

Shoe inserts alter plantar loading and function in patients with midfoot arthritis.

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STUDY DESIGN: Experimental laboratory study supplemented by a case series.

OBJECTIVES: (1) To assess the effect of a 4-week intervention with a full-length insert on functional outcomes in patients with midfoot arthritis; (2) to examine the effect of the custom molded three-quarter-length (3Q) and full-length (FL) carbon graphite insert on plantar loading in patients with midfoot arthritis. **BACKGROUND:** Given the coexistence of pain and lower-arched foot alignment in patients with midfoot arthritis, arch-restoring orthotic devices such as the 3Q insert are frequently recommended. However, patients continue to report foot pain despite using the 3Q insert. The FL insert has been proposed as an alternative, but objective data examining its efficacy are lacking. **METHODS:** Twenty female patients with midfoot arthritis participated in the study. Functional outcomes were assessed using the Foot Function Index-Revised (FFI-R). Plantar loading during walking was measured in the following conditions: shoe only, shoe with 3Q insert, and shoe with FL insert. Repeated-measures analyses of variance with post hoc analyses were used for statistical analysis. **RESULTS:** FL insert use for 4 weeks resulted in a 12% improvement in total FFI-R score (mean +/- SD before, 35.6 +/- 10.9; after, 31.1 +/- 9.8 [P = .03]). FL insert use resulted in a 20% reduction in medial midfoot average pressure loading (mean +/- SD, 64.8 +/- 20.4 and 51.0 +/- 15.4 kPa, with 3Q and FL insert respectively [P = .015]) and an 8.5% reduction in medial midfoot contact time (mean +/- SD, 84.9% +/- 6.4% and 76.4% +/- 7.1% of stance, with 3Q and FL insert respectively [P<.01]), compared to the 3Q insert. No differences in plantar loading were discerned between the shoe-only and FL conditions. **CONCLUSION:** Symptomatic improvement in patients with midfoot arthritis treated with a FL insert was accompanied by reduced magnitude and duration of loading under the medial midfoot. These preliminary outcomes suggest that the FL insert may be a viable alternative in the conservative management of patients with midfoot arthritis.

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