

# Chronic Ankle Contracture Reduced: A case series

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**Background:** Contracture is molecular shortening of connective tissue that frequently occurs from arthrofibrosis following malleolar fractures, causing plantarflexion contracture. The purpose of this case series was to examine reduction of chronic contracture of ankle fracture patients with treatment of dynamic splinting which delivers prolonged durations of low-load stretching at end range (s) of motion.

**Method:** Eighteen patients (mean age 46, range 29 – 65 years, 9 females, 9 males) with a prior history of medial malleolar fracture, surgical fixation and contracture of more than one year took part. Dynamic splinting was prescribed for wear each night, achieving 6 to 8 hours of passive end-range stretching. The tension of the Dynasplint<sup>®</sup> was changed twice a month to optimize the stretch at end range of motion.

**Results:** The mean duration was 16 weeks (range 12-22 weeks) and the patients mean wear was 784 hours (range 660 – 960) in end-range therapy from dynamic splinting. Maximal dorsiflexion was measured at baseline (enrolment) and at four months. The mean maximal change in dorsiflexion was 23.4<sup>o</sup> (SD=14.1).

**Discussion and Conclusion:** Contracture reduction is thought to require comparable amounts of time equaling the duration of contracture development. Low force, prolonged, passive stretching is considered to have the most beneficial effect in contracture reduction due to its ability to facilitate permanent changes in connective tissue elongation. The 60% change in maximal dorsiflexion noted in this study can be directly related to the duration of treatment as home therapy. A larger controlled trial should be conducted to measure empirical efficacy of dynamic splinting for contracture reduction following malleolar fractures.

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