

Association of Muscular Power and Selected Gait Parameters in Community-Dwelling Older Adults

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Lower extremity power becomes increasingly more important as one ages. The decline in muscular power is thought to be more influential than strength on mobility and functional performance. **PURPOSE:** The purpose of the study was to examine the relationship between peak power (PP) and peak velocity (PV) with selected gait parameters in community-dwelling older adults. **METHODS:** Twelve male and eleven female subjects ($M \pm SD$ = age: 71.1 ± 4.4 yrs; height 1.71 ± 0.09 m; mass 84.6 ± 17.2 kg) completed a series of five power chair stands and two habitual walking trials. The subjects were asked to stand as quickly as possible from a seated position to determine lower extremity muscular power. A Tendo weight lifting analyzer was secured around their waist and peak power (PP) and peak velocity (PV) were measured during each chair stand. The average was used for data analysis. During the walking trials, subjects were asked to walk 20 m at their usual walking pace. Gait speed (GS), step length (SL), step frequency (SF), and double support time (DST) were measured in the middle of the walkway with a gait mat. The average of the two trials was used for data analysis. **RESULTS:** There was a significant relationship between PP and GS ($r = .49$, $p = .02$) and PP and SL ($r = .55$, $p = .01$). PV and GS ($r = .56$, $p = .01$), and PV and SL ($r = .58$, $p = .004$) were also significantly related. PP and PV were not significantly correlated to SF or DST ($p > .05$). **CONCLUSION:** Peak power and peak velocity during a power chair stand task were significantly associated with gait speed and step length. This suggests older adults with greater power and velocity during a power chair stand task tend to walk faster and have a longer step length.