SOP #2011

6 Minutes Walk Test (6mWT)

- Always review the SOP before beginning administration of the measurement tool.
- Always read the SOP instructions verbatim to the participant.
- Never modify the procedure or instructions (a modified test is invalid/incomplete).
- Always notify the coordinator if you have any doubt or questions about the SOP.

Description

The 6-Minute Walk Test (6MWT) is a performance measure that assesses walking endurance over long distances.



Equipment

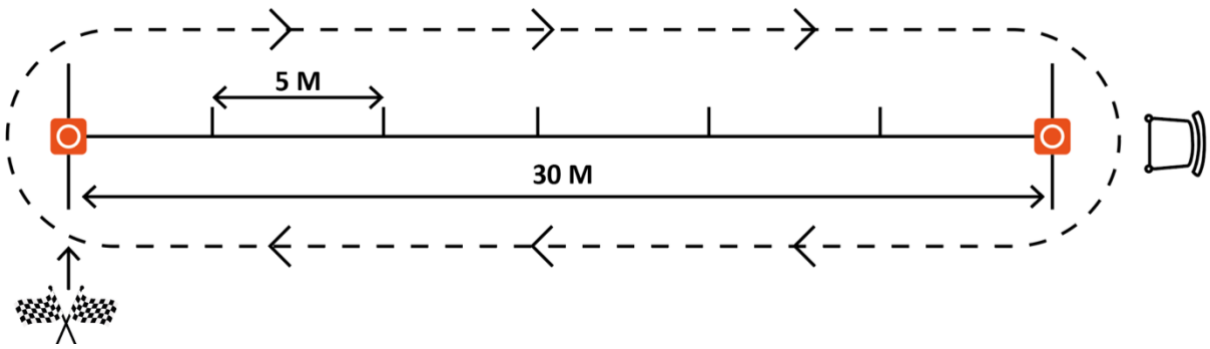


□ Stopwatch	□ Tape measure	□ Chair
□ 2 brightly coloured cones	□ Pulse oximeter	□ Gait belt
□ Brightly coloured adhesive tape	□ Bean bag or adhesive tape	□ Mechanical lap counter (optional)
□ Two “Assessment in progress” signs	□ Corridor, preferably 35 meters long, minimum 20 meters	□ Borg CR-10 scale (appended)
□ Stethoscope and sphygmomanometer or digital blood pressure monitor		

Equipment preparation

- □ A straight 30 meter-long walking course in a low traffic corridor is measured and marked on the floor at least every 5 meters with brightly coloured adhesive tape. If a 30-meter walking course is not available, the longest course possible with a minimum length of 20 meters shall be identified. The course length must be documented and used consistently during all subsequent visits.
- □ A cone is placed at each end of the course ensuring that the participants have sufficient space to safely walk around the cones.
- □ A chair is placed halfway along the course if space permits without affecting the course. Otherwise, the chair may be positioned at the end of the course (see image).
- □ “Assessment in progress” signs are placed at each end of the course.

Overhead view



Participant preparation

- □ The participant must wear comfortable clothing and shoes suitable for walking.
- □ Orthotics or walking aids used during the test must be noted on the scoring sheet. The same orthotics or walking aids must be used during subsequent visits for the same data collection.
- □ The participant must not have exercised vigorously within 2 hours of beginning the test. Make sure the participant has rested for 10 minutes before the test.

Contraindications according to the American Thoracic Society (ATS) guidelines
Absolute contraindications: unstable angina or myocardial infarction within the previous month (the examiner must verify in the medical record or ask the participant before the test).
Relative contraindications: Resting heart rate of more than 120 bpm, systolic blood pressure > 180 mm Hg or diastolic blood pressure > 100 mm Hg (measurements taken before the test).

Examiner instruction

- ☐ The examiner must place a gait belt on the participant prior to the start of the test.
- ☐ The examiner must stand in the middle of the course during the test, unless the participant is identified at risk of falling. If this is the case, the examiner must walk behind the participant and note this on the scoring sheet.
- ☐ The examiner must avoid talking to the participant during the test, except to say standardized encouragement phrases. The examiner must always use the same tone of voice when saying the phrases of encouragement and must not use other words of encouragement to prompt the participant to speed up.
- ☐ Each time the participant turns around a cone (when the first foot reaches the middle of the cone), one lap is recorded on the scoring sheet.
- ☐ **The test must be stopped if any of these signs and symptoms occur*:**
    - **Chest pain**
    - **Intolerable dyspnea**
    - **Leg cramps**
    - **Staggering**
    - **Diaphoresis**
    - **Pale or livid complexion**

*Some of these signs and symptoms are characteristic of certain neuromuscular diseases. The examiner must use clinical judgment to determine whether the test should be stopped or continued.

- ☐ If the participant needs to rest during the test, the stopwatch must not be stopped.
- ☐ If the participant stops before the 6 minutes are completed and refuses to continue (or if the examiner determines that the test should be stopped), the chair must be brought to the participant so that they can sit down. The total distance walked, the time at which the test was stopped and the reason for the test termination are recorded on the scoring sheet.

Test administration

Demonstration
The examiner demonstrates by walking 2 X 30 m.

Practice
No practice trial is provided for the participant.

Procedure

- ☐ The participant should sit at rest in a chair for at least 10 minutes before the test starts.
- ☐ Contraindications to the test must be verified by measuring heart rate and blood pressure. This information is recorded on the scoring sheet. Oxygen saturation (SpO2) must also be measured and recorded it on the scoring sheet.
- ☐ The participant rates their level of dyspnea and fatigue using the Borg CR-10 scale and these scores are recorded it on the scoring sheet.
- ☐ The standardized instructions are provided to the participant: *"The object of this test is to walk as far as possible for 6 minutes. You will walk back and forth in this hallway. Six minutes is a long time to walk, so you will be exerting yourself. You will probably get out of breath or become exhausted. You are permitted to slow down, stop, and rest as necessary. You may lean against the wall while resting but resume walking as soon as you are able. You will be walking back and forth around the cones. You should pivot briskly around the cones and continue back the other way without hesitation. Now I'm going to show you. Please watch the way I turn without hesitation."*
- ☐ The examiner demonstrates the task by walking one lap, including going around the cone quickly.

- □ Then, the examiner tells the participant: *«Just remember that the objective is to cover the greatest possible distance by walking, and in a safe manner, in 6 minutes, without running or jogging. The test will start after I say 'Go!' Do you have any questions?"*
- □ The participant is positioned at the starting line. When the participant indicates readiness, the start signal is given. The stopwatch is started on the word "Go": "*Go!".*
- □ Standardized instructions are provided to the participant:
  - After the 1st minute: *"You are doing well. You have 5 minutes to go."*
  - After the 2nd minute: "*Keep up the good work. You have 4 minutes to go."*
  - After the 3rd minute: "*You are doing well. You are halfway done."*
  - After the 4th minute: "*Keep up the good work. You have only 2 minutes left."*
  - After the 5th minute: *"You are doing well. You have only 1 minute to go."*
  - When the timer is 15 seconds from completion: "*In a moment I'm going to tell you to stop. When I do, just stop right where you are and I will come to you."*
  - When the timer rings (or the 6 minutes are up): *"Stop!"*
- □ The examiner walks over to the participant. If the participant looks exhausted, the examiner brings the chair. The spot where the participant stopped is marked by placing a bean bag or a piece of tape on the floor.
- □ The participant rates their level of dyspnea and fatigue using the Borg CR-10 scale, and these scores are recorded it on the scoring sheet.
- □ Heart rate and Oxygen saturation (SpO2) are measured and recorded on the scoring sheet.
- □ The distance covered in the final partial lap is measured using the tape measure. The distance is rounded off to the nearest tenth of a meter and recorded on the scoring sheet.
- ☐ The examiner congratulates the participant on their effort and offers a drink of water.

Trial(s)

The number of trials varies depending on the population and the objective of the research project. If a second trial is needed, the participant is given a sufficient rest period so that levels of dyspnea and fatigue return to the pre-test values. If it is not possible to perform two trials during the same visit, the second trial is performed during the next visit, ideally at the same time and under the same conditions.

Result

The total walking distance (rounded off to one tenth of a meter) for each trial is recorded on the scoring sheet. Walking speed can be calculated for each lap (lap distance / time per lap) to estimate fatigability. The validity of the result for each trial must be recorded on the scoring sheet (valid or invalid).

□

BORG CR-10 scale

Standardized instructions are provided to the participant:
“Using the Borg CR-10 scale, rate the overall intensity of your effort (including shortness of breath and general fatigue). Read the description first and then choose a number. “Nothing at all” equals 0 and means that you do not perceive any effort (including shortness of breath and general fatigue). “Very, very severe” equals 10 and refers to the most intense effort you have ever experienced (shortness of breath and general fatigue). It is very important to tell me how you really feel, not what you think you should say.”



References
1. American Thoracic Society. ATS statement: guidelines for the six-minute walk test. Am J Respir Crit Care Med 2002;166:111-7.
2. Borg GA. Psychophysical bases of perceived exertion. Med Sci Sports Exerc 1982;14:377-81.
3. Borg G, Borg's Perceived exertion and pain scales. Champaign, IL, US: Human Kinetics, 1998: 104 pp.
4. Butland RJ, Pang J, Gross ER, Woodcock AA, Geddes DM. Two-, six-, and 12-minute walking tests in respiratory disease. Br Med J (Clin Res Ed) 1982;284:1607-8.
5. Kierkegaard M, Tollback A. Reliability and feasibility of the six minute walk test in subjects with myotonic dystrophy. Neuromuscul Disord 2007;17:943-9.