifiable ATFL remnant [17,18]. It is certain that there are needs for higher evidence studies, but it could mean paradigm change with

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less need of reconstructions and greater focus on repairs, even in cases of revision.

## CONCLUSION

CAI is a complex topic that is often underdiagnosed and undertreated. In recent years, a great number of high evidence studies have been published and there might be some shift in the paradigm in relation to many aspects of its treatment. So, it is paramount important that foot and ankle surgeons keep up to date with this kind of knowledge so can offer the best treatment to their patients.

## REFERENCES

- Miklovic TM, Donovan L, Protzuk OA, Kang MS, Feger MA. Acute lateral ankle sprain to chronic ankle instability: A pathway of dysfunction. *Phys Sportsmed*. 2018;46(1):116–22.
- Vega J, Malagelada F, Manzanares Céspedes MC, Dalmau-Pastor M. The lateral fibulotalocalcaneal ligament complex: An ankle stabilizing isometric structure. *Knee Surg Sports Traumatol Arthrosc*. 2020;28(1):8–17.
- Vega J, Allmendinger J, Malagelada F, Guelfi M, Dalmau-Pastor M. Combined arthroscopic all-inside repair of lateral and medial ankle ligaments is an effective treatment for rotational ankle instability. *Knee Surg Sports Traumatol Arthrosc*. 2020;28(1):132–40.
- Minoonejad H, Ardakani MK, Rajabi R, Wikstrom EA, Sharifnezhad A. Hop Stabilization Training Improves Neuromuscular Control in College Basketball Players With Chronic Ankle Instability: A Randomized Controlled Trial. *J Sport Rehabil*. 2019;28(6):576–83.
- McKeon PO, Wikstrom EA. The effect of sensory-targeted ankle rehabilitation strategies on single-leg center of pressure elements in those with chronic ankle instability: A randomized clinical trial. *J Sci Med Sport*. 2019;22(3):288–93.
- Kim K, Choi B, Lim W. The efficacy of virtual reality assisted vs traditional rehabilitation intervention on individuals with functional ankle instability: a pilot randomized controlled trial. *Disabil Rehabil Assist Technol*. 2019;14(3):276–80.
- Lin H, Han K, Ruan B. Effect of Virtual Reality on Functional Ankle Instability Rehabilitation: A Systematic Review. *J Healthc Eng*. 2021;2021:7363403.
- Vega J, Golanó P, Pellegrino A, Rabat E, Peña F. All-inside arthroscopic lateral collateral ligament repair for ankle instability with a knotless suture anchor technique. *Foot ankle Int*. 2013 Dec;34(12):1701–1719.
- Zhi X, Lv Z, Zhang C, Kong C, Wei S, Xu F. Does arthroscopic repair show superiority over open repair of lateral ankle ligament for chronic lateral ankle instability: a systematic review and meta-analysis. *J Orthop Surg Res*. 2020;15(1):355.
- Brown AJ, Shimozono Y, Hurley ET, Kennedy JG. Arthroscopic vs open repair of lateral ankle ligament for chronic lateral ankle instability: a meta-analysis. *Knee Surg Sports Traumatol Arthrosc*. 2020;28(5):1611–1618.
- Moorthy V, Sayampanathan AA, Yeo NEM, Tay KS. Clinical Outcomes of Open Versus Arthroscopic Broström Procedure for Lateral Ankle Instability: A Meta-analysis. *J foot ankle Surg Off Publ Am Coll Foot Ankle Surg*. 2021;60(3):577–584.
- Attia AK, Taha T, Mahmoud K, Hunt KJ, Labib SA, d’Hooghe P. Outcomes of Open Versus Arthroscopic Broström Surgery for Chronic Lateral Ankle Instability: A Systematic Review and Meta-analysis of Comparative Studies. *Orthop J Sport Med*. 2021;9(7):23259671211015210.
- Ko KR, Lee W-Y, Lee H, Park HS, Sung K-S. Repair of only anterior talofibular ligament resulted in similar outcomes to those of repair of both anterior talofibular and calcaneofibular ligaments. *Knee Surg Sports Traumatol Arthrosc*. 2020;28(1):155–62.
- Cordier G, Nunes GA, Vega J, Roure F, Dalmau-Pastor M. Connecting fibers between ATFL’s inferior fascicle and CFL transmit tension between both ligaments. *Knee Surg Sports Traumatol Arthrosc*. 2021;29(8):2511–2516.
- Jo J, Lee JW, Kim HJ, Suh DH, Kim WS, Choi GW. Arthroscopic All-Inside Anterior Talofibular Ligament Repair with and without Inferior Extensor Retinacular Reinforcement: A Prospective Randomized Study. *J Bone Joint Surg Am*. 2021;103(17):1578–87.
- Wittig U, Hohenberger G, Ornić M, Schuh R, Reinbacher P, Leithner A, et al. Improved Outcome and Earlier Return to Activity After Suture Tape Augmentation Versus Broström Repair for Chronic Lateral Ankle Instability? A Systematic Review. *Arthrosc J Arthrosc Relat Surg Off Publ Arthrosc Assoc North Am Int Arthrosc Assoc*. 2022;38(2):597–608.
- Feng S-M, Maffulli N, Ma C, Oliva F. All-inside arthroscopic modified Broström-Gould procedure for chronic lateral ankle instability with and without anterior talofibular ligament remnant repair produced similar functional results. *Knee Surg Sports Traumatol Arthrosc*. 2021 ;29(8):2453–2461.
- Park S, Kim T, Lee M, Park Y. Absence of ATFL remnant does not affect the clinical outcomes of the modified broström operation for chronic ankle instability. *Knee Surg Sports Traumatol Arthrosc*. 2020;28(1):213–220.