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Taking the load off diabetic foot ulcer patients

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Abstract

Persons with diabetes have a 12-25% lifetime risk of developing a diabetic foot ulcer. These difficult to treat wounds serve as portals for infection, which is the primary cause for the majority of lower extremity amputations performed on individuals with diabetes. While diabetic complications such as peripheral neuropathy and peripheral arterial disease predispose individuals to diabetic foot ulcers, trauma is necessary to initiate these wounds. Often it is the repetitive micro trauma associated with standard daily physical activity that leads to the breakdown of the soft tissue. As trauma is responsible for the formation of DFU, the mitigation of trauma is critical to the healing of these wounds. Offloading DFU refers to the concept of redistributing weight bearing stress on the foot away from a DFU. The "gold standard" for accomplishing this is the total contact cast. However, use of removable cast walkers (as well as other removable devices such as surgical shoes) is the norm in practice. While removable cast walkers have been shown to provide equivalent offloading to total contact cast, their capacity to be easily removed and reapplied has proven to be a double-edged sword. Although removable walkers allow for daily home dressing changes and wound examinations and are much easier to utilize within the clinic, they also allow patients to select how compliant they will be with the devices. Advances in the understanding how offloading compliance impacts healing and how compliance may be increased are a focus of much ongoing research.

Biography

Ryan Crews serves as a clinical research scientist within the Center for Lower Extremity Ambulatory Research (CLEAR) and as an instructor in the Department of Podiatric Surgery and Applied Biomechanics at the Scholl College of Podiatric Medicine at Rosalind Franklin University. He has had over 25 peer reviewed publications in journals such as Diabetes Care, Clinical Biomechanics, and Gait and Posture. His research focuses on the role of biomechanics and physical activity in the formation and treatment of injury/disease. His primary research focuses are diabetic complications of the lower extremities, and risk identification and prevention of falls in the elderly.