Spring 2017

Comparisons of Intrinsic Motivation of Novel Stroke Rehabilitation Interventions for Upper Extremities (UE)

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An estimated 80% of individuals with stroke experience upper limb dysfunction and 60% of stroke survivors will not regain full use of the affected arm. Improvement in motor function is possible even in the chronic phase of stroke through motor rehabilitation. Rehabilitation is a lengthy process and has little chance of success if a patient is not dedicated to his or her regime. Highly motivated patients are more likely to adhere to a rehabilitation program, and motivation has been linked to better therapeutic outcomes in many studies.

This study evaluated how motivating participants of experimental stroke rehabilitation interventions found their upper extremity (UE) rehabilitation regime and compared those scores to the data gathered in the Human Performance Laboratory (HPL).

A literature review was conducted. Interventions were sorted into the categories gaming, gaming with assistance, robotic rehabilitation, mixed reality, and conventional therapy. Six studies from the HPL were used. Mean I/E subscale scores of the IMI were gathered for each category and compared to scores from the HPL using Glass's Delta for effect size.

HPL interventions were significantly more intrinsically motivating than conventional therapy ($\Delta = 0.640$). All other categories produced a higher mean score for reported I/E than did the HPL. These results were not statistically significant for categories gaming or gaming with assistance. Mixed reality and robot training reported higher I/E scores with medium effect sizes of $\Delta = 0.686$ and 0.674, respectively.

All interventions had above-average I/E scores. Personality traits of the participants can likely account for these higher-than-average levels of IM. Though the HPL did not outperform these categories, it is comparable to other gaming interventions and has the unique advantages of affordability and accessibility these lack. Characteristics of the mixed reality and robot training interventions may account for their high I/E scores.