



RehabMove 2018: WALKING ADAPTABILITY TRAINING IN PEOPLE AFTER STROKE: A RANDOMIZED CONTROLLED TRIAL

C Timmermans¹, M Roerdink¹, CGM Meskers², PJ Beek¹, TWJ Janssen¹

¹Vrije Universiteit Amsterdam, AMSTERDAM, Nederland

²VU Medical Center, AMSTERDAM, Nederland

PURPOSE: The ability to adapt walking to environmental properties and hazards, a prerequisite for safe walking, is often impaired in persons after stroke. This study aimed to compare the efficacy of two walking-adaptability interventions: treadmill-based C-Mill therapy (therapy with augmented reality) and the overground FALLS program (conventional therapy program using physical context). We hypothesized that, besides the difference in type of environmental context, C-Mill therapy would result in better outcomes than the FALLS program, owing to its expected greater amount of walking practice operationalized by the number of steps taken per session.

METHODS: Within a randomized controlled trial with pre-intervention, post-intervention, retention and follow-up tests, 30 persons after stroke (≥ 3 months) with walking and/or balance deficits were randomly allocated to either 5 weeks of C-Mill therapy or the FALLS program. Outcome measures were walking speed and walking adaptability, using 10MWTs with or without physical context and a novel Interactive Walkway assessment with augmented context. A cognitive task was added to assess dual-task performance. The amount of walking practice was scored using the treadmill's inbuilt step counter (C-Mill therapy) and video recordings (FALLS program).

RESULTS: Both interventions showed significant improvements in walking speed, walking adaptability and cognitive dual-task performance when walking in enriched environments. Furthermore, C-Mill therapy showed a greater improvement in walking speed at the 10MWT with physical context compared to the FALLS program; however, this was no longer significant at retention. C-Mill therapy encompassed twice as many steps per session compared to a FALLS program session.

CONCLUSIONS: Both C-Mill and FALLS training led to task-specific improvements in walking adaptability; the greater improvement in walking speed might be explained by the greater amount of walking practice during C-Mill therapy.