

Summary

Purpose

The aim of this study was to investigate how different commercial **heel lift** stiffness could affect **gait** and **posture** patterns, in order to propose to athletes the most appropriate which can reduce injury risk by moderating the effects of repeated impacts, **plantar pressure** and excessive pronation or supination.

Methods

Ten healthy young male volunteers were asked to wear successively three pairs of heel lifts, with identical geometry but different stiffness. Static tests consisted in measuring plantar pressure distribution and center of mass position. Dynamic tests consisted of kinematics and reaction force measurements at both imposed and preferred frequency.

Results

No significant anterior-posterior displacement of the center of mass was found. Peak pressure on the calcaneus was found significantly different, although metatarsal pressures were found unaffected. Dynamic tests revealed significant modifications in the reaction forces. Heel lift stiffness was found to significantly modify posture and gait patterns and should therefore be considered in the insole design process. Our findings suggest that low stiffness insole is not necessarily the most appropriate to reduce plantar pressure levels.