

Runner's Hallux Rigidus and Gait Analysis

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Abstract

Runners often suffer from hallux rigidus, which is pathology of degenerative arthritis in the first metatarsophalangeal joint of the great toe, caused by inherited foot mechanics but also is commonly the result of an overuse injury or an untreated injury such as "Runner's Toe," contusion. The purpose of this case report was to examine the effect of dynamic splinting for hallux rigidus in a 47-year-old, male patient who has been a competitive runner for over 30 years.

The diagnosis came from diminished range of motion (Initial Hallux flexion was 0° in active range of motion of symptomatic foot), radiograph evaluation and through gait analysis. The Gait Lab testing showed increased and asymmetrical cadence (Control foot vs. symptomatic), asymmetrical "foot aloft" time, and asymmetrical ankle rotation. Radiographs revealed decreased joint space to the first metatarsophalangeal joint, eburnation, and but no dorsal osteophyte formation.

After four months treatment with the metatarsophalangeal flexion Dynasplint the patient regained 45° in active range of motion, and the post treatment Gait Lab test displayed significant changes in cadence (steps/min.), foot aloft time (seconds Left vs. Right), and reduced the internal ankle rotation of the symptomatic foot. The Dynasplint modality was effective in regaining Hallux flexion for this patient which has allowed him to return to competitive running of 5k in under 20 minutes.