This job aid provides information about both the six minute walk test (6MWT) and the two minute walk test (2MWT). These are practical tests that measure functional capacity and cardio-respiratory endurance. They were developed as an alternative to the 12-minute field performance walking test to accommodate individuals with respiratory diseases who are unable to tolerate walking for 12 minutes. In addition to being better tolerated, the 6MWT and 2MWT are easier to administer, and provide a better reflection of activities of daily living. While the 6MWT is still considered the "gold standard" (Solway et al, 2001), the 2MWT is considered a valid alternative for patients with moderate to severe COPD (Leung et al, 2006).

Historically, we measured functional capacity by simply asking patients "how many flights of stairs can you climb or how many blocks can you walk?" The walk test is a standardized, objective measurement, which is more accurate and has been proven to be valid and reliable for a variety of diagnoses and patient populations (American Thoracic Society, 2002). These include:

- COPD
- Heart Failure (HF)
- Cystic Fibrosis (CF)
- Peripheral Vascular Disease (PVD)
- Primary pulmonary hypertension
- Fibromyalgia
- Older adults and frail elderly
- Lung Transplantation patients
- Lung Resection patients
- After lung volume reduction surgery

Nurses and Therapists can use this job aid to learn about the tests, and as a cue to help them administer the tests appropriately.

Conducting the Test

Location You can perform this test indoors or outdoors, weather permitting. Ensure that the location is safe (as free of clutter and obstacles as possible). Remember, cardiopulmonary patients should not exercise in extreme temperatures.

Set-up Mark off a walking path using a tape measure and brightly colored tape or flag markers. Include at least two turnaround points. (Blue or green "painters" tape works well and can be found at most "dollar" stores.)

Equipment Make sure you have a stopwatch, tape measure, portable chair, blood pressure cuff, and the Borg RPE and Dyspnea Scales. Vinyl dressmaker's tapes can be purchased at a very low cost, or a surveyor's wheel is also a great tool to have for measuring distances accurately.

Instructions Tell the patient:

You will be walking laps on a course that I have marked off for you.

When I say go, walk as fast as you can for [two or six] minutes.

I will time the [two or six] minutes using this stopwatch.

You can stop to rest if you get short of breath, feel weak, fatigued or have chest or leg pain.

If you have to rest, the stopwatch will continue to run.

Once you are ready to go again, you can continue to walk for the amount of time left in the test [up to either 2 or 6 minutes].

Guidelines for Clinician

- Take the following vital signs at the time points indicated:
    - Before test: heart rate (HR), blood pressure (B/P) and respiratory rate (RR)
    - During test: HR and if possible B/P and RR
    - At end of test: HR, B/P, and RR
    - If available, you may also take SpO2 using pulse oximeter.
- Instruct the patient on use of the appropriate Rating of Perceived Exertion (RPE) Scale (Borg RPE or Dyspnea scale) prior to starting the test. Explain to the patient that the response to exercise using the scale will be conducted at the end of the test.
- Have patient wear appropriate and comfortable shoes
- Assistive devices (cane, walker, etc) may be used during the test
- Instruct patient not to eat within 1 hour before the test when possible
- Instruct patient to take medications as prescribed
- Walk behind the patient, however, do not coax them
- Inform the patient of the time after each minute has passed
- Conserve the patient's cardio-respiratory capacity by keeping conversation to a minimum and asking them not to talk during the test.
- At the end of the test, have the patient sit down in the chair
- Take the vital signs at that time, starting with HR (HR drops from peak rate more rapidly than BP, at a rate of about one beat per second elapsed)
- Have the patient rate their response to exercise intensity using the appropriate RPE scale.
- Calculate and document the total distance in that [2 or 6] minute time period.

Safety Guidelines

Pretest

Do not start the test if:

- Resting Systolic BP > 180mmHg
- Resting Diastolic BP > 100mmHg
- Resting Heart Rate > 100bpm or < 45bpm
- Resting Respiratory rate > 24/min (too breathless to converse)
- Assess the patient for peripheral edema, dyspnea at rest/minimal exertion, S3 heart sound, crackles/fine respiratory rales in lower lung bases, or other adventitious breath sounds prior to test.

During the Test

If the patient's vital signs become abnormal during the test, continue **monitoring and documenting every 5 minutes** until:

- Systolic BP returns to within 10-20mm of pre-exercise value, and
- HR returns to within 10bpm of pre-exercise measurement

NOTE: Modify or terminate exercise test if the patient develops any of the following symptoms during the test…

- Angina
- Confusion
- Light-headedness
- Ataxia
- Pallor
- Cyanosis
- Nausea
- Marked dyspnea
- Increased fatigue
- Signs of peripheral circulatory insufficiency
- Claudicating or other significant pain
- Facial expressions signifying distress

…or if there is an untoward vital sign response or failure of vital signs to return to baselines promptly, such as:

- Systolic BP drops 10-20 mm below baseline (should rise)
- Systolic BP > 200mmHg
- Diastolic BP >110mmHG
- Pulse pressure < 10 (SBP minus DBP)
- Heart Rate drops > 10bpm below baseline (should rise)
- Respirations > 30/min
- Dyspnea > 3/10 "Moderately SOB"
- Significant changes in heart rhythm

Other Exemptions:

- Patient cannot walk without assistance of another person
- Patient is bed bound
- Orthopedic restrictions, such as NWB
- Activity restrictions such as only allowed up to bedside chair or commode

Normal Aging and the Cardiovascular System

Keep the following facts in mind when conducting this test on older adult patients:

- Heart rate may not rise as quickly or as much as in younger population
- Heart rate during exercise should be under 120-130bpm
- Beta blockers may affect heart rate response to exercise. Therefore HR may not be a reliable indicator, use the appropriate RPE scale to measure response to exercise.

While patient performance will vary based on diagnosis and comorbidities, average distances that are

considered normal for healthy, community dwelling older adults are listed in the table below (Steffan et al, 2002).

Age	60-69 Years	70-79 Years	80-89 Years
Distance Feet (Meters)			
Male	1876 (572)	1728 (527)	1368 (417)
Female	1765 (538)	1545 (471)	1286 (392)

References

1. ASCM/AHA guidelines. Obtained from www.acsm.org/www.aha.org
2. Solway, S., Brooks, D., Lacasse, Y., & Thomas, S. (2001). A qualitative systematic overview of the measurement properties of functional walk tests used in the cardio-respiratory domain. *CHEST*, *119*(1), 256-270.
3. Leung, A., Chan, K., Sykes, K., & Chan, K. (2006). Reliability, Validity, and Responsiveness of a 2-Min Walk Test To Assess Exercise Capacity of COPD Patients. *CHEST*, *130*(1), 119-125.
4. American Thoracic Society (2002) ATS Statement: Guidelines for the Six-minute Walk Test. *American Journal of Respiratory and Critical Care Medicine*, 166(1), 111-117.
5. Steffan, T.M., Hacker, T.A., Mollinger, L. (2002) Age- and gender-related test performance in community-dwelling elderly people: Six-Minute Walk Test, Berg Balance Scale, Timed Up & Go Test, and gait speeds. *Physical Therapy*, 82(2), 128-137.