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Title	The influence of boots on the way we walk; a Kinematics and Kinetics study
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Authorship	Yes
Abstract	Boots are widely used by many people for various purposes, but their impact on gait biomechanics and injury risk is not well understood. This study investigated the effects of boots on lower limb biomechanics during walking, compared to casual shoes. The lower limb joint kinematics and kinetics of 20 healthy male participants were compared during self-paced walking with boots and shoes. The results showed that walking with boots is associated with significantly greater hip extensor and ankle dorsiflexor moments in early stance, hip power generation and knee power absorption in pre and initial swing phases, hip abductor and knee adduction moments in the entire stance, concentric work of hip flexors, extensors, abductors, ankle dorsiflexors and eccentric work of hip abductors and ankle dorsiflexors. The subtalar supinator moment in the entire stance, ankle angular velocity in late stance, concentric and eccentric works of hip adductors and subtalar supinators were significantly lower in the boot condition too. It can be concluded that compensatory adjustments at the hip and knee joints occur in response to the ankle restrictions. Although walking with boots could be beneficial for individuals with ankle ligament and tendon pathologies, it could increase the loading of the lower limb joints and muscles, and hence, the risk of musculoskeletal injuries and osteoarthritis. Our findings could have implications for the prevention and treatment of boot-related and musculoskeletal injuries. This study provides novel insights into the biomechanical effects of boots on walking, as well as footwear design and development.

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Manuscript Items

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