Assessment of Functional Fitness Measures Among Community-Dwelling Older and Younger Adults

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A loss of muscular power over time is a key predictor of future mobility disability and increased fall risk. This deterioration can impact functional independence. **PURPOSE:** The purpose was to compare young adults (CON), low power (LP), and high power (HP) older adults on selected functional fitness (FF) assessments. **METHODS:** Fifty-nine older and 20 young adults (n=20, age 22.3±1.9 yrs; height 170.4±9.7 cm; mass 75.6±29.3 kg) volunteered to complete the following FF tests: power stair climb (PSC), habitual 20 m walk (HW), 30-s chair stand (CS), and 8-foot up-and-go (UPGO). Relative power for the PSC was used to create the two power groups among the older adults: low (n=35, age 75.2±6.7 yrs; height 164.2±10.3 cm; mass 73.2±12.3 kg) and high (n=24, age 71.7±5.2 yrs; height 166.5±11.0 cm; mass 72.6±14.7 kg). For the PSC, each subject was instructed to ascend a set of nine steps as quickly and as safely as possible for three trials. The best time was used for analysis. Data were analyzed using a one-way ANOVA. **RESULTS:** The ANOVA yielded a statistically significant difference among the groups on UPGO ($F = 35.5$, $p < .01$) and CS ($F = 78.2$, $p < .01$). There was a statistical difference between the LP and CON and LP and HP on the HW ($p < .01$); however, no difference was found between CON and HP ($p = 1.0$). CON performed more CS (53%, 38%) and completed the UPGO quicker (52%, 27%) compared to LP and HP, respectively.

Power and Selected Functional Fitness Measures (M±SD)

Variables	Low Power (n = 35)	High Power (n = 24)	Young (n = 20)
Relative Power (W/kg)	2.9±0.5*	4.9±1.0*	6.4±1.0*
Chair Stand (reps)	13.7±5.0*	17.8±4.1*	19.0±4.5*
Up-and-Go (s)	7.5±2.8*	5.0±1.1*	3.6±0.4*
Habitual Walk (m/s)	1.2±0.2*	1.4±0.2	1.4±0.1

Note: * Significant difference between groups ($p < .01$)

CONCLUSION: Although the LP was able to perform the HW at their age-predicted normal range, the HP group walked 17% faster. Community-dwelling older adults with greater relative power walked faster, performed more CS, and completed the UPGO quicker than the low power group. These results suggest muscular power is important for older adults to maintain adequate FF levels.