

LONG DISTANCE CORRIDOR WALK

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LONG DISTANCE CORRIDOR WALK

1. Background and Rationale

The Health ABC long distance corridor walk (LDCW) is a two-stage walking-based test of exercise tolerance and fitness level. The first stage consists of a 2-minute walk where participants are instructed to cover as much ground as they can at a pace they can maintain. The second stage consists of the 400-meter walk, which follows after a 30 second pause to get the pulse rate. For the 400-meter walk, participants are instructed to complete the distance as quickly as they can at a pace they can maintain for 10 laps. Encouragement is given in a standardized fashion every lap for both walks. For both stages of the walk, heart rate is monitored and recorded at set intervals. The heart rate, measured during the ECG exam, is reviewed before the 2-minute walk. Standing blood pressure (taken during the blood pressure measurement earlier in the clinic visit) is reviewed before the 2-minute walk and is measured after the 400-meter walk.

2. Equipment and Supplies

- Heart rate monitor
- Two fluorescent orange traffic cones
- White cloth tape
- 10 cm-length tape to mark every meter between cones
- Digital stop-watch
- Conventional mercury sphygmomanometer*
- Blood pressure cuffs (small, regular, large and thigh cuffs)*
- Stethoscope: standard stethoscope and ear pieces with bell, tubing to be maximum of 14 inches long*

*See Blood Pressure chapter for maintenance of Blood Pressure equipment

2.1 Use of the Stopwatch



The stopwatch will be used to measure the time it takes to complete a task from the beginning of the activity until the conclusion. Press the middle (mode) button to make sure you are in stopwatch mode. The display should read **0:0000**. To time the task, just press the right-hand button (labeled STA/STP) at the top of the stopwatch to begin, and press again when the task is completed. The time is digitally displayed on the stopwatch. To get the display to read **0:0000** again, press the left (lap) button. Time is displayed as minutes: seconds, hundredths of a second.

2.2 Use of the Heart Monitor

- Wet the electrodes with water on the two grooved rectangular areas on the underside of the belt transmitter.
- Secure the belt transmitters as high under the pectoral muscles as is comfortable for the participant.
- Have the participant wear the wrist watch.

To set the alarm rates:

- Depress the left button on the face of the watch and an arrow will appear.
- Depress the button on the right to set the higher limit. Continue to depress this button until the desired limit is displayed.
- Depress the left button and the lower limit arrow will appear.
- Depress right button until the desired lower limit is displayed.
- Depress left button to "set." Also, this will return you to time mode.

To begin using the monitor:

- Begin with display showing the time of day.
- Depress the button on the right of the watch face; heart and alarm symbols will be displayed.
- The heart symbol will begin to pulse.
- After a few seconds the heart rate is displayed.
- Be sure that alarm symbol is displayed to indicate alarms are activated.

CARE AND MAINTENANCE: belt transmitter will automatically activate when secured around the chest with electrodes properly wetted. The transmitter will shut off automatically when removed. Clean with mild soap and water between participants to remove perspiration residue. Do not use any other cleaning solution as damage to the unit may occur.

3. Safety Issues and Exclusions

If there is a borderline or unclear answer to an exclusion question the final decision to test or not to test should be determined by the medical supervisor at each clinic. For participant safety, the presence of any of the following are cause for exclusion from the 400 meter or both walks.

3.1 Conditions determined by:

3.1.1 Direct questioning:

1. Myocardial infarction, angioplasty, or heart surgery within the past 3 months.
2. New or worsening symptoms of chest pain or angina during the past 3 months. For participants who report new or worsening symptoms of chest pain or angina, administer the 2-minute walk only.

3.1.2 ECG examination

Before administering the long-distance corridor walk, check the Marquette reading from the previously administered resting ECG examination. If the Marquette reading is categorized with one of the abnormalities below, an ECG alert is also present and will have been reviewed early in the day.

Exclusions:

- Heart rate <40 (bradycardia) or >135 (tachycardia)
- Atrial fibrillation or atrial flutter (new onset)
- Wolff-Parkinson-White (WPW) or ventricular pre-excitation
- Idioventricular rhythm
- Ventricular tachycardia
- Third degree or complete A-V block
- Any statement including reference to acute injury or acute ischemia, or marked T-wave abnormality

Refer to the ECG reading and record the participant's heart rate (Question #2 on page 29 of the Year 4 Clinic Visit Workbook). If the heart rate is greater than 110 or less than 40, do not administer either of the walking tests. Record the reason that the tests were not administered on pages 34 and 36 in the Year 4 Clinic Visit Workbook.

3.1.3 Assessment at the start of this exam:

Please refer to the Long Distance Corridor Walk Eligibility Assessment Form to see the standing blood pressure data that was collected earlier in the clinic visit. The exclusion criteria are listed below:

1. SBP > 199 mmHg
2. DBP > 109 mmHg

See if the participant uses a walking aid, such as a cane. If they do, mark the “yes” box on Question 4 of the Long Distance Corridor Walk Eligibility Assessment Form (page 30 in the Year 4 Clinic Visit Workbook), and do not administer the long distance corridor walk. However, if a blind participant uses a white cane and is not walking disabled, they are eligible for the long-distance corridor walk. If the participant uses a white cane for blindness and is not walking disabled, when answering Question 4 on the Long-Distance Corridor Eligibility Assessment Form, check the “no” box and administer the long distance corridor walk.

3.1.4 Assessment during/after the 2-minute walk:

1. Heart rate < 40 bpm
2. Heart rate > 135 bpm
3. Participant report of chest pain, tightness, or pressure; shortness of breath, feeling lightheaded, dizzy, or faint; or experiencing leg or any other pain during the 2-minute walk.

3.2 Stopping rules during testing

These stopping criteria apply to both the 2-minute and 400-meter walks. Stopping rule invoked during the 2-minute walk precludes attempting the 400-meter walk. If possible, the test should **not** be stopped cold. The participant should be told to slow down, and the examiner should quickly approach and meet them, check the pulse monitor, and record the heart rate, time, distance, and blood pressure. If necessary, bring a chair to the participant. (See general clinic safety section.) Always indicate on the 2-minute Walk and Long-Distance Corridor Walk Data Collection forms (Year 4 Clinic Visit Workbook) why the participant did not complete the walks.

3.2.1 Objective criteria assessed by examiner

1. Heart rate falls below 40 bpm
2. Heart rate rises above 135 bpm. Note: during the 2-minute walk if the heart rate goes above 135, let the participant rest for 5 minutes. Then restart the test. Indicate on the Long Distance Corridor Walk Data Collection Form that the heart rate exceeded 135. Also, use the 'Trial 2' lap chart to cross off the laps completed during the second trial. If the heart rate goes above 135 a second time, tell the participant to slow down, but continue walking until 2 minutes are up. If the participant indicates they are not feeling well; i.e., reports other symptoms, discontinue the 2-minute walk. Indicate on the 2-minute walk data collection form that the heart rate exceeded 135 during the 2-minute walk and whether the participant completed the 2-minute walk. If the heart rate exceeds 135 at any time during the 2-minute walk, do not administer the 400 meter walk.

If a participant does not complete the 2-minute portion of the long distance corridor walk, please record the time on the stopwatch when the participant stops. Record this time on page 34 of the Year 4 Clinic Visit Workbook, in the blank space to the right of Questions #2e-#2g. Of course, please be sure to answer Questions #2e (# laps completed), #2f (meter mark), and #2g (heart rate), even if the participant did not complete the 2-minute walk.

During the 400 meter walk, if the heart rate exceeds 135 tell the participant to slow down, but continue walking the full 400 meters. If the participant indicates they are not feeling well; i.e., reports other symptoms, discontinue the test. Indicate on the Long Distance Corridor Walk data collection form that the heart rate exceeded 135 during the 400 meter walk and whether the participant completed the 400 meter walk or not.

Note: If the participant is not feeling well after the heart rate has exceeded 135, notify the medical supervisor immediately. Below are some suggested scripts for reassuring the participant who feels fine but has been asked to slow down because their heart rate has exceeded 135 bpm.

“Even though you feel OK, the protocol requires that I ask you to slow down.”

3.2.2 Participant-initiated criteria:

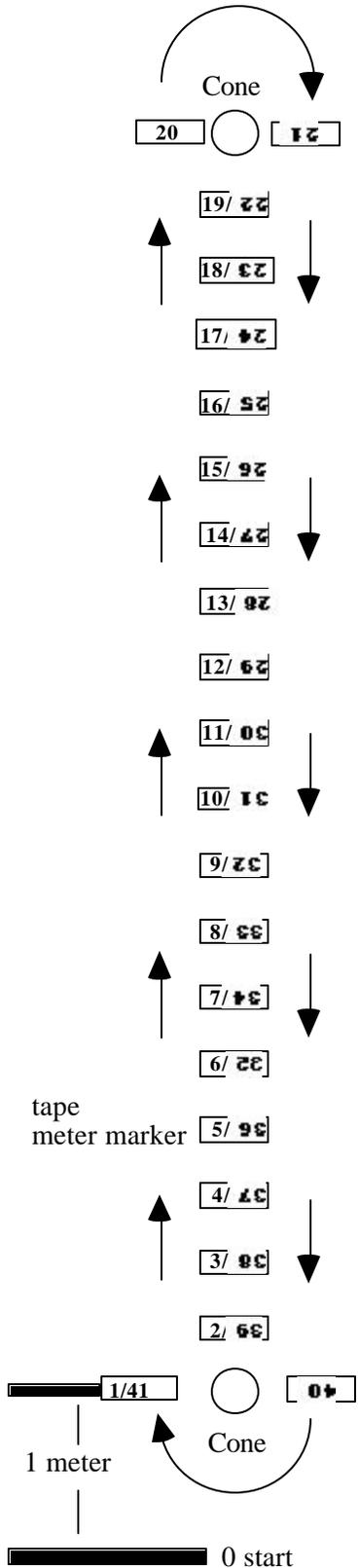
Participant reports a significant degree of any of the following symptoms:

- chest pain, tightness, or pressure
- trouble breathing or shortness of breath
- feeling faint, lightheaded or dizzy
- leg pain

As noted above, if test is stopped, record heart rate, distance covered, and time. Measure the blood pressure. At any point of concern, contact the clinic supervisor to come and assess the participant.

4. Participant and Exam Room Preparation

COURSE ILLUSTRATION



Footwear: To eliminate the effect of different footwear on test performance, these tests should be performed in tennis shoes or comfortable walking shoes with minimal or no heels. The participant should be instructed during the clinic visit reminder call to wear or bring these shoes to the clinic.

Course set-up: For consistency between centers, the walking course length will be 20 meters and should be laid out in an unobstructed, dedicated corridor. Fluorescent orange traffic cones should be used to indicate the beginning and end of the 20-meter length. Measuring from the center of each cone, place the cones 19 meters apart (to allow for a 1 meter turn at each end). Place a 1/2 meter length of white cloth tape across the floor to the left of one of the cones to mark the start of the course. Participants are to walk in the clockwise direction. Place a numbered (as in course illustration) 10 cm length of tape marking every meter between the cones. The tape should be placed to the inside of the walking path, along the cone line.

5. Measurement Procedures

5.1 Overview of Testing Procedures

- 1) General description and assessment of exclusion criteria
- 2) Pre-test measurement of blood pressure
- 3) 2-minute walk
 - a. Describe the test (make sure that all key points in script are provided).
 - b. Describe and attach heart rate monitor.
 - c. Give standard encouragement every lap and report time remaining at 1 minute 30 seconds, (30 seconds remaining), 1 minute 50 seconds (10 seconds remaining).
 - d. Record heart rate at STOP (2 minutes) within 30 seconds and return to start line to begin 400-meter walk.
- 4) 400-meter walk
 - a. Describe the test (make sure that all key points in script are provided).
 - b. Give standard encouragement every lap, and call out the number of laps completed and the number remaining.
 - c. After 400 m, record time, heart rate, and blood pressure.
 - d. Record heart rate again at 2 minutes.

5.2 Administration

- 1) Record standing blood pressure from the Year 4 Clinic Visit Workbook on the Long Distance Corridor Walk Eligibility Assessment Form. **If the systolic blood pressure is > 199 mmHg and/or their diastolic blood pressure is > 109 mmHg, do not administer the 2-minute or the 400-meter walking tests.**
- 2) The participant should have their ECG before they do the 2-minute or 400-meter walk. Check to see if there were any abnormal Marquette ECG hard copy references that would preclude testing. These would include a **heart rate less than 40 bpm, or greater than 135 bpm, atrial fibrillation or atrial flutter (new onset), Wolff-Parkinson-White (WPW) or ventricular pre-excitation, idioventricular rhythm, ventricular tachycardia, third degree or complete A-V block, or any statement including reference to acute injury or ischemia, or marked T-wave abnormality.** Also, mark the participant's heart rate on the Year 4 Clinic Visit Workbook Long Distance Corridor

Walk Eligibility Assessment Form. **If the heart rate is <40 bpm, or >110 bpm, do not administer the 2-minute or the 400-meter walking tests.**

- 3) Give a general description of the tests.

Script: “The next tests assess your physical fitness by having you walk quickly for 2 minutes and after that, having you walk about 1/4 mile at a steady pace.”

- 4) Ask participant the exclusion questions:

Script: “First I need to ask you a few questions to see if you should try the test.

“Within the past 3 months: Have you had a heart attack?

“... have you had angioplasty?

“... have you had heart surgery?”

If the answer is “yes” to any of the above questions do not administer the 2-minute or the 400-meter walking test.

“Within the past 3 months, have you seen a health professional or thought about seeing a health professional for new or worsening symptoms of chest pain?

“... angina?”

If the answer is “yes” to any of the second set of questions, administer the 2-minute walk only.

- 5) Heart rate monitor:

With the participant seated, describe what the heart rate monitor does and why we are using it and attach it to the participant.

Script: “This device measures your pulse, or how often your heart beats.”

- 6) Demonstrate how to walk around the cone and describe the 2-minute walk.

Script: “This is a two-part walking test. For the first part I would like you to walk for 2 minutes, trying to cover as much ground as possible at a pace you can maintain. Starting at the line labeled START, walk to the cone at the other end of the

hall, go around it and return, go around this cone and keep walking in the same fashion, until 2 minutes are up. When the 2 minutes are up I will tell you to stop. Please stay where you are so that I can record the distance you covered.”

- 7) Give the participant “stop” symptoms and final instructions.

Script: “Please tell me if you feel any chest pain, tightness or pressure in your chest, if you become short of breath or if you feel faint, lightheaded or dizzy, or if you feel knee, hip, calf, or back pain. If you feel any of these symptoms, you may slow down or stop. Do you have any questions?”

- 8) Accompany participant to stand behind the starting line for the 2-minute walk.

a. Record the participant’s heart rate.

b. Ready stop watch.

Script: “Now let’s start the 2-minute walk. Cover as much ground as possible at a pace you can maintain. Ready, GO.”

c. Start timing with the first footfall over the starting line (participant’s foot touches the floor on the first step). Provide standard encouragement after each lap and tell participant the time that is remaining.

Suggested Scripts: “Keep up the good work.” “You are doing well.” “One and a half minutes to go.”

d. Throughout the test, draw a line through the number on the form that corresponds to each completed lap the participant walks.

When the stopwatch reads ‘1:30,’ tell the participant, “30 seconds remaining.” At 1:50, tell the participant “10 seconds remaining.” Approach the participant so that you meet them at the 2:00 stop time.

e. When the stop watch reads 2:00, say,

Script: “STOP.”

Record heart rate, number of laps and meter mark on form (each meter is marked with tape on the floor. Please see diagram).

If participant is not going on to the 400-meter walk due to stopping rules, record the reason, remove heart monitor, and go on to next station. If the participant must stop during the 2-minute walk due to stopping rules, mark the box that indicates that the 2-minute walk was stopped, and record the reason on both the 2-minute Walk data collection form (Question #3 on page 34 in the Year 4 Clinic Visit Workbook) and the 400-meter Walk data collection form (Question #7 on page 36 in the Year 4 Clinic Visit Workbook).

If a participant experiences symptoms after completing the 2-minute walk that are a contraindication for the 400-meter walk, complete the 2-minute walk portion of the form as usual. Mark Question 3, page 34, "Yes" (participant completed the 2-minute walk) and do not check off any symptoms in Question 3. On Question 1b, page 35, record 0 laps. On Question 1c, mark No (did not complete 10 laps) and record 0 additional meters. Skip to Question 7, page 36 and mark "No" (did not complete the 400-meter walk). Complete Question 8 as usual, making sure the symptoms that contraindicated the 400-meter walk are included.

During editing, Questions 2, 3, 4, 5 and 6 on page 35 will show as missing. Simply "comment out" these edits as "not an error."

- 9) Accompany the participant to the starting line for the 400-meter walk.
 - a. Record the participant's heart rate.
 - b. Describe the 400-meter walk.

Script: "For the second part, you will be walking 10 complete laps around the course, about 1/4 mile. We would like you to walk as quickly as you can, without running, at a pace you can maintain over the 10 laps. After you complete the 10 laps I will tell you to stop, and measure your blood pressure and heart rate."

"Start walking when I say 'GO' and try to complete 10 laps as quickly as you can, without running, at a pace you can maintain. Ready, Go."

- c. Start the stop watch.
- d. Every lap offer standard encouragement, and call out the number of laps completed and the number remaining. Record each lap on form.

Suggested Script: "Keep up the good work." "You are doing well." "Looking good." "Well done." "Good job."

- e. When the participant completes 400-meters (10 laps, first footfall across the finish line), stop the stop watch.
 - f. If the participant's heart rate exceeds 135 bpm and they have no other symptoms, tell them to slow down, but continue walking. Indicate on the long distance corridor walk data collection form that the heart rate exceeded 135 bpm during the 400 meter walk and whether the participant completed the 400 meter walk or not. If the participant reports chest pain, tightness or pressure in the chest, shortness of breath, feeling faint, lightheaded or dizzy, or reports leg or any other pain, stop the test. Record the reason on the 400-meter Walk data collection form (Question #7 on page 36 in the Year 4 Clinic Visit Workbook). Record the number of laps that were completed and the number of meters.
 - g. Record time and heart rate. Restart the stopwatch to time the 2 minute recovery time.
 - h. Assess blood pressure. **(For instructions and certification requirements necessary to take blood pressure, please refer to the blood pressure chapter of the Health ABC Operations Manual.)**
 - i. At 2 minutes, while the participant remains standing after the blood pressure assessment, record heart rate again.
- 10) Remove the heart rate monitor. Escort the participant to the next station.

6. Procedures for Performing the Measurement at Home

Not applicable.

7. Alert Values/Follow-up/Reporting to Participants

If the participant develops chest pain or other symptoms, the clinic supervisor should be notified immediately. (See clinic emergency procedure protocol.)

8. Quality Assurance

8.1 Training Requirements

Clinical experience with blood pressure measurement is required. Examiners must follow the training procedures for blood pressure and be certified in blood pressure measurement. Also, training should include:

- Read and study manual
- Attend Health ABC training session on techniques (or observe administration by experienced examiner)
- Practice on volunteers
- Discuss problems and questions with local expert or QC officer

8.2 Certification Requirements

- Complete training requirements
- Recite ECG exclusion criteria
- Recite other exclusion criteria and stopping rules
- Conduct exam on two participants while being observed by QC officer using QC checklist

Preparation

- Checks for abnormal ECG
- Records heart rate after referring to ECG reading
- Refers to Blood Pressure recorded on eligibility assessment form (SBP>199 mmHg &/or DBP> 109 mmHg exclusion for both walks)
- Asks if participant has had a heart attack, angioplasty or heart surgery in the past 3 months
- Asks if participant has seen or thought about seeing a health professional for new or worsening symptoms of chest pain, or angina during the past 3 months
- Key points from script correct and clearly delivered for each test
- Heart rate measured properly
- Correctly demonstrates walking the course (around the cone)
- Correctly describes the test
- Explains stop symptoms
- Reviews form for completeness

2-Minute Corridor Walk

- Records participant's heart rate
- Instructs participant to walk at a pace they can maintain
- Encourages participant every lap
- If heart rate goes over 135 bpm, stops test; has participant rest and restarts test after 5 minutes. If the heart rate >135 the second time, tells the participant to slow down, but continue walking.
- After 2 minutes
 - Says "Stop"
 - Records number of laps completed and meter mark
 - Records heart rate (if >135 bpm or <40 bpm→ do not go on to 400 m walk)
 - Records whether or not the heart rate exceeded 135 bpm
 - Records whether or not the participant completed the walk and if not, why not
 - Reviews form for completeness

400m Walk

- Stops and clears stop watch and lap counter after 2-minute walk
- Instructs participant to start walking and to try to complete 10 laps as quickly as possible without running at a pace they can maintain for the complete course
- Standard encouragement given every lap
- After 10 laps completed:
 - Stops watch and records time and heart rate
 - Measures and records blood pressure properly

After Testing Completed

- Records heart rate at 2 minutes
- Removes heart monitor
- Records whether or not the participant completed the walk and if not, why not
- Asks participant whether they had symptoms and records answers on data collection form
- Reviews form for completeness

- Correctly completes form

9. References

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