

Do shear reducing diabetic insoles really reduce plantar shear?

Purpose:

Recent studies have shown the clinical significance of plantar shear in diabetic ulceration. A number of insoles are designed to reduce such forces. However the shear reducing efficacy of these products was not examined in vivo. An increase in plantar shear forces results in increased step lengths. It is thought that the use of such insoles leads to reduced step length and thus an increase in the number of steps required for traversing a certain distance. The purpose of this study was to quantify and compare spatio-temporal characteristics of the gait when wearing two different brands of shear reducing insoles and standard control insoles.

Methods:

Eleven healthy volunteers were recruited. The subjects walked 100ft with each pairs of insoles, in randomized order. Gait speed, step length (SL), cadence and number of steps to cover the 100ft distance were determined. Mean values of three trials were obtained for each product. Data was analyzed using paired t-tests.

Results:

Mean SL values were 28.5, 27.9 and 28.9 inches respectively for control, brand A and brand B shear reducing insoles. No significant differences were observed in the four parameters of interest among the paired datasets.

Conclusion:

According to a number of earlier reports, a reduction in plantar shear leads to decreased SL. Since we have not observed such a decrease in SL values, it is thought that in shod (vivo) conditions shear reducing insoles may not be functioning as well as in vitro conditions.

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