Impact of rocker sole footwear on plantar pressure distribution during standing and walking in adult obese women.

F. Fourchet, N. A. Maffiuletti , F. Agosti, A. Patrizi, A. Sartorio

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Purpose: obesity increases the stresses applied to the foot. Ergonomic rocker sole shoes increase energy expenditure of standing and walking in obese individuals but could potentially alter plantar pressure distribution. The aim of this study was to compare plantar pressure distribution during standing and walking between rocker sole and flat-bottomed shoes in obese subjects.

Methods: twenty adult obese women were asked to stand quietly and to walk at their preferred walking speed whilst wearing flat-bottomed or rocker sole shoes. Plantar pressure distribution was assessed using instrumented insoles.

Results: during standing, toe pressure and as well as midfoot force were higher with rocker sole than with flat-bottomed shoes ($p<0.05$). During walking with rocker sole shoes, mean pressure and maximal force were lower under the toes and the forefoot, but higher under the midfoot and rearfoot regions with respect to flat-bottomed shoes ($p<0.05$).

Conclusions: while standing with rocker sole shoes, obese subjects showed augmented pressure under the toes whereas forefoot and heel pressure had no significant difference compared to the flat-bottomed shoes. As walking with rocker sole shoes resulted in decreased forces and pressures under the forefoot but increased overload at heel and midfoot regions, obese individuals may not benefit from wearing rocker sole shoes during walking, at least from a plantar pressure distribution perspective.