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Woodcock Grant Report:

Those living with HIV are at a greater risk of developing a plethora of health-related problems. Among these complications are cognitive decline and dementia. The further issue with these difficulties is that walking, and in turn, adequate quality of life, depends on the capability of dual-cognitive tasks in everyday scenarios. For instance, reducing gait speed while walking and talking shows a failing in cognitive function and an increased risk of falls. Gait speed is a significant predictor for mild cognitive decline, deterioration in functional mobility, inability to maintain instrumental activities of daily living, and risk for cardiovascular disease. Other studies also suggest that gait speed is predictive of future health status and disease occurrences that could provide information in regards to hospitalization, discharge location, as well as mortality. Unfortunately, I frequently encountered all the problems above in those living with HIV.

As an alternative to lessen the cognitive decline and promote quality of life, this research suggested exploring the benefits of a brain neuromodulator, tdcs, on the frontal lobe (5 treatments) or cognitive area. Currently, we recruited 30 of the proposed 40 participants in May 2021. Preliminary results revealed significant improvement in gait speed after five tdcs treatments targeted at the frontal/cognitive area. The increased gait speed suggests that the capacity of dual cognitive function improved in these participants. This finding suggests the tDCS therapy was beneficial and could be supported as an alternative treatment to diminish cognitive decline in this group. We endeavored to complete data collection by May 2022 and enlist the 40 proposed participants. Nevertheless, based on the number of participants, our discoveries and conclusions are promising. Additionally, we are working on the report for this specific project. We intend to submit findings to the American College of Sports Medicine conference as an abstract (November 2021) and the International Journal of Physiotherapy during summer 2022.

The above was possible thanks to the Woodcock grant, I was able to examine the effectiveness of the neuromodulator, and presently, the HIV clinic is including this therapy as part of the treatment plan. As a final remark, future direction for this study will focus on utilizing the tdcs on the cognitive areas during diverse tasks such as gait training on a treadmill, balance protocols, and memory exercises. I foresee that this work will not merely improve gait speed but also will promote healthier balance and, thus, improve the quality of life in people living with HIV.