GNYACSM Abstract

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Comparison of Body Composition to Strength, Balance, and Function in Parkinson's Disease: A Pilot Study

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ABSTRACT

PURPOSE: To determine the relationship between body composition and strength, balance, and function in people with Parkinson's disease (PD). **METHODS**: All subjects signed written consent to participate in this IRB approved study. Twelve subjects with PD underwent dual x-ray absorptiometry (DXA) followed by strength, balance, and functional measures: 1 repetition maximum (RM) leg press, 30 second chair stand (30 CST), the Fullerton Advanced Balance test (FAB), and the MiniBestest (MB) in a randomized order. An independent t-test was used for outcomes between gender. Pearson's correlation was used to determine a relationship between body composition and all outcome measures. Significance was set at 0.05. **RESULTS**: Six men (65.7 ± 5.9), and 6 women (72.7 ± 5.1) were analyzed. There was no significant difference in the MB, FAB, or 30 CST between gender ($p = 0.69$, $p = 0.902$, $p = 0.361$). In men, there was a strong negative correlation between body fat % (BF%) and the MB (-0.926, $p = 0.008$) and FAB scores (-0.743, $p = 0.09$). A moderate negative correlation between BF% and TUG (0.428, $p = 0.397$) and 30 CST (-0.495, $p = 0.318$). No correlation was found between total lean body mass (LBM) and the MB, TUG, or FAB, but a moderate correlation between LBM and 30 CST (0.253, $p = 0.628$) was found. In women, there was a moderate negative correlation between BF% and the TUG (-0.479, $p = 0.337$), and a low negative correlation between BF% and the MB (-0.218, $p = 0.678$), FAB (-0.246, $p = 0.638$), and 30 CST (-0.239, $p = 0.649$). A moderate negative correlation was found between LBM and the TUG (-0.475, $p = 0.341$), FAB (-0.539, $p = 0.27$), and 1RM (-0.457, $p = 0.362$). **CONCLUSION**: Body fat % in both genders showed negative effects on strength, balance and function, where LBM has mixed results by gender. These findings highlight the importance of body composition in assessing and managing strength, balance, and function in people with PD.