White Paper: Walking Speed: the Sixth Vital Sign

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Walking speed is “almost the perfect measure.”1 A reliable, valid, sensitive and specific measure, self-selected walking speed (WS), also termed gait velocity, correlates with functional ability, and balance confidence. It has the potential to predict future health status, and functional decline including hospitalization, discharge location, and mortality. Walking speed reflects both functional and physiological changes, is a discriminating factor in determining potential for rehabilitation, and aids in prediction of falls and fear of falling. Furthermore, progression of WS has been linked to clinical meaningful changes in quality of life and in home and community walking behavior. Due to its ease of use and psychometric properties, WS has been used as a predictor and outcome measure across multiple diagnoses. In addition, WS was chosen by a panel of experts as the standardized assessment to measure locomotion for the Motor Function Domain of the NIH Toolbox.

Walking speed, like blood pressure, may be a general indicator that can predict future events and reflect various underlying physiological processes. While WS cannot stand alone as the only predictor of functional abilities, just as blood pressure is not the only sign of heart disease; WS can be used as a functional “vital sign” to help determine outcomes such as functional status, discharge location, and the need for rehabilitation (Figure 1).

Walking is a complex functional activity; thus, many variables contribute to or influence WS. These include, but are not limited to, an individual’s health status, motor control, muscle performance and musculoskeletal condition, sensory and perceptual function, endurance and habitual activity level, cognitive status, motivation and mental health, as well as the characteristics of the environment in which one walks. While performance measures used in conjunction with WS are often better able to predict health status, the use of WS alone can be an excellent predictor. For example, WS predicts the post hospital discharge location 78% of the time, and the addition of cognition or initial FIM scores does not significantly strengthen the ability of defining if a patient will be discharged to home or to a skilled nursing facility.

Several standardized assessments and physical performance tests reliably predict function and health related events. Yet the consistent use of measures in physical therapy and other clinical settings is not widely practiced. Factors contributing to this non-use of standardized assessments may include insufficient time, inadequate equipment or space, or lack of knowledge in interpreting the assessment. Walking speed is one standardized measure that can be quickly and easily incorporated into the PT examination/evaluation process.

Determining feasibility is the first essential step in deciding to use a test or measure in the clinic. The main questions clinicians should pose regarding a test’s or measure’s feasibility are: (1) Is the test safe? (2) Is it cost effective? (3) How easy is the test to administer? and (4) How easily are the results of the test graded and interpreted?

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Figure 1. A collection of walking speed times that are linked to dependence, hospitalization, rehabilitation needs, discharge locations, and ambulation category.
Walking speed is easily measurable, clinically interpretable, and a potentially modifiable risk factor. For these reasons, using WS as the sixth vital sign is both pragmatic and essential.

REFERENCES


