

Analysis of the Gait Characteristics of Soldier between the Normal and Loaded Gait

Authors : Ji-il Park, Min Kyu Yu, Jong-woo Lee, Sam-hyeon Yoo

Abstract : The purpose of this research is to analyze the gait strategy between the normal and loaded gait. To this end, five male participants satisfied two conditions: the normal and loaded gait (backpack load 25.2 kg). As expected, results showed that additional loads elicited not a proportional increase in vertical and shear ground reaction force (GRF) parameters but also increase of the impulse, momentum and mechanical work. However, in case of the loaded gait, the time duration of the double support phase was increased unexpectedly. It is because the double support phase which is more stable than the single support phase can reduce instability of the loaded gait. Also, the directions of the pre-collision and after-collision were moved upward and downward compared to the normal gait. As a result, regardless of the additional backpack load, the impulse-momentum diagram during the step-to-step transition was maintained such as the normal gait. It means that human walk efficiently to keep stability and minimize total net works in case of the loaded gait.

Keywords : normal gait, loaded gait, impulse, collision, gait analysis, mechanical work, backpack load

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