

2 Minute Walk Test Tutorial

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The objectives of this video are to:

- Describe and demonstrate how to use the 2 minute walk test in clinical practice and research
- Demonstrate how to score the 2 minute walk test

Why the 2 minute walk test?

- The 2 minute walk test is a simple, inexpensive and safe performance-based test that provides information regarding functional exercise capacity

Contraindications for the 2 minute walk test

Absolute contraindication (or as per physician direction)

- Unstable angina during the previous month

Relative contraindications

- Resting heart rate > 120 bpm
- Systolic blood pressure > 180 mmHg
- Diastolic blood pressure > 100 mmHg

These are recommendations from the American Thoracic Society, but we recommend you also consult with the physician if a patient may be eligible for the test despite these.

The absolute contraindication is an unstable angina during the previous month

The relative contraindications are a resting heart rate greater than 120 beats per minute, systolic blood pressure greater than 180 mm mercury, and diastolic blood pressure greater than 100 mm mercury

EQUIPMENT

To conduct the 2 minute walk test you will need:

- A chair
- A trundle wheel
- A stopwatch/clock
- Clipboard
- Another person to assist
- Pylons (to mark start and end of course)
 - The course should be 50 feet (15.24 m) – ideally done in a 30 m corridor
- Tape (to mark patient's final spot)

Split screen: picture of equipment and picture of point form notes

To conduct the 2 minute walk test, you will need: a chair, a trundle wheel, a stopwatch or a clock, a clipboard, and another person to assist if the patient requires for safety.

You will also need pylons to mark the start and end positions of the course and tape to mark the patient's ending position. The course should be 50 feet or 15.25 m in length, ideally done in a 30 m corridor.

INSTRUCTIONS

These standardized instructions are adapted from the American Thoracic Society guidelines for the 6 minute walk test.

BEFORE THE TEST

"Please provide the following standardized instructions to the patient before the test"

Standardized instructions: before the test

"The object of this test is to walk as far as possible for 2 minutes. You will walk back and forth in this hallway. Two 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, to stop, and to 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."

Standardized instructions: before the test

“Are you ready to do that? I am going to keep track of the number of laps you complete. I will make a tick each time you turn around at this starting line. Remember, the objective is to walk AS FAR AS YOU CAN for 2 minutes, but don’t run or jog.

Start now, or whenever you are ready.”

Common questions

- Can the patient wear oxygen during the test?
 - **Yes**
- Can the patient use gait aids during the test?
 - **Yes**
- Is a warm-up allowed before the test?
 - **No**
- How long should the patient rest before the test?
 - **10 minutes (ideally)**

These are common questions and their answers:

The patient should wear oxygen during the test if they require it,

The patient should use a gait aid if required for safety

A warm up is not allowed before the test,

And ideally the patient should rest for 10 minutes before starting the test.

DURING THE TEST

Please provide the following standardized instructions during the 2 minute walk test.

Standardized instructions: during the test

- Start the timer when the patient initiates movement
- 1 minute: *"You are doing well. You have 1 minute to go."*
- 2 minutes: *"Stop!"*. Have the patient stop and stand in place where they are. Mark the spot where they stopped.
- If the patient stops walking during the test and needs a rest, say:
 - *"You can lean against the wall if you would like; then continue walking whenever you feel able."*
- Do not stop the timer.

Start the timer when the patient initiates movement.

At 1 minute, provide standardized encouragement, "You are doing well. You have 1 minute to go."

At 2 minutes, say "Stop!". Have the patient stop and stand in place where they are. Mark the spot where they stopped.

If the patient stops walking during the test and needs a rest, say: "you can lean against the wall if you would like; then continue walking whenever you feel able." Do not stop the timer.

LEVEL OF ASSISTANCE

Level of assistance

- Take note of whether or not the patient uses a gait aid to help them walk and the level of assistance they require: 0, 1, or 2 person assist.
- Record the highest level of assistance required at any point during the test: if the patient needs 1 person to assist to start then 2 people partway through, record the level of assistance as 2 people.

Show videos of examples of 0 vs. 1 vs. 2 person assist

STOPPING THE TEST

Stopping the test

There are 6 situations in which you should immediately stop the test:

1. Chest pain
2. Intolerable dyspnea
3. Leg cramps
4. Staggering
5. Diaphoresis (or profuse sweating)
6. Pale or ashen appearance

Stopping the test

If you immediately stop the test, you should:

1. Have the patient sit or lie down depending on the severity of the event
2. Obtain blood pressure, heart rate, oxygen saturation
3. Identify need for additional medical intervention

SCORING

Scoring

- The 2 minute walk test is scored as the total number of metres walked within 2 minutes
- Count the number of laps completed
- Measure the additional distance covered (metres in the final partial lap) with the trundle wheel

Scoring

- Calculate the total distance walked:
 - # of full laps x 100 feet/lap = _____
 - Final lap partial distance = _____
 - Total = _____
- Convert to metres
 - # feet ÷ 3.28 feet/metre = _____

Calculate the total distance walked with the following formula:

There are 100 feet in one full lap. Multiply the number of full laps by 100 feet.

The total distance walked is equal to the # of feet in full laps plus the final lap partial distance.

Once you have the total distance walked in feet, convert to metres by dividing the total number of feet by 3.28.

BEGIN THE TEST!

You are now ready to begin the 2 minute walk test.

Scoring - example

- Calculate the total distance walked:
 - $2 \text{ full laps} \times 100 \text{ feet/lap} = 200 \text{ feet}$
 - $\text{Final lap partial distance} = 100 \text{ feet} - 3.5 \text{ feet} = 96.5 \text{ feet}$
 - $\text{Total} = 296.5 \text{ feet}$
- Convert to metres
 - $296.5 \text{ feet} \div 3.28 \text{ feet/metre} = 90.4 \text{ metres}$

In our example, the patient walked 2 full laps x 100feet/lap, equaling 200 feet. The final lap partial distance was 100 feet minus 3.5 feet, equaling 96.5 feet. The total distance walked was 296.5 feet.

To convert this to metres, $296.5 \text{ feet} / 3.28 \text{ feet/metre} = 90.4 \text{ metres}$.

Population Norms

Bohannon RW, Wang YC, Gershon RC. Two-Minute Walk Test Performance by Adults 18 to 85 Years: Normative Values, Reliability, and Responsiveness. Arch Phys Med Rehabil. 2015 Mar;96(3):472-477.

Norms for the 2MWT distance		
Age group	Women (m)	Men (m)
18-54y	183.0	200.9
55-59y	176.4	191.0
60-64y	166.4	179.1
65-69y	155.2	184.2
70-74y	145.9	172.4
75-79y	140.9	157.6
80-85y	134.3	144.1

These are reference values for a 2 minute walk test for patients in various age groups. These reference values can be used to determine the presence of limitations in walking endurance across the lifespan.

Summary

The 2 minute walk test is a simple, inexpensive and safe performance-based test that provides information regarding functional exercise capacity.

This video demonstrated the use and scoring of the 2 minute walk test so that clinicians may have a consistent way of implementing it in research and practice.

References

1. ATS Committee on Proficiency Standards for Clinical Pulmonary Function Laboratories. ATS statement: guidelines for the Six-Minute Walk Test. *Am J Respir Crit Care Med*. 2002 Jul 1;166(1):111-117.
2. Pin TW. Psychometric Properties of 2-Minute Walk Test: A Systematic Review. *Arch Phys Med Rehabil*. 2014 Sept;95(9):1759-1775.
3. Bohannon RW, Wang YC, Gershon RC. Two-Minute Walk Test Performance by Adults 18 to 85 Years: Normative Values, Reliability, and Responsiveness. *Arch Phys Med Rehabil*. 2015 Mar;96(3):472-477.