

**Adherence to wearing prescribed custom-made footwear in diabetic patients with a history of plantar ulceration**

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**Background:** Prescribed custom-made footwear can only be effective in preventing (recurrence of) foot ulceration in high-risk diabetic patients with neuropathy when the footwear is worn. Objective data on footwear adherence is non-existing. Therefore, we aimed to objectively assess adherence in these patients and to assess determinants of (non-)adherence. **Methods:** In 107 patients with a history of plantar foot ulceration and prescribed custom-made footwear, adherence was measured during 7 consecutive days using a temperature-based monitor worn in the shoe (lateral shoe border) and a step activity monitor worn around the ankle. Time away from home was reported in a diary. Adherence was calculated as the percentage of steps per day that the prescribed footwear was worn. Determinants of (non-)adherence were evaluated in multivariate linear regression analysis. **Results:** Footwear adherence was  $71\% \pm 25\%$  (mean  $\pm$  SD) overall. At home, footwear adherence was  $61 \pm 32\%$ , over  $3959 \pm 2594$  steps. Away from home, adherence was  $87 \pm 26\%$  over  $2604 \pm 2507$  steps. In around one third of the patients, adherence was  $<60\%$ , with adherence at home being  $27\% \pm 24\%$ . A lower BMI, more severe foot deformity present, more variability in step activity over 7 days and higher perceived footwear aesthetics were significantly positively associated with adherence. **Discussion:** Footwear adherence is much higher than expected from previous literature findings (23%-28% from subjective patient reports). Adherence is much lower at home than away from home, particularly in the low-adherence group, while patients are more active at home. Together with the determinants of (non-)adherence, this gives clear directions, based on objective data, for improvement of adherence in these high-risk patients. This may include patient education and special footwear for use at home.