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Title of presentation: Analysis of hip impact velocity during real-life sideways falls by older adults

Abstract

Falls cause at least 90% of hip fractures in older adults and most cases are from sideways falls that cause impact to the hip region. Preventing these often-devastating injuries is of growing importance given the ageing of the population. Wearable hip protectors and compliant flooring represent promising prevention strategies, but products must be tested under realistic impact velocities. Videos of real-life sideways falls experienced by older adults (n=24) were digitally tracked to determine the time-varying positions and velocities of the hip. Preliminary results indicate that, at 10, 7.5, and 5 cm above the height of hip impact, the average vertical hip velocity was 1.58 (SD=0.48) m/s, 1.44 (SD=0.39) m/s, and 1.19 (SD=0.29) m/s, respectively. This study provides new evidence on hip impact velocities in sideways falls to inform the design and evaluation of hip protectors and compliant flooring for hip fracture prevention.