Relationship Between 3-Meter Backward Walk Test and Grip Strength Test in Community-Dwelling Young-Older Adults

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Introduction

- The 3-meter backward walk test (3-MBWT) is an important assessment tool used in evaluating neuromuscular control, proprioception, risk of fall and balance.
- On the other hand, the hand grip strength (HGS) test primarily is used to measure muscular strength or maximum tension generated by one's forearm muscles.

Purpose

- This study aimed to assess the relationship between 3-MBWT and HGS among community dwelling young-older adults.

Methods

- Community-dwelling older adults participated in this study.
- 3-MBWT was measured using: a meter rule, to measure 3 meters on the ground, paper tape to mark out landmarks and a stopwatch to measure the time taken to complete the test.
- HGS was measured in line with the guideline of the American Society of Hand Therapists.
- Anthropometric variables were assessed following standard procedures.
- Descriptive statistics of mean and standard deviation were used to summarize data.
- Pearson's correlation coefficient was used to verify the correlation between 3-MBWT and HGS test, as well as the influence of socio-demographic factors on both 3-MBWT and HGS.
- Alpha level was set at 0.05.

Results

- Sixty-two participants with the mean age of 67.73 ± 1.96 years took part in the study.
- The mean values for 3-MBWT and HGS were 3.45 ± 0.80s and 29.58 ± 15.53kg, respectively.
- There was a significant correlation between 3-MBWT and HGS ($r = -0.39$; $p = 0.002$).
- However, there was no significant correlation between 3-MBWT and socio-demographic characteristics ($p > 0.05$).
- Similarly, there was no significant correlation between HGS and socio-demographic characteristics ($p>0.05$) except height and gender ($p < 0.05$).

Conclusions

- The 3-MBWT and HGS were significantly correlated with one another.
- Anthropometric characteristics did not influence the 3-MBWT. On the other hand, only height and gender showed a significant influence on HGS.
- Therefore, both 3-MBWT and HGS may serve as useful functional outcome measures for fall predictability and frailty on older adults.

References

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