Six-Minute Walk Test

Patient's name: _____ **Age:** _____

Gender: _____ **Date:** _____

Examiner: _____ **Walk number:** _____

Equipment and other requirements

- Stopwatch or countdown timer
- Two small cones as turnaround points
- Comfortable chair or bench nearby
- Hard-surfaced corridor, 30 meters in length, marked every 3 meters to be used as the course
- Comfortable clothing and footwear
- Usual walking aids or supplemental oxygen (if any)
- Pulse oximeter (optional)

Reminders

- Patients should avoid vigorous exercise within 2 hours of the test and abstain from caffeine, alcohol, or other substances affecting heart rate.
- The patient should sit for 10 minutes before the test to rest and ensure stable vital signs. Measure baseline heart rate, oxygen saturation, and Borg dyspnea and fatigue levels.
- The patient should continue with usual medical regimen and only have a light meal before an early morning or afternoon test.

Test procedure

The American Thoracic Society has a detailed and very specific set of guidelines for the Six-Minute Walk Test, including how to explain the test and what encouragement to use:

1. Position the patient at the starting line of the 30-meter course.
2. Ask them to rate their shortness of breath and fatigue using the Borg scale before the test. Measuring their pulse and oxygen saturation (SpO2) as well, but that is optional.
3. Explain the test:
   a. "The goal is to walk as far as possible in 6 minutes. You may slow down, stop, or rest if needed, but resume walking as soon as you can."
   b. Demonstrate a lap, showing how to turn around the cones briskly.
4. Start the timer and instruct the patient to begin walking.
5. Use the following standard phrases with an even tone at each interval:
   a. At 1 minute: "You are doing well. You have 5 minutes to go."
   b. At 2 minutes: "Keep up the good work. You have 4 minutes to go."
   c. Continue encouragement every minute until the end.
   d. When the timer is 15 seconds from completion, say "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."
6. If the patient stops and needs a rest, say this: "You can lean against the wall if you would like; then continue walking whenever you feel able."
7. Record the time and distance walked if the test ends prematurely. Immediately stop the test if the cause is one or more of the following:
   - Chest pain
   - Leg cramps
   - Diaphoresis
   - Intolerable dyspnea
   - Staggering
   - Pale or ashen appearance
8. Whether the patient stopped or completed the test, wheel over the chair for them to rest on.
9. Post-test, ask them to rate their shortness of breath and fatigue levels using the Borg scale again, and ask this: "What, if anything, kept you from walking farther?"
10. If using a pulse oximeter, measure SpO2 and pulse rate from the oximeter and then remove the sensor.
11. Calculate the distance, congratulate the patient, and offer them a drink of water.

Borg scale

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

Results and interpretation

Before test		
Medication:		
Borg dyspnea level:	Fatigue level:	
Heart rate:	SpO_2:	
During test		
Heart rate:	Oxygen saturation:	
After test		
Borg dyspnea level:	Fatigue level:	
Heart rate:	SpO_2:	# laps completed:
Additional distance in final partial lap (meters):		
Total distance walked:		
Time lapsed (leave empty if test was completed):		

Interpretation

Below is a table for norms from Steffen et al.'s study in 2002.

Age range in years	Distance in meters	
	Male	Female
60 – 69	572	538
70 – 79	527	471
80 – 89	417	392

Alternatively, you may use the formula below to calculate the normal distance for their gender, age, and height, as developed by Enright & Sherill (1998), endorsed by the Academy of Neurologic.

Physical therapy:

Male	distance = (7.57 × height cm) - (5.02 × age) - (1.76 × weight kg) - 309
Female	distance = (2.11 × height cm) - (2.29 × weight kg) - (5.78 × age) + 667

Change in walking distance

Minimal Detectable Change (MDC) is the minimal change required to ensure the change is not the result of measurement error. Minimal Clinically Important Difference (MCID) is the minimal change required for the patient to also feel an improvement in the construct being measured. These values were compiled by the Academy of Neurologic Physical Therapy (ANPT):

- Alzheimer's disease: MDC: 33.5 meters(m)
- Geriatrics: MDC: 58.2 m9
- Huntington's disease (HD):
  - premanifest HD: 39.2 m
  - manifest HD: 86.6 m
  - early stage HD: 56.6 m
  - middle stage HD: 126.14 m
  - late stage HD: 70.7 m
- Spinal cord injury (SCI):
  - MDC (Incomplete injuries, < 12 months post-injury): 45.8 m
  - MCID (ASIA scale C/D, chronic SCI): 0.1 m/s change in gait speed using distance covered on 6MWT
- Stroke
  - MDC
    - Chronic, >12 months post-stroke, BBS=46-55: 34.4m
    - Chronic, 6-48 months post-stroke, ability to ambulate 300m: 36.6 m
    - Subacute, 30-150 days post stroke: 61.0 m6
  - MCID
    - chronic, >6 months post-stroke: 34.4 m
    - 2-6 months post-stroke, ability to walk 3 m with < max assist:
    - when initial gait speed <0.40 m/s = 44 m
    - when initial gait speed ≥0.40 m/s = 71 m

Additional notes

Academy of Neurologic Physical Therapy. (n.d.). *6 minute walk test*. https://www.neuropt.org/docs/default-source/cpgs/core-outcome-measures/6mwt-pocket-guide-proof9.pdf?sfvrsn=9ee25043_0

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Enright, P. L., & Sherrill, D. L. (1998). Reference equations for the six-minute walk in healthy adults. *American Journal of Respiratory and Critical Care Medicine*, 158(5), 1384–1387. https://doi.org/10.1164/ajrccm.158.5.9710086

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