

THE IMPACT OF WALKER STYLE ON GAIT CHARACTERISTICS IN ADULTS WITH MULTIPLE SCLEROSIS

Madanayake D, Ethen R, Geeting C, Johnson C, Kempe M

Saint Catherine University

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BACKGROUND AND PURPOSE: Multiple sclerosis (MS) is a disease of the central nervous system affecting over 400,000 people in the United States. Approximately 50 percent of individuals with MS use a gait assistive device within 15 years of diagnosis, and this increases to 83 percent within 30 years. Walkers are one type of device commonly prescribed. There is a lack of research specific to the MS population regarding the impact of walker style on gait characteristics. The purpose of this study was to examine whether different walker styles affect gait characteristics in this population.

SUBJECT(S): Nine subjects (\bar{x} = 61, range 42-76 years old) diagnosed with MS (\bar{x} =15.3 years, range 0-50 years) completed this repeated measures pilot study. Five subjects used a gait assistive device at baseline.

METHODS: Subjects were fitted with three types of walkers: two-wheeled walker, four-wheeled walker, and Gaiter. Education regarding the use of each type of walker was provided. Subjects ambulated three times with each type of walker on a 100-foot walkway. During each trial, gait speed, stride length, double limb support, pelvic rotation, and cadence were measured using the BTS G-Walk, a tri-axial accelerometer.

ANALYSES: A one-way ANOVA was used to analyze data for differences in these variables between walker types.

RESULTS: No significant differences were found in gait speed ($p=0.18$), double limb support ($p=0.78$), or pelvic rotation ($p=0.78$) between the three walker types. Differences in cadence were statistically significant ($p<0.01$), and differences in stride length approached significance ($p=0.07$).

CONCLUSION(S): While walker style significantly affected cadence, it did not significantly affect the other gait characteristics measured in this small group of individuals with MS. Due to the small sample size and variability in performance in this pilot study, further research is needed to better understand the relationship between walker style and gait characteristics in the MS population.

IMPLICATIONS: When recommending or prescribing assistive walking devices for clients with MS, clinicians may note that this pilot study indicates that use of a 2WW may result in a lower cadence compared with other walker styles.