A018 HSCI

A Systematic Review On The Effects Of Maximally Cushioned Running Shoes And Ground Reaction Forces

Abstract

Introduction: Running is a popular recreational activity but is also associated with overuse injuries due to repeated mechanical stress to bone, articular structures, and soft tissue. The HOKA One brand is a popular maximally cushioned shoe that is advertised to utilize a large cushioning and rocker sole to decrease ground reaction forces (GRF), thereby diminishing mechanical stress to the lower extremity and decreasing risk for injury. However, the effects of maximal cushioned shoes in the reduction of GFR is currently unknown. Therefore, the purpose of this review is to determine the effects of the HOKA One shoe on GFR.

Methods: A literature review was completed using the databases Academic OneFile, Academic Search Premier, and PubMed with the keywords HOKA, maximal cushion shoes, running, biomechanics, and ground reaction forces. Inclusion criteria included: English-language, full-text, peer-reviewed journals; articles analyzing ground reaction forces and the HOKA One brand; articles utilizing standardized outcome measures; and articles with a sufficient description to analyze the strength of their methodology.

Results: Nine articles were included in the final review after applying the Strengthening the Reporting of Observational studies in Epidemiology (STROBE) guidelines, which provide direction on conducting cohort, case-control, or cross-sectional studies. All 9 studies demonstrated lower extremity GFR were either increased or had no significant change while running in HOKA One brand. The overall STROBE rating was high, indicating sound methodological strength and confidence in the results.

Discussion and Conclusion: Maximally cushioned running shoes resulted in increased leg stiffness during heel strike and is similar to what is observed in runners who transition from running on hard surfaces such as concrete, to softer surfaces such as a rubber track, cushioned turf, or sand. The claim that Hoka Ones and other maximally cushioned shoes reduce GFR and therefore risk of running injuries isn't supported based on current evidence, despite the brand's popularity.