

# The Role of the Ankle Retinacula in Ankle Sprain Outcomes

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## BACKGROUND

Functional instability (FI) is defined as the subjective feeling of ankle instability and/or recurrent, symptomatic ankle sprain due to proprioceptive and neuromuscular deficit. Recent studies evidence the possible role of the ankle retinacula, seen as fascial reinforcement, in proprioception, but there is no clear evidence of their role in ankle pathologies. The authors want to evaluate if specific alterations of ankle retinacula can be evidenced in patients with functional ankle instability and if treatment focused on the fascia could restore normal function to the retinacula.

## METHODS

An in-vivo radiological study by Magnetic Resonance was performed on 20 patients with outcomes of ankle sprain (> 3 months) to evaluate possible damage to the ankle retinacula. In those subjects (11 cases) with an evident alteration of at least one of the retinacula, static posturography was quantitatively measured (with eyes open and closed) and painful symptoms were recorded using a specific questionnaire. These subjects (8 males and 3 females, mean age 28 yrs) were treated by the same practitioner, according to the methodology of Fascial Manipulation© for 3 treatment sessions. Evaluation with static posturography and the questionnaire was repeated after these 3 sessions and at the subsequent three-month follow-up.

## RESULTS

By MRI, the retinacula were clearly visible and easily evaluated. They appeared as low signal intensity bands with a mean thickness of 1 mm. In all patients, four types of retinacular alterations were identified: oedema, interruption of the retinacula, uneven appearance of the corresponding subcutaneous tissue and thickening. After treatment, a mean pain reduction of 32.2% was recorded (mean value of VAS prior to treatment: 41/100; after 3 treatments: 8.8/100) together with a good recovery of movement. The initial benefit was generally maintained (mean value of VAS: 13/100) at a short-term follow-up. Static posturography showed a significant difference ( $p < 0.05$ ) in sway path between the first and the last evaluation: initial mean sway path (msp) was 7.9 mm/sec and final msp was 6.9 mm/ sec, coinciding with patients' reports of an improved sense of balance.

## CONCLUSIONS

Retinacula could be seen as a specialization of the fascia for local, spatial proprioception of foot and ankle movements rather than static structures, such as ligaments, involved in joint stabilization. Their damage, during ankle sprains, could modify the lines of forces within the fascia of the foot and leg, altering the role of the fascial system in peripheral control of articular motility. Restoring normal tension to the fascia could improve proprioceptive activity of receptors (embedded in the fascia). Thus, Fascial Manipulation could be considered useful in the treatment of functional ankle instability.