

Effect of custom orthotics on plantar pressure distribution in the pronated diabetic foot.

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The F-scan system was used to study plantar foot pressure in patients with a pronated foot type. Inshoe measurements were made under the first metatarsal head and medial heel with and without an orthotic in an extra depth shoe. The F-scan system was also used to compare the total contact area under the foot between each patient with and without the orthotic device. Data collected in this study demonstrated a reduced plantar pressure under the first metatarsal head and medial heel in the patients with an orthotic (30-40% reduction). Calculations of the total contact area under the foot revealed an increase in contact area with an orthotic in extra depth shoes (5-10% increase). Pressure-sensitive insoles, which were replaced as needed, provided reproducible measurements of dynamic plantar pressure and contact area through repeated measurements over the 3-month period of this study. Evaluations show that a custom-made foot orthotic can increase total contact area (redistribute force) and is able to reduce plantar pressures. Thus, an orthotic should reduce the risk of ulceration in the diabetic neuropathic foot.