

WORKSHOP

6 MINUTES WALKING TEST

The 6MWT is a practical, and simple walking test that assesses the submaximal level of functional exercise capacity. Also marker of disease severity and prognosis. Monitoring and evaluating the efficiency of therapeutic interventions including pharmaceutical management, surgery, and rehabilitation outcome results.

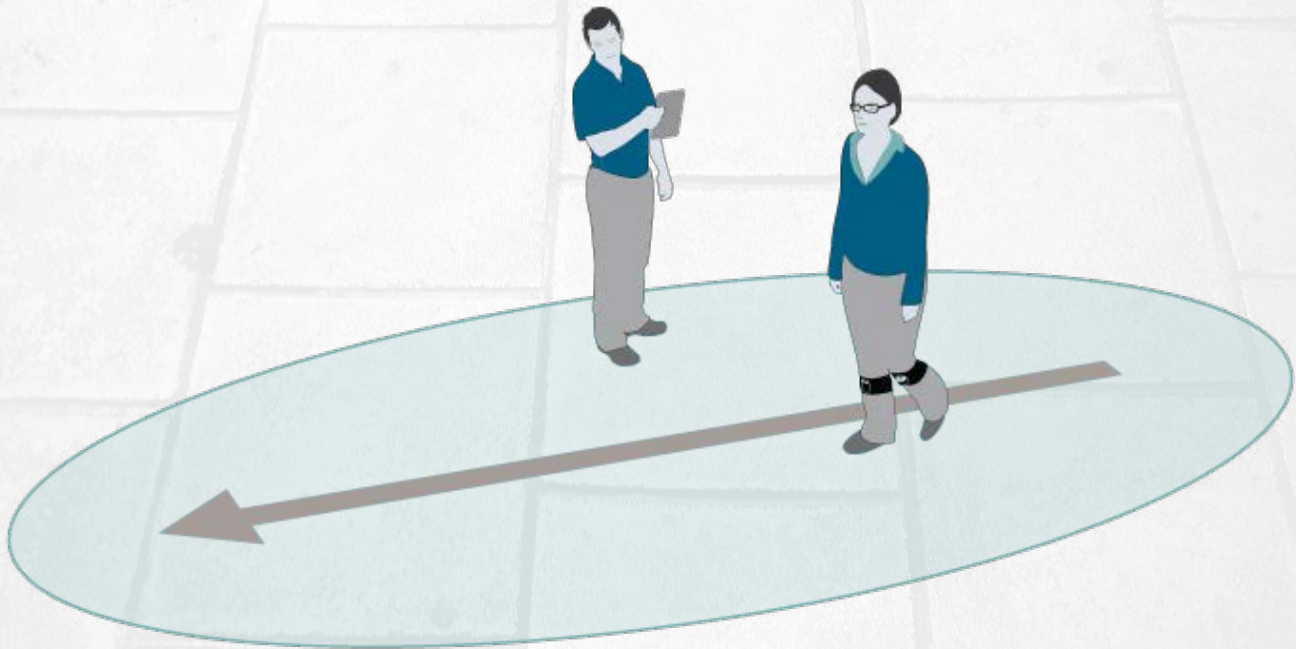


INSTRUCTOR



Essam AlHarbi, RCP, PFT

Pulmonary Function Technologist
Respiratory Care Service
King Faisal Specialist Hospital and
Research Centre
Riyadh, Saudi Arabia



EQUIPMENT:

6MWT Protocol and Data Collection and Goal Setting Form on clipboard	Measured and marked 30-metre walkway
Pulse oximeter Heart rate (HR) monitor Blood pressure (BP) cuff	Oxygen therapy should be available in the testing location for all tests.
BORG Scale	Stopwatch
Length counter	An emergency plan

PRECAUTIONS:

- Absolute contraindications for the 6MWT include:
 1. Unstable angina
 2. Myocardial infarction during the previous month
- Relative contraindications for the 6MWT include:
 1. Resting heart rate of more than 120
 2. A systolic blood pressure of more than 180 mm Hg
 3. Diastolic blood pressure of more than 100 mm Hg

PATIENT PREPERATION

1. Comfortable clothing should be worn.
2. Appropriate shoes for walking should be worn.
3. Patients should use their usual walking aids during the test (cane, walker, etc.).
4. The patient's usual medical regimen should be continued.
5. A light meal is acceptable before early morning or early afternoon tests.
6. Patients should not have exercised vigorously within 2 hours of beginning the test.

6MWD CALCULATION:

Calculate the distance walked;
 Number of labs ----- x 100 meter + final partial lab ----- = total distance walked in 6 minutes: ----- meter.

Calculate the normal distance (in meters) for their gender, age, height, and weight using these equations:

(For adults 40 – 80 years old).

Male: distance = (7.57 x height cm) – (5.02 x age) – (1.76 x weight kg) -309 m.

Female: distance = (2.11 x height cm) – (2.29 x weight kg) – (5.78 x age) + 667 m.

(For children 4 to 14 years old).

Male: distance = 196.78 + (39.81 x Age) – (1.36 x Age²) +(132.28 x Height Meters)

Female: distance = 188.61 + (51.50 x age) – (1.86 x age²) +(86.10 x Height Meters)

Male:

Lower limit = 6MWD – 153.

Female:

Lower limit = 6MWD – 139.

THE BORG SCALE

0 Nothing at all
2 Slight (light)
3 Moderate
4 Somewhat severe
5 Severe (heavy)
6
7 Very severe
8
9
10 Very, very severe (maximal)

TECHNIQUE:

Pre Test:

The 6MWT is best performed in a building with unobstructed level corridors. A distance of 30 meters (100 ft) is considered suitable and the laps are then counted.

Prior to start of the test, the patient should rest (at least 10 minutes) quietly in a chair placed by the starting position. During this time, the following resting measurements should be obtained: oxygen saturation (Spo₂), heart rate, baseline dyspnea and fatigue, and systemic blood pressure.

Medications: The type of medication, dose, and number of hours taken before the test should be noted. Significant improvement in the distance walked, or the dyspnea scale, after administration of bronchodilators has been demonstrated in patients with COPD.

After the subject has been at rest for 10 minutes, direct the subject to the 'start line' of the walking track, then describe the walking track to the subject, and then instruct to the subject of this test is to walk as far as possible for 6 minutes, you will walk back and forth in this hallway, you will probably get out of breath or become exhausted. You are permitted to slow down, to stop, and to rest as necessary. You may lean against the wall while resting, but resume walking as soon as you are able.

DURING THE TEST:

If patient on oxygen or needed it during the test, then during all walks by the patient oxygen should delivered in the same way with the same flow. If flow needs to increased during the walk this should be noted on the worksheet and considered during interpretation of the change noted in 6MWD. Measurements of pulse and SpO₂ should be made after waiting at least 10 minutes after any change in oxygen delivery and should be documented.



DURING THE TEST:

The technologist should be avoiding to walk behind the subject pulling the oxygen tank. Set the lap counter to zero, and the timer to 6 minutes (or stopwatch to zero).

Start the timer when the patient begins to walk, monitor the subject for any signs and symptoms during the test. Do not talk to anyone during the walk. Use an even tone of voice when using the standard phrases of encouragement. Do not get distracted and lose count of the laps. Ensure you keep count of the number of lengths or laps as the subject completes them, throughout the duration of the test. Each time the participant returns to the starting line, click the lap counter once (or mark the lap on the worksheet),

Use the following standard encouragements during the test, using an even tone of voice:

- At minute one: “You are doing well. You have five minutes to go.”
- At minute two: “Keep up the good work. You have four minutes to go.”
- At minute three: “You are doing well. You are halfway done.”
- At minute four: “Keep up the good work. You have only two minutes left”
- At minute five: “You are doing well. You have only one minute to go.”

When the time reaches exactly 6 minutes, say: “Stop!”. Consider taking a chair over to the subject if they look exhausted. Mark the spot where they stopped by placing a marker on the floor, then seat the patient and immediately record oxygen saturation (SpO₂) %, heart rate and Blood pressure, then after patient relaxed take the BORG scale score.



6MWT TERMINATION CRITERIA

- Onset of angina or angina-like symptoms
- Tachycardia above predicted heart rate maximum. i.e. Heart rate $> (220 - \text{age})$.
- Intolerable dyspnea
- Excessive diaphoresis
- Extreme paleness/ashen appearance
- SpO₂ $< 80\%$. Clinical discretion by the supervising clinician should be utilized in this instance, as the test may be continued safely in some patients. If the test is stopped
- Signs of poor perfusion including light headedness, confusion, ataxia, pallor, central cyanosis, Nausea, and sweating.
- If the test is stopped for the above reasons, stay with and observe the patient, and use your clinical judgement to initiate the required action.

Is this a medical emergency?

- Yes → Immediately initiate local protocol for medical emergency management.
- No → Initiate clinical action as required and continue to directly monitor patient.
- If symptoms resolve sufficiently within the duration of the 6MWT, the patient may continue the test.
- If symptoms resolve sufficiently but outside the duration of the 6MWT, consider repeating the test at a later date/time.