Utilization of a 5-Meter Walk Test in Evaluating Self-selected Gait Speed during Preoperative Screening of Patients Scheduled for Cardiac Surgery

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ABSTRACT

Purpose: The 5-Meter Walk Test (5MWT) has been recommended for use by the Society of Thoracic Surgeons as an outcome measure in the Adult Cardiac Surgery Database to predict frailty in individuals who are candidates for cardiac surgery. However, there are no published reports of performance on this test in the literature. Therefore, the purpose of this study was to provide descriptive analysis of the 5MWT for individuals who were candidates for cardiac surgery. **Methods:** Retrospective analysis of 113 preoperative cardiac surgery candidates who underwent a 5MWT. Gait speed calculated from the test was completed as part of preoperative testing administered by physical therapists. Three trials were performed with up to a one minute rest between trials. Differences by trial, gender, use of assistive device, and gait or postural deviations were determined using t-tests. **Results:** Mean gait speed was 1.05 (SD 0.26) m/s for the subjects. There was a statistically significant increase in gait speed from trial 1 to trial 3 by 0.05 (0.08) m/s ($p < 0.0001$). There were no significant differences in gait speed between males and females. Participants using assistive devices displayed a significantly slower mean gait speed of 0.70 (0.27) than those who walked unaided, with a mean gait speed of 1.08 (0.24) m/s ($p < 0.0001$). Participants with noted gait or postural deviations also walked significantly slower (mean 0.84, SD 0.22) than those without deviations (mean 1.15, SD 0.21) ($p < 0.0001$). **Conclusions:** Subjects displayed a slight increase in speed from trial 1 to trial 3, reinforcing a cited benefit of the shorter distance of the 5MWT that may limit fatigue. Although statistically significant, the increase in speed from trial 1 to 3 may not be clinically significant

in relation to the intent of the test. Significantly slower gait speeds were noted when a subject had an observable gait or postural deviation or used an assistive device.

Key Words: gait speed, cardiac surgery, CABG

INTRODUCTION AND PURPOSE

Gait speed is an easy-to-determine, valid, and reliable assessment^{1,2} that has been frequently cited as a useful clinical indicator of an individual's function, disability, and performance of activities of daily living.³⁻⁷ In addition, gait speed has been suggested as a viable outcome measure for documenting progress in rehabilitation or as a proxy measure of a change in functional status and safety.⁸⁻¹¹ More recently, gait speed has been demonstrated to be useful as a predictive tool for future morbidity and mortality.¹²⁻¹⁷

Some of the most commonly used methods of gait speed analysis include the 6-Minute Walk Test (6MWT),^{18,19} Timed-Up-and-Go (TUG),^{20,21} and the 10-Meter Walking Test (10MWT);³ however, each test evaluates a different aspect of gait including endurance, incorporation of sit-to-stand and a turn, or speed over a short distance, respectively. In addition to these established tests, there are many variations of distance used and testing protocols.²²⁻²⁴ Instruments most often employed include a standard stopwatch and markings or cones to clearly mark the distance that a subject must walk.³ However, sophisticated instruments including an ultrasonic accelerometer, pressure sensitive floor covering, or other digital recording devices may be employed to provide more quantifiable details of gait speed; these devices are more often chosen for research purposes as they are not as convenient to apply in clinical situations.^{25,26}

Normative values have been cited for gait speed for various conditions, diagnoses, gender, and age ranges across the population spectrum.²³ Self-selected gait speeds for community-dwelling older adults have been cited to be between 0.99 to 1.6 m/sec.²⁷⁻³⁰ Average self-selected gait speeds for healthy subjects aged 60 years or older have ranged from 0.60 to 1.45 m/s.^{23,31-36} Slow gait speed has

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been defined as a walking speed less than 0.80 m/s on a 4-m walk test in elderly and in chronically ill patients.^{37,38} An individual ambulating at a self-selected gait speed of less than 0.25 m/sec is more likely to be dependent in one or more ADL functions.²⁵ Reduced gait speed is also associated with increased fall risk,^{9,10,39} ischemic stroke,⁴⁰ depressive symptoms,⁴¹ and incontinence.³⁹

The Society of Thoracic Surgeons (STS) established the STS Adult Cardiac Surgery Database to evaluate outcomes of cardiac surgeons and cardiac surgery centers. This was intended to improve quality and patient safety by providing publicly available feedback and outcomes for cardiothoracic surgeons, hospitals, and patients. Individual patient information is collected for the database by completion of the Adult Cardiac Surgery Database Information Collection Form. Approximately 94% of cardiac surgery centers in the United States voluntarily participate in the STS National Database.⁴² Based on the results of the Database information, a composite star rating is assigned to cardiac surgeons and cardiac surgery centers based on a 1-, 2- or 3-star rating with a 3-star rating indicating the highest quality and patient safety. This rating is publicly available on the STS website (www.sts.org). An important aspect of this database is the risk-adjustment of patient populations, defined as a “corrective tool used to level the playing field regarding the reporting of patient outcomes, adjusting for the differences in risk among specific patients.”⁴³ In 2010, as part of this risk adjustment process, the STS recommended that gait speed data be added to the Adult Cardiac Surgery Database, which resulted in the 5MWT being included on the Society of Thoracic Surgeons Adult Cardiac Surgery Database Data Collection Form Version 2.73 on January 14, 2011.⁴⁴ This decision was based on the findings of Afilalo and colleagues,⁴⁵ who found that a patient who took longer than 6 seconds to walk 5 meters at a self-selected gait speed was at an increased risk of major morbidity and mortality from cardiac surgery; however, there are no previous studies examining the application of the 5MWT in preoperative screening for cardiac surgery. The STS defined major morbidity as one of 5 major complications including stroke, renal failure, prolonged ventilation (>24 hours), deep sternal wound infection, and a need for subsequent surgery for any reason.

There are few studies discussing the use or reliability specifically of the 5-Meter Walk Test (5MWT). Salbach et al⁴⁶ found the 5MWT to be more responsive than the 10MWT in individuals 5 weeks after a stroke for a comfortable or self-selected gait speed; however, there has been very little evidence of a 5MWT being investigated in other populations, despite the initial responsiveness in this patient population. Salbach et al⁴⁶ theorized that this test was more responsive in this patient population as the patient is less apt to fatigue, especially in the local muscles affected by the stroke. Similar to the 5MWT, Green et al⁴⁷ employed a 15-foot walk test (4.57 meters) with 102 patients with severe aortic stenosis and found a strong association between gait speed and dependent functional status and further suggested that assessment of gait speed is

a useful indicator in risk stratification. Despite the varying methods, self-selected gait speed testing has been found to be highly reliable in healthy individuals without significant comorbidities. In addition, intrarater reliability,²³ interrater reliability,⁴⁸ and test-retest reliability^{27,48-50} have been reported as high.

The purpose of this study was to provide descriptive analysis of the 5MWT in the context of individuals who are candidates for cardiac surgery. As the STS has chosen to endorse and use the 5MWT for its Adult Cardiac Surgery Database and interpret the results in the context of patient frailty, the authors of this study felt that in order for future studies regarding utilization of the 5MWT to be clinically accepted and generalizable, a descriptive analysis of patient response to the 5MWT within this specific patient population would be useful. This study provides baseline data pulled from a larger study investigating the predictive validity of the 5MWT in postsurgical functional outcomes and discharge disposition, specifically hospital length of stay and ICU length of stay.

METHODS

Design

This is a retrospective analysis of the results of 5MWT on 113 consecutive patients scheduled for cardiac surgery at Beaumont Hospital, Troy, MI (Table 1). Of the 113 patients, 78% were male and 22% were female. Testing occurred in the outpatient (OP) setting for 92% of the patients and 8% were tested preoperatively as inpatients (IP). Inclusion criteria for the gait speed assessment included individuals who were scheduled to undergo cardiac surgery which included coronary artery bypass grafting, valve replacement, or valve repair by median sternotomy. Exclusion criteria for the gait speed assessment included emergent surgery where a thorough prescreening was not feasible, cardiac instability as determined by the surgeon where exertion may have exacerbated the patient's condition, cognitive limitations that would affect a participant's ability to follow the testing instructions, or a transient orthopedic injury such

Table 1. Patient Demographic Information

	Males n=88	Females n=25
Age in years Mean (SD) Range	64.6 (10.8) 32 to 85	67.2 (10.5) 42 to 85
Height in cm Mean (SD) Range	176 (8.1) 157 to 193	160 (7.1) 150 to 173
Weight in kg Mean (SD) Range	93 (17) 60 to 149	75 (23) 41 to 146
Inpatient Outpatient	8 (9.1%) 80 (90.9%)	1 (4.0%) 24 (96.0%)
Used assistive device	6 (6.8%)	2 (8.0%)
Observed gait or postural deviation	26 (29.6%)	11 (44.0%)

as a fracture or sprain that may have abnormally altered the patient's baseline gait pattern.

Procedures

All testing procedures were completed by one of 6 licensed physical therapists (including authors CW and SK) at Beaumont Hospital. All of the therapists were trained in the testing protocol by the department's clinical educator (Appendix). In addition, the testing procedures were outlined on the 5MWT documentation template and could be referenced as needed before the testing procedure. This study received an Exemption from Review from the Beaumont Health System (Royal Oak, MI) Human Investigation Committee (HIC). As this study of clinical patient data was retrospective in nature and required no direct patient interaction, the HIC verified that the hospital's *General Consent to Treatment* constituted informed consent. The rights and privacy of the patients were protected at all times.

Testing was completed for surgical candidates who were admitted to the hospital prior to surgery (inpatients) and surgical candidates who received their preoperative workup without requiring an inpatient stay (outpatients). During an office visit with their cardiac surgeon, outpatient candidates were scheduled for surgery through the hospital boarding department, who then notified the physical therapy department of a candidate for the 5MWT.

Upon the patients' arrival to the surgical screening office, the 5MWT was completed as the one of the first items of the preoperative screening assessment. If the patient was an inpatient, the physical therapist travelled to the patient's hospital room for administration of the 5MWT. In both the IP and OP setting, the preoperative assessment was documented within the electronic medical record and was provided without additional billing to the patient or payer. Testing used a standard stopwatch, a standard 25' retractable metal tape measure and two orange colored cones 5 meters apart. Three separate trials of the 5MWT were documented in the patient's electronic medical record in the unit of 1/10th of a second. If the patient reported fatigue between trials, a sitting or standing rest period of up to one minute was allowed. This rest period was not necessary in a substantial portion of the cases. In addition, any clinically significant gait deviations, postural abnormalities, injuries, or other noteworthy items were recorded.

In general, the administration of the 5MWT took less time in the OP setting than IP testing procedures due to the additional requirement of a more thorough evaluation of medical stability for inpatients, which were inherently less medically stable. The OP testing required approximately 15 minutes of a physical therapist's time, which included travel to the patient's location, setup of the training station, introduction and instruction of the test, clarification of any questions, performance of the test, and the subsequent discussion and education of the results. An abbreviated subjective history included any significant pain or disability, the patient's current home environment, family or social

support, and relevant medical comorbidities that the physical therapists would encounter during intervention after surgery. During OP testing, the examiners did not routinely access comorbidities or past medical history other than those which were elicited during the brief subjective history or those conditions that they could personally observe during the gait speed test.

In the preoperative testing of the IP awaiting surgery, more time for the testing was required and averaged 20 to 30 minutes per assessment. Reasons for the increased duration included a more comprehensive, detailed chart review that included elements such as current cardiac status, relevant cardiac enzyme levels, vital signs including pulse oximetry, available lab values, co-morbidities, and results of diagnostic tests. In addition, this increased time included communication with members of the health care team including nurses, cardiac surgeons or their physician extenders, and other members of the care team whose input may have been required based on the chart review.

During testing of an IP, rare obstacles were encountered that required additional clinical judgment by the physical therapist regarding appropriateness for testing. These included the presence of intravenous nitroglycerin administration, abnormal vital signs, atrial fibrillation, medical instability, physical debility, or inability to ambulate. During the decision-making process whether to administer the 5MWT in the IP setting, criteria were similar to that employed by the physical therapist when choosing to proceed, modify, or hold treatment with other acute care patients.

After completion of the 5MWT, each patient was provided with a brief explanation of his or her individual results. If the patient's 5MWT was longer than 6 seconds, the patient was counseled to anticipate the need for more extensive rehabilitation and possible equipment or assistance needs after discharge. If the patient's 5MWT was less than 6 seconds, the patient was notified of this value and emotional reassurance was provided to minimize anxiety in anticipation of their procedure.

Statistical Analysis

All data analyses used SAS for Windows 9.3 (SAS Institute Inc., Cary, NC). A paired t-test was conducted to examine differences between the mean of the first and third trial. It should be noted that 3 subjects demonstrated gait speeds that were substantially slower and less consistent than those within the overall patient population (Figure 1). The three subjects included a 75-year old female who used a standard cane and did not speak English, a 77-year old male who used a 4-wheeled rolling walker, and a 79-year old female who also used a 4-wheeled rolling walker. As the likelihood of measurement or testing error was relatively low, as evidenced by previous research, it was anticipated that these subjects, although statistical outliers, were most likely a valid subgroup of the cardiac surgery patient population and should not be removed during data analysis. Data are presented with these subjects both included and excluded. Repeated measures analyses using

Figure 1. Mean time per subject for 3 trials to complete 5MWT.

a generalized linear model with the speeds as the dependent variable and the trial number as the independent variable were used to look at the change over time in the whole group as well. Interaction terms were considered in these models and then removed when insignificant. Next, mean gait speeds were analyzed in the context of the various demographic data using t-tests and repeated measures to examine differences between gender, assistive device use, and presence or absence of gait or postural deviations. Correlations between gait speed and patient height, weight, and age were examined using scatter plotting and Pearson Correlation coefficients.

RESULTS

Gait speeds were found to be normally distributed (Table 2). Mean gait speed in m/s increased from the first trial to the third trial with a total mean change of 0.050 (0.08) m/s ($p < 0.0001$), although the changes are very small and may not be clinically relevant (Figure 2). With the three outliers excluded from the gait speed analysis,

the change between trials was 0.055 (0.08) m/s ($p < 0.0001$). Repeated measures analysis also demonstrated a statistically significant difference across the 3 trials ($p < 0.0001$).

When examining differences between genders, males had higher gait speeds on each trial, but the changes from trial 1 to trial 3 were not different (Table 3). The change in speed from trial 1 to trial 3 was 0.06 (0.08) m/s for males and 0.05 (0.08) m/s for females, both of which were statistically significant. Repeated measures analysis showed a statistically significant difference across trial and gender.

Participants who used assistive devices had much slower mean gait speeds for each trial. There was no statistically significant difference between those that used assistive devices and those who did not when analyzing the change from trial 1 to trial 3. The speeds changed between the first and third trials for those with no assistive device, but the change was not statistically significant. There was a significant difference across trials for those using assistive devices compared to those who walked unaided.

Participants with an observable gait/postural deviation had significantly slower mean gait speeds than subjects without at every trial and for the average of the 3 trials. Participant height significantly correlated ($r = 0.33$, $p < 0.01$) with gait speed. Participant weight was not significantly correlated to gait speed ($r = 0.04$, $p > 0.05$). Age was significantly negatively correlated to gait speed ($r = -0.27$, $p < 0.01$).

DISCUSSION

The analysis of the results of our study provides baseline data on gait speed for patients awaiting cardiac surgery. The data demonstrate that the 5MWT does not introduce fatigue in patients with cardiovascular impairment awaiting surgery. In fact, our data demonstrate that in general, subjects walked faster from trial 1 to 3, indicating a possible practice or positive testing effect. Perera et al⁵¹ found that the estimated standard deviation for change for gait

Table 2. Gait Speed for All Patients

n=113*	Mean	Std Dev	Median	Minimum	Maximum
Trial 1					
sec/5m	5.36 (5.10)	2.22 (1.34)	5.00 (4.95)	3.00	22.10 (11.00)
m/s	1.02 (1.04)	0.26 (0.24)	1.00 (1.01)	0.23 (0.45)	1.67
Trial 2					
sec/5m	5.15 (4.92)	2.00 (1.24)	4.70 (4.70)	3.20	19.40 (11.00)
m/s	1.06 (1.07)	0.26 (0.24)	1.06 (1.06)	0.26 (0.45)	1.56
Trial 3					
sec/5m	5.03 (4.79)	2.02 (1.09)	4.80 (4.71)	3.20	21.38 (8.00)
m/s	1.08 (1.09)	0.26 (0.23)	1.04 (1.06)	0.23 (0.63)	1.56
Change from trial 1-3 (m/s)	0.05	0.08	0.05	-0.32	0.27
Avg of 3 trials					
sec/5m	5.18 (4.94)	2.07 (1.20)	4.80 (4.80)	3.29	20.96 (10.0)
m/s	1.05 (1.07)	0.26 (0.24)	1.04 (1.05)	0.24 (0.51)	1.52

*Data in parenthesis is n=110 with 3 outliers removed (if different from original value)

Figure 2. Change in gait speed among trials.

speed tests of 10 feet, 4 meters or 10 meters was 0.11 m/s-0.16 m/s, which was less than our finding of an increase in average speed by 0.05 (0.08) m/s. This suggests that, although a statistically significant change was noted from trial 1 to trial 3 for the patients in our study, the change was less than the estimated standard deviation of change for a stable patient, indicating that this variation is not likely to be clinically significant. Practice effects have been noted in other gait tests such as the 6MWT with recommendations to use the first one to two trials as a practice test and use the last or best trial as the final test,^{52,53} as opposed to the average of the trials as recommended by Afilalo et al.⁴⁵ The implications of this article, in the context of additional research, indicate that walking speed should be further integrated with physical screenings, assessments, and used as an outcome measure. Clinicians struggle with selecting an appropriate and responsive test that will be able to detect clinically relevant change over time. In comparing

a 5MWT to a 10MWT in individuals post-stroke, Salbach et al⁴⁶ found no significant difference between the first administration of a 5MWT and a 10MWT; however, on a second administration of the respective walk test, the mean comfortable gait speed measured by the 5MWT was greater than that measured by the 10MWT. It was hypothesized that the 5MWT may be more clinically useful in the presence of chronic disease or disability due to the shorter distance requirement and subsequent exertion. In examining the 5MWT and the 10MWT at a comfortable, self-selected pace or at a maximum pace, it was found that the 5MWT at a comfortable pace was the most sensitive to change, followed by the 5MWT at maximum pace.

Several studies have suggested that the distance walked is not a strong influence on performance of gait speed; however, concerns remain about implementation of any functional outcome measure without establishment of clinical applicability, validity, and reliability of that specific investigative tool.^{2,54} Graham et al⁵⁴ examined the importance of methodology of gait speed evaluation and found that a subject's walking pace was the strongest influence on walking performance when compared to gait test methodology protocol. They did not find a statistically significant influence on starting protocol or distance walked as they related to gait speed performance. In conditions where a longer gait speed assessment may not be feasible, medically appropriate or safe, a shorter distance for testing gait speed may have a positive influence on the results. In fact, a shorter test such as a 5MWT may be more inclusive to patients with physical limitations or disabilities, whereas a longer test such as a 10MWT with a 5-meter acceleration and deceleration may exclude some patients who cannot consistently or safely ambulate that far.

There are a number of limitations to this study. This study was carried out at one suburban hospital that, despite the fact that it has a culturally diverse patient population

Table 3. Gait Speed by Demographics With and Without Outliers Included

	Trial 1 (m/s)		Trial 2 (m/s)		Trial 3 (m/s)		Average (m/s)		Change from Trial 1 to 3 (m/s)	
	n=113	n=110 dropped outliers	n=113	n=110 dropped outliers	n=113	n=110 dropped outliers	n=113	n=110 dropped outliers	n=113	n=110 no outliers
Male	1.05 (0.25)	1.06 (0.24)	1.08 (0.24)	1.09 (0.24)	1.10 (0.24)	1.11 (0.24)	1.08 (0.24)	1.09 (0.24)	0.05 (0.08)	0.05 (0.08)
Female	0.92 (0.29)	0.97 (0.24)	0.96 (0.30)	1.02 (0.24)	0.98 (0.30)	1.03 (0.23)	0.95 (0.29)	1.01 (0.23)	0.06 (0.08)	0.06 (0.08)
p value	0.022	0.13	0.045	0.23	0.030	0.17	0.029	0.17	0.61	0.54
No A.D.	1.05 (0.25)	1.05 (0.25)	1.08 (0.24)	1.08 (0.24)	1.10 (0.24)	1.10 (0.24)	1.08 (0.24)	1.08 (0.24)	0.055 (0.08)	0.06 (0.08)
Used A.D.	0.68 (0.26)	0.85 (0.09)	0.69 (0.26)	0.86 (0.09)	0.72 (0.28)	0.90 (0.11)	0.70 (0.27)	0.87 (0.09)	0.04 (0.06)	0.05 (0.08)
p value	<0.0001	0.07	<0.0001	0.042	<0.0001	0.058	<0.0001	0.053	0.61	0.91
WNL gait/ posture	1.13 (0.22)	1.13 (0.22)	1.16 (0.21)	1.16 (0.21)	1.18 (0.21)	1.18 (0.21)	1.15 (0.21)	1.15 (0.21)	0.05 (0.09)	0.05 (0.09)
Abn gait/ posture	0.81 (0.22)	0.84 (0.18)	0.85 (0.23)	0.89 (0.20)	0.87 (0.22)	0.91 (0.18)	0.84 (0.22)	0.88 (0.18)	0.07 (0.05)	0.07 (0.05)
p value	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.19	0.12

Legend: Values reported as mean (SD). p value in bold if <0.05

Abbreviations: A.D., assistive device; WNL, within normal limits; Abn, abnormal

in the state of Michigan, may still limit the overall generalizability of this study. Beaumont Health System has a larger hospital within its system where surgeons may have sent more complex cardiac surgery patients, thereby influencing our subject population. Although we are not aware of this occurring, there was the potential for the physical therapist to not be properly notified of some patients undergoing cardiac surgery, thus not completing a preoperative 5MWT. In addition, in this study, there was no post-test verification to determine if any patients did not proceed with cardiac surgery or may have been unable to due to mitigating factors. There was no established control group to compare the 5MWT to in order to establish a baseline grouping to determine if there was a difference in 5MWT between candidates for cardiac surgery and healthy individuals of the same age. Finally, the licensed physical therapists had varying years of experience and did not have a uniform amount of subject testing with some therapists doing a majority of the 5MWT and some therapists doing only one to two tests. Two of the physical therapists doing a majority of the 5MWT were authors of this study (CW, SK) and we cannot rule out the possibility of investigator bias during testing; however, due to the retrospective nature of this study, it may be minimized in this case.

Suggestions for future research includes correlation of the results of the 5MWT and its predictive use in rehabilitation needs after surgery or Functional Independence Measures (FIM) scores that are often used for determination for discharge placement.⁵⁵ In addition, correlation between preoperative 5MWT and the need for discharge to skilled nursing facility or inpatient rehab unit instead of home, or assistive device use after surgery might also be investigated. In addition, as the 5MWT is cited less in the professional literature, applicability with different patient populations, diagnosis categories, and demographic distribution would assist clinicians in demonstrating the generalizability of this test. An attempt to replicate the study results published by Afilalo et al⁴⁵ demonstrating the predictive validity of the 5MWT as a proxy measure of frailty and its influence on major morbidity and mortality would further help to clarify the applicability of the 5MWT as a useful tool in pre-screening for cardiac surgery. In addition, further research may be useful to investigate the suggestion by Afilalo et al⁴⁵ regarding the 6 second threshold for the 5MWT (ie, 0.833 m/s) and its relationship with the concept of frailty. In this study, 23 of 113 subjects (20.3%) had mean gait speeds greater than 6 seconds and would be classified as frail by this categorization.

Continued evidence into the predictive validity of gait speed may lead to gait speed analysis as a standard prescreening tool for many different types of surgical procedures, which may in turn assist physical therapists and other clinicians in identifying those patients who may need earlier mobility, more intensive services, and preplanning for a longer duration of hospital stay or need for placement in a skilled nursing facility before return home.

CONCLUSIONS

Gait speed continues to be further established as an assessment tool and is beginning to be used in prediction of future morbidity and mortality; however the clinician is continuously challenged to select a measure that is valid, reliable, sensitive to change, and minimizes risk during testing. In the context of an impending cardiac surgery, a 5MWT may be preferable to a longer and more strenuous functional assessment. The 5MWT appears to be applicable to this patient population with no adverse effects within this retrospective analysis. In implementation of the 5MWT on 113 subjects scheduled for cardiac surgery, gait speed increased between 3 trials with and no sign of fatigue or intolerance; however, this increase in speed between trials is likely not clinically significant. The presence of a gait or postural deviation or use of an assistive device increased the risk of a slower gait speed.

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Appendix. Society of Thoracic Surgeons Protocol for 5-Meter Walk Test

The test can be performed with any patient able to walk 5 meters using the guidelines below.

1. Accompany the patient to the designated area, which should be well-lit, unobstructed, and contain clearly indicated markings at 0 and 5 meters.
2. Position the patient with his/her feet behind and just touching the 0-meter start line.
3. Instruct the patient to "Walk at your comfortable pace" until a few steps past the 5-meter mark (the patient should not start to slow down before the 5-meter mark).
4. Begin each trial on the word "Go."
5. Start the timer with the first footfall after the 0-meter line.
6. Stop the timer with the first footfall after the 5-meter line.
7. Repeat three times, allowing sufficient time for recuperation between trials.
8. Record the times in seconds on the data collection form. The system will calculate the average speed when you enter the data.

Note: The patient may use a walking aid (cane, walker). If the patient is receiving an IV drip, he/she should perform the test without the IV only if it can be interrupted temporarily without any potential risk to the patient. If not, then the patient may perform the test pushing the IV pole.

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<http://www.sts.org/news/using-gait-speed-measure-frailty>