C-MILL GAIT ADAPTABILITY TRAINING AFTER FALL-RELATED HIP FRACTURE; USER`S PERSPECTIVE AND INTENSITY OF TRAINING

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PURPOSE: This study aimed to evaluate the experience of older adults with a fall-related hip fracture with the novel concept of gait adaptability training on a treadmill augmented with visual context (i.e., obstacles and targets), and to compare the intensity of this training with conventional treadmill training and overground gait training.

METHODS: Thirty older adults (83±6yrs) with a recent fall-related hip fracture were randomly allocated to 6 weeks of dose-matched C-Mill gait adaptability treadmill training (N=9), conventional treadmill training (N=9) or conventional overground gait training (N=11). Participant`s experience was evaluated after the training period with a purpose-designed questionnaire. For the C-Mill and conventional treadmill groups, the intensity of training was defined as the average number of steps taken during the training sessions, as registered by the instrumented treadmill. The number of steps taken during one overground gait training was manually assessed by two online observers in a group of 38 representative older adults (81±7yrs) in a similar rehabilitation phase.

RESULTS: The C-Mill group showed the most positive results on all questions, followed by the overground gait training group and the conventional treadmill group. C-Mill participants rated the training as useful, motivating, challenging and enjoyable (all mean scores > 8.0 on a scale from 1 to 10). Participants took significantly more steps during C-Mill training (803 [426-1084], median [min-max]) and conventional treadmill training (784 [417-1416]) compared to overground gait training (343 [90-1180], both p≤0.001).

CONCLUSIONS: C-Mill gait adaptability training was feasible and well accepted by older adults recovering from a fall-related hip fracture. C-Mill training combines the increased intensity of treadmill walking (i.e., twice as many steps compared to overground gait training!) with practicing gait adjustments to environmental context (an important fall-risk factor).