Positive scientific support for the Syndesmosis TightRope implant continues to grow with more than 27 published articles. The TightRope implant for syndesmosis repair has been implanted for over 14 years and there are numerous reports of early return to activity and less morbidity. The technique also eliminates the need for second surgery screw removal.\(^1\)\(^2\)

**New scientific articles highlighting the benefits of the TightRope implant:**


- The Syndesmosis TightRope implant technique results in improved functional outcomes and lower rates of broken implant and joint malreduction as compared with the syndesmotic screw technique.
- The primary advantage is that the Syndesmosis TightRope implant allows for anatomic healing of the syndesmosis and avoids implant removal.
- The Syndesmosis TightRope implant technique warrants a grade A recommendation in the treatment of syndesmosis injuries.


- Randomized multicenter trial.
- 103 patients with Weber C fractures were randomized to 1 TightRope implant or 2 syndesmotic screws and followed for 1 year.
- The Syndesmosis TightRope implant group had lower rates of malreduction and reoperation compared to patients receiving syndesmotic screws.


- Therapeutic level 1 evidence demonstrates that the Syndesmosis TightRope implant is superior to 1 quadricortical syndesmotic screw over a 2-year follow-up of 97 patients.
- Patients treated with a Syndesmosis TightRope implant had higher AOFAS scores, OMA scores, and EQ-5D Index scores as well as lower (better) VAS scores for pain during walking and pain during rest.
- The TightRope implant is a better alternative than 1 quadricortical screw in the treatment of syndesmotic injuries because it provides better anatomical restoration and superior clinical results.

- The Syndesmosis TightRope implant had a 5-week faster return to sport and a 2-week faster return to work compared to syndesmosis screws.
- The Syndesmosis TightRope implant also had a lower complication rate and a lower second surgery rate.
- Both the faster return to sport and the lower complication rate were statistically significant in the knotless suture button vs screw fixation group.


- 43 “PER Weber C” fractures were randomized to 1 TightRope implant vs 1 syndesmotic screw.
- The Syndesmosis TightRope implant had lower malreduction and reoperation rates compared to syndesmotic screws.


- Ankle syndesmosis surgery via a double TightRope implant repair followed by the accelerated rehabilitation protocol is as safe as the traditional procedures.
- Accelerated rehabilitation protocol promotes early weightbearing resulting in an effective and quick route to return to sport for professional rugby league players.
- A period of 2 months from surgery to return to sport is possible compared to 3 to 6 months post screw fixation, which is very encouraging for the professional athlete population.


- The Syndesmosis TightRope implant was a dominant treatment strategy, because patients spent on average $1482 less compared to syndesmotic screws.
- The Syndesmosis TightRope implant patients had a higher quality of life by 0.058 QALYs over an 8-year time period.
- Second surgery cost for screw removal was $14,768 per case.
- Syndesmotic screw fixation required 2 extra clinic visits and $389 in ankle X-rays.
- Syndesmotic screw fixation had lower quality-of-life measurements.


- The TightRope implant gives better clinical and radiographic outcomes without breakage, loss of reduction, or reoperation.
- The TightRope implant outperformed screws clinically with 0% failure, 0% loss of reduction, and higher AOFAS scores.
The effect of suture-button fixation on simulated syndesmotic malreduction: a cadaveric

- With deliberate malreduction, the TightRope implant fixation results in less post-fixation
displacement compared with screw fixation.
- The TightRope implant appears to take advantage of distal tibiofibular anatomy in
achieving improved reduction.
- The TightRope implant’s ability to allow for natural correction of deliberate malreduction
was greatest with posterior off-axis clamping.

JBJS.M.00094.

- The so-called gold-standard syndesmotic screw fixation is being brought increasingly
into question as new fixation techniques emerge.
- Suture-button fixation represents a promising alternative.

Fixation of ankle syndesmotic injuries: comparison of TightRope fixation and syndesmotic

- The TightRope implant had 0% syndesmosis malreduction compared to 22%
malreduction with screws.
- The TightRope implant was significantly better at maintaining the reduction, even after a
mean duration of 30 months after surgery.
- The TightRope implant provides a more accurate method of syndesmotic stabilization
and obviates the need for a second procedure for routine removal.

Does the Arthrex TightRope® provide maintenance of the distal tibiofibular syndesmosis?

- The TightRope implant was advantageous because it rarely required removal, allowed
for physiologic motion of the syndesmosis, and resulted in early return to weightbearing.
- The TightRope implant provides long-term stability (24 months), confirmed by
radiographic criteria and excellent AOFAS scores.

An anatomical way of treating ankle syndesmotic injuries. J Foot Ankle Surg. 2011;50(6):762-

- The TightRope implant allows for accelerated rehabilitation and improved outcome.
- No failures of fixation despite the early postoperative weightbearing.
- Advantageous in older, obese patients, or patients who cannot comply with a
non-weightbearing regimen that is required with screw fixation.
- Cost-effective because it does not require retrieval with a second surgery.

- The suture button device represents a viable alternative to screw fixation for syndesmosis injuries.
- Because of the ease-of-use of the device and the ability to allow full weightbearing without concerns about implant breakage, we feel that suture button fixation is superior to conventional metallic screws.


- 70% of team physicians recommend hardware removal before return to sport.
- No need for removal and second surgery with the TightRope implant.
- No need for removal in cases with obvious diastasis; return to play was 9-16 weeks.


- Studies have shown that between 24%-39% of syndesmosis are malreduced.
- 1 mm loss of syndesmotic reduction results in 42% increase in joint contact pressure.


- Rate of implant removal is lower than in the syndesmotic screw group.
- The TightRope implant system has a similar outcome compared with syndesmotic screw or bolt fixation, but might lead to a quicker return to work.


- Rigid fixation of the syndesmosis with screw fixation may be problematic in allowing physiologic motion of the syndesmosis.


- No difference vs syndesmatic screw in terms of overall fibular motion.
- Provides similar fixation to that of a 4-cortices 3.5 mm screw.


- Late diastasis since the device remains in place while ligaments continue to heal.
- Advantageous in older, obese, or polytrauma patients that may have difficulty remaining non-weightbearing postoperatively.


- TightRope implant shows favorable results when used to repair syndesmosis.
- Patients are able to be full weightbearing sooner.

- TightRope fixation gives a significantly better overall range of motion than conventional screw fixation.
- Better AOFAS scores at 6, 12, and 27 months.


- Radiographic reduction maintained.
- Faster time to full weight-bearing; no second surgery.


- Rehabilitation is faster and allows the athlete or patient to return to sport or work sooner.
- TightRope allows physiological micromotion, while resisting diastasis and may be more preferable than a rigid screw.


- Better AOFAS scores at 3 and 12 months.
- Return to work faster; no second surgery.


- TightRope implant gave a significantly more consistent performance than screw fixation.
- TightRope implant would provide obvious cost savings to both the patient and health service, free up OR time, and eliminate the need for the patient to go through a second procedure.


- Provides a more physiologic solution than rigid fixation.
- Allows weightbearing without damage to surrounding bone, while providing reliable fixation of the healing syndesmotic ligaments.

References

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