THE EFFECT OF WALKING POLES ON GAIT CHARACTERISTICS AND FEAR OF FALLING IN COMMUNITY DWELLING, FOUR-WHEEL WALKER DEPENDENT AND NON-ASSISTIVE DEVICE DEPENDENT OLDER ADULTS

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ABSTRACT (Limited to 300 Words):

BACKGROUND AND PURPOSE: Walking poles are advertised as a beneficial gait device for individuals of all ages. Claims that they help increase confidence, balance, posture, and stride quality have led to their growth in popularity. However, to date there is no published evidence showing the impact of walking poles on gait parameters or fear of falling in the older adult population. The purpose of this study was to analyze gait speed, stride length, double-limb support, base of support, fear of falling, and change in perceived walking quality in four-wheel walker (4WW) and non-assistive device (NAD) dependent older adults, comparing the differences between walking pole and usual assistive device usage.

METHODS: Using a two-group repeated measures design, twenty-one community dwelling older adults (mean age = 85.4 ± 5.1, 7 male, 14 female) participated in this study. Eight subjects were 4WW dependent and 13 were NAD dependent for mobility. Participants completed walking trials with their usual assistive device and with walking poles. Gait characteristics were measured using the GAITRite® system. Fear of falling was measured on a visual analog scale and a global rating of change scale was used for perceived gait quality. Statistical significance was determined with $p<0.05$ using paired and two-sample t-tests. Pearson and Spearman correlation coefficients were used to analyze relationships between measures.

RESULTS: Significant differences ($p<0.05$) were found within the 4WW dependent group for gait speed, double-limb support, base of support, and fear of falling in trials with walking poles compared to usual assistive device. Within the NAD dependent group, significant differences were found in gait speed, double-limb support, and fear of falling in trials with walking poles compared to trials without. Between groups, significant differences were found in stride length and base of support. Strong correlations between gait speed and double-limb support time were discovered with use of usual assistive device compared to use of walking poles.

CONCLUSION: With minimal training on walking pole usage, both 4WW dependent and NAD dependent older adults displayed decreased gait speed, increased double-limb support time, and increased fear of falling when using walking poles. Additionally, 4WW dependent adults displayed decreased stride length and increased base of support.