Aerobic Fitness Level Relate to Cognitive Function in People with Parkinson's Disease as Assessed by the 6 Minute Walk Test

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ABSTRACT

While individuals with Parkinson's disease (PD) present with impaired motor control, 26% demonstrate cognitive impairment independent of dementia[1]. In fact, cognitive dysfunction often predates motor impairments and can diminish quality of life[2] as well as life expectancy[3]. Fortunately, aerobic exercise has been shown to improve cognition in older adults[4] as well as PD patients[5-7]. However, only a limited number of studies have determined a clear relationship between aerobic fitness levels and cognition in people with PD. Determining whether cognitive status and aerobic fitness levels are associated in people with PD would provide greater evidence for intervention focused on aerobic fitness that has a goal of improving cognition. Using the 6-minute walk test (6MWT), we were able to categorize participants based on their aerobic fitness levels[9]. This categorization allowed us to test the relationship between cognitive status and aerobic fitness. **PURPOSE:** The purpose of this study is to identify differences in cognition in people with PD who meet aerobic fitness norms compared to those who do not meet aerobic fitness norms. **METHODS:** 19 people with PD (Hoehn & Yahr stages I-III) were recruited. Aerobic fitness was assessed via estimated oxygen consumption using the 6MWT (VO_2 peak) This test has shown test-retest reliability in people with PD[8]. 6MWT classifications were used to determine if participants met (PD-HI) or did not meet fitness norms (PD-LO). Cognitive function was assessed via the Montreal Cognitive Assessment (MoCA) and scored out of 30 points. To compare the two groups, a Welch's Two Sample T-Test was performed using the R Statistical Program, and p-values were set to <0.05. RESULTS: The PD-HI group (n=9) had a mean MoCA score of 26.0(+/-1.5). The PD-LO group (n=10) had a mean MoCA score of 22.4(+/-3.2). The PD-HI group had significantly higher MoCA scores compared with the PD-LO group (p=0.004). **CONCLUSION:** This study is one of the first to observe a relationship between increased MoCA scores and high aerobic fitness status in populations with PD.