

# WOMEN'S INTERAGENCY HIV STUDY QUESTION BY QUESTION SPECIFICATIONS PERFORMANCE-BASED MEASUREMENTS (PBM)

## **Background and Purpose:**

The assessment of physical performance incorporates aspects of strength, mobility, freedom of movement, balance and coordination. These exams have been taken from procedures used in the NHANES and the EPESE studies.

## **Definitions:**

Orthosis: An orthopedic appliance or apparatus used to support, align, prevent or correct deformities or to improve the function of moveable parts of the body. In this exam we are specifically checking for lower extremity orthoses; plastic or metal leg braces at or above the ankle.

Prosthesis: An artificial substitute for a missing body part, such as an arm or leg, used for functional or cosmetic purposes, or both.

## **Equipment and Supplies:**

- 3-meter measuring tape (to be supplied by WDMAC)
- Jamar Dynamometer (to be supplied by WDMAC)
- Stop watch
- Tape, to mark measured walk course

## **Methods:**

The Performance-based Measurements are to be administered by a certified technician or interviewer. They may be administered at any point during the core visit, or at a subsequent substudy visit, if more convenient. Interviewers or technicians are trained to administer the individual components of the exam in the following sequence:

1. Explain the procedure to the study participant using a standardized script.
2. Demonstrate the procedure to the study participant.
3. Ask the participant if she has any questions.
4. Briefly explain the procedure once again.
5. Ask the study participant to perform the procedure.
6. All timed procedures are begun with the words, **“Ready? Go!”**

## **PARTICIPANT INFORMATION**

This section at the beginning of the form should be completed before beginning the Performance-based Measurements. Record the actual time you began the measurements in the space provided for “Time Module Began” and the actual time you ended the exam in the space denoted “Time Module Ended.”

### **SECTION A: MEASURED WALK**

A walking course of 3 to 4 meters is identified and the beginning and ending points are marked on the floor with highly visible tape. The course should be free of obstacles. The participant will be asked to repeat the test two times. The preferable length for the walking course is 4 meters; however, if 4 meters

are not available, a 3 meter course may be used instead. If a 3-meter course is not available, indicate in question A1 that the measured walk was not attempted due to “other reason,” and specify the reason.

If possible, all women completing visits at the same subsite should complete the same length course. For example, site A may have subsites 1, 2 and 3. While women attending visits at subsite 1 need not complete the same distance course as those attending visits at subsite 2, all women attending visits at subsite 1 should complete the same length course.

A1 Indicate if the participant attempted to perform the measured walk. If “yes,” continue with section A. If “no,” indicate the reason the measured walk was not attempted (e.g., space not available, etc.) and skip to section B.

A2 “Does the participant use an assistive device for walking?”

If the response is “yes,” please record the type of assistive device used in question A2a. If the response is “no,” skip to question A3.

a. Standard cane: A straight “stick” with a curved or straight handle that makes contact with the floor at one point.

Quad cane: A device that is similar to the standard cane at the proximal end, but branches out to four “legs” at the distal end, making contact with the floor at four points. A TRIPOD CANE should be placed in this category, as well.

Walker: A frame device upon which the user may support herself with both hands.

Other: If any device other than those listed above is used, please specify in the space provided. Reliance upon another person for support does not constitute a “device.”

A3 “Does the participant use a lower extremity orthosis (plastic or metal leg brace at or above the ankle)?”

This refers to the participant’s current use of such an aid. She should be wearing the device at the clinic for the exam. An orthosis used at other times (at night, for instance) should not be recorded here.

An orthosis worn below the ankle (for example, a device worn in the shoes for fallen arches) does not qualify in this definition. If you cannot determine whether the participant uses an orthosis ask her.

A4 “Is the participant missing any limbs?”

Major limbs only are considered here: arms (including hands) and legs (including feet). A missing finger or other digit does not constitute a missing limb. A limb is considered missing whether or not an artificial limb is replacing the natural body part. If “yes,” indicate which limb(s) in questions A4a – A4d.

A5. “Does the participant use a prosthesis?”

If the participant is missing a limb, the use of an artificial limb or prosthesis is to be recorded here. This refers to the participant’s current use of such an aid. She should be wearing the device at the clinic for the exam. If the participant has mentioned owning a prosthesis but is not currently wearing it, it is not to be recorded here. If you cannot determine if the participant uses a prosthesis ask her. If “yes,” indicate which limb(s) in questions A5a – A5d.

A6 “Does the participant have paralysis of an extremity of side of the body?”

If you cannot determine whether the participant has paralysis ask her. If “yes,” indicate which side of the body is paralyzed in questions A6a and A6b.

### **MEASURED WALK ATTEMPT #1:**

**Script:** “In this test, I would like you to walk from this line to the line at the end of the hall at your usual pace. Do you think you could do that? Good. Can you see the tape? Good. Let me demonstrate what I want you to do.”

**Demonstration:** Walk from the position behind the first line (with toes starting at the line) at your usual pace to and crossing the line 3 to 4 meters (as available) from the first.

**Script:** “To do this test, place your feet with your toes behind, but touching, the line where we start. I will be timing you. When I say, ‘Ready? Go!’ walk at your usual pace to the line at the end of the hall. I will walk with you.”

When the participant is properly at the line, say, “**Ready? Go!**”

Start the stopwatch as the participant begins walking; keep the stopwatch behind the participant so she can’t see it. Your arm can provide support if the participant loses balance. Stop the stopwatch when the participant’s first foot is completely across the finish line. Be certain to count the individual stops that the participant takes. If the participant fails to cross the finish line, explain the procedure again and repeat the process.

A7 “Did the participant complete the measured walk?”

For those women who attempted the measured walk, indicate whether or not they were able to complete it. If “yes,” indicate in A7a if the participant used an assistive device on the walk. If “no,” indicate why she was unable to complete the measured walk and skip to Question A11.

A8 “What length course did the participant walk?”

Indicate whether the course length was 3 or 4 meters. The preferable length for the walking course is 4 meters; however, if 4 meters are not available, a 3 meter course may be used instead.

A9 Record the number of seconds it took the participant to walk the course.

A10 Record the number of steps taken to complete the course. The final step (which may exceed the final distance of the measured course) is to be counted. NOTE: Count steps taken with both the right and left feet.

### **MEASURED WALK ATTEMPT #2:**

**Script:** “Now, I’d like you to try this test a second time. When I say, ‘Ready? Go!’ walk at your usual pace to the line at the end of the hall. I will walk with you.”

When the participant is properly at the line, say, “**Ready? Go!**”

Start the stopwatch as the participant begins walking; keep the stopwatch behind the participant so she can’t see it. Your arm can provide support if the participant loses balance. Stop the stopwatch when the participant’s first foot is completely across the finish line. Be certain to count the individual stops that the participant takes. If the participant fails to cross the finish line, explain the procedure again and repeat the process.

A12 “Did the participant complete the measured walk?”

For those women who attempted the measured walk, indicate whether or not they were able to complete it. If “yes,” indicate in A12a if the participant used an assistive device on the walk. If “no,” indicate why she was unable to complete the measured walk, and skip to Section B.

A13 “What length course did the participant walk?”

Indicate whether the course length was 3 or 4 meters. The preferable length for the walking course is 4 meters; however, if 4 meters are not available, a 3 meter course may be used instead.

A14 Record the number of seconds it took the participant to walk the course.

A15 Record the number of steps taken to complete the course. The final step (which may exceed the final distance of the measured course) is to be counted. NOTE: Count steps taken with both the right and left feet.

### **SECTION B: GRIP STRENGTH**

B1 Indicate if the participant attempted to perform the grip strength assessment. If “yes,” continue with section B. If “no,” indicate the reason the grip strength assessment was not attempted and skip to question B9.

B2 “Can the participant lift her arm to the table independently?”

When administering the grip strength test, it is necessary to ask the participant to place her elbow onto the table in order to use the grip strength device. Record your observation of the participant’s ability to lift her arm/elbow onto the table independently on the form.

If the participant has lifted her arm/elbow as requested independently (without aid from the other hand), the answer is coded “yes,” and no questions need be asked.

If the participant has not lifted her arm or hand to the table independently, ask: “Are you able to place your elbow onto the table without assistance from (your other hand/whatever assistance was used)?” If the participant answers “yes,” but does not perform the action, ask her to demonstrate. Record the results for each arm individually.

NOTE: The participant’s chair should be at the proper height so that her arm can rest comfortably on the table at a right angle. The dynamometer also should rest on the table. A towel or pad should be placed under the arm.

**SPECIAL NOTE:** The grip strength examination is used to test how strong the participant’s hands are. Participants with one or more of the following conditions should not be tested:

1. Acute flare-up of wrist/hand; for example, arthritis, tendonitis or carpal tunnel syndrome.
2. Less than 13 weeks after surgery for fusion, arthroplasty, tendon repair or synovectomy of the upper extremity.
3. If the technician has concerns that this test may exacerbate symptoms of heart disease (e.g., angina), the situation should be investigated. Ask the participant if she is currently having symptoms from heart problems. This does NOT exclude the participant from the grip strength test. Local procedures may be developed in this situation to assure safety for the participant.

**Script:** “In this exercise, I am going to use this instrument to measure the strength in your hands.”

B3 “Have you had a recent worsening of pain in your wrists?”

If participant responds “yes,” ask question B3a. If she responds “no,” proceed to question B4.

a. “Do you think you could safely squeeze this as hard as you can?”

If participant responds “no,” do not perform grip strength test and skip to question B5.

B4 “Have you had any surgery on your hands or arms during the last 13 weeks?”

If participant responds “yes,” do not perform grip strength test and skip to question B5.

**Script:** “I’d like you to take your dominant arm, place your forearm on the table, and grab the two pieces of metal together like this.” Examiner should demonstrate at this point. “When I say ‘squeeze,’ squeeze as hard as you can. The two pieces of metal will not move but I will be able to read the force of your grip on the dial. I will ask you to do this three times. If you feel any pain or discomfort, tell me and we will stop.”

**Demonstration:** Face the participant and squeeze the dynamometer so that the participant can see the dial rotate.

**Script:** “Now you should place your arm on the table at right angles to your body. Grip the two pieces of metal with your dominant hand. Your wrist should be straight. **Ready? Go!**” (Be sure to coach, “**Squeeze, squeeze, squeeze!**” Also be sure to tell the participant when to “stop.”)

Repeat the examination three times in the dominant hand. Record the results of each trial before the next attempt.

The dynamometer should be set at “2” strength for testing of all participants. The computer default for this item is “2.”

B5 Record whether or not the grip strength test was completed. If the test was attempted but not completed, or if it was not attempted, skip to question B9.

a. Record whether the participant performed the test using her left or right hand. The test should be performed using the participant’s dominant hand.

B6 Record the strength for the first attempt in kilograms.

The Dynamometer should be read at eye level. Round down to the nearest line on the dynamometer (will always be an even number). Be sure to set the dynamometer dial to zero prior to each attempt. A minimum of three attempts per hand must be made. Record “-9” for any attempts not made.

B7 Record the strength for the second attempt in kilograms.

B8 Record the strength for the third attempt in kilograms.

B9 Record the actual time you ended the measurements in the space denoted “Time Module Ended.”