The Figure of Eight Walk Test: Reliability and Associations with Stroke-Specific Impairments

Wong SST (1), Yam MS (2), Ng SSS (3)

(1) Physiotherapy Department, Haven of Hope Hospital, (2) Haven of Hope Community Rehabilitation Day Centre, Haven of Hope Christian Service, (3) Department of Rehabilitation Sciences, The Hong Kong Polytechnic University

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Introduction
Impaired walking performance is common among stroke survivors, and the most common goal in rehabilitation is to improve walking function. Hess and his colleague developed the Figure-of-8 walk (F8W) test which involves straight and curved paths in order to represent the walking skills required in daily life. In the F8W test, subjects are required to walk a figure-of-8 around 2 cones spaced 5 feet apart. The alternation between straight and curved paths requires changes in motor strategies and motor planning.

Objectives
To investigate (1) the intra-rater, inter-rater and test-retest reliability of the F8W test times; (2) its correlation with other stroke-specific impairments; and (3) the cut-off scores best discriminating patients with stroke from the healthy elderly.

Methodology
Design: Cross-sectional study. Participants: A convenience sample of 64 subjects: 35 subjects with chronic stroke and 29 healthy elderly. Main Outcome Measures: F8W test times, Fugl-Meyer Motor Assessment for the lower extremities (FMA-LE), hand-held dynamometer measurements of bilateral hip abductor and knee extensor isometric muscle strength, Five-times Sit to Stand test (FTSTST) times, 10 meter walk test (10MWT), Timed up and go test (TUGT) times, Berg Balance Scale (BBS) and Activities-specific balance confidence scale (ABC) scores.

Result
Results: Excellent intra-rater, inter-rater and test-retest reliability (ICC range 0.944–0.999) of F8W test times were found. The F8W test times were also found to be significantly associated with FMA-LE, BBS, FTSTST, TUG scores, and 10MWT. No significant correlation was found between F8W test times and either leg strength or ABC results. Conclusions: The F8W test time is correlated well with stroke-specific
impairments and walking tests. The F8W is a reliable measurement tool for assessing the advanced walking performance of subjects with chronic stroke.