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Effect of Accelerometer Based Feedback on Paretic Upper Extremity Amount of Use and Quality of Movement: A Case Study

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Abstract

Purpose/Hypothesis: To determine the effects of accelerometer based feedback on clinical measures of paretic upper extremity (UE) recovery in people post-stroke and examine the relationship between these changes and paretic UE amount of use (AOU) measured by an accelerometer.

Subjects: 7 people chronic post-stroke (5 males, 2 females; aged 62.03 ± 11.33 years) with an Upper Extremity Fugl-Meyer score range of 10-63 were included for this poster.

Materials/Methods: Subjects wore wrist accelerometers for 3 weeks in the home. Clinical measures (Motor Activity Log, Stroke Impact Scale, Chedoke Arm and Hand Activity Inventory, and the ABILHAND) were assessed weekly. Data analysis included a repeated measures ANOVA and Pearson correlations.

Results: Improvements and declines were present for clinical measures in individual subjects, but group changes were insignificant ($p = 0.11$, $p = 0.23$). No significant relationships were found between the change in clinical measures and paretic UE AOU. There was a trend for subjects with greater impairments post-stroke to have greater nonparetic UE use.

Conclusions: Feedback led to insignificant improvements in clinical measures, but these were not retained. Effects, which appeared to vary based on stroke severity and individual perception, may not have been retained due to short treatment period.

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