



(Affix Label Here)

Participant ID: _____

Participant Name Code: _____

Date Form Filled Out:

Grid of 10 boxes for date entry

d d M M M y y y y (e.g., 10JUN2005)

Interviewer Code: [] [] []

Circle Field Center Location:

BU CU DK UP

Circle Visit: 6Visit 3 7Visit 3 (New Participant)

Form Version Date: 28/03/2023

Performance Measures, Visit 3

Examiner: Where is this test being performed?

- 1 This Form was Administered by Study Personnel in the Clinic
2 This Form was Administered by Study Personnel in the Home
3 Other (Please Specify)

A. SHORT PHYSICAL PERFORMANCE BATTERY (SPPB)

Interviewer: All of the tests should be performed in the same order as they are presented in this protocol. Instructions to the participant are shown in bold italic and should be given exactly as they are written in this script.

Now let's begin the evaluation. I would now like you to try to move your body in different movements. I will first describe and show each movement to you. Then I'd like you to try to do it. If you cannot do a particular movement, or if you feel it would be unsafe to try to do it, tell me and we'll move on to the next one. Let me emphasize that I do not want you to try to do any movement that you feel might be unsafe.

Do you have any questions before we begin?

Measure: Balance Tests

Interviewer: The participant must be able to stand unassisted without the use of a cane or walker. You may help the participant to get up.

Side-by-Side Stand

Interviewer Script: Now I will show you the first movement. (Demonstrate) I want you to try to stand with your feet together, side-by-side, for about 10 seconds. You may use your arms, bend your knees, or move your body to maintain your balance, but try not to move your feet. Try to hold this position until I tell you to stop.

Participant ID: _____

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Stand next to the participant to help him/her into the side-by-side position.

- *Supply just enough support to the participant's arm to prevent loss of balance.*
- *When the participant has his/her feet in position, ask "Are you ready?"*
- *Then let go and begin timing as you say, "Ready, begin."*
- *Stop the stopwatch and say "Stop" after 10 seconds or when the participant steps out of position or grabs your arm.*
- *If participant is unable to hold the position for 10 seconds, record result and go to the gait speed test.*

Q1. Is the participant able to do a side-by-side stand (balance unaided) for 10 seconds?

- | | | |
|---|-----------------------------|---|
| <input type="checkbox"/> ¹ | Yes, held for 10 seconds; | Go to Semi-Tandem Stand, Q4 |
| <input type="checkbox"/> ⁰ | No, not held for 10 seconds | Record Result in Q2; End Balance Test;
Go to Gait Speed Test |
| <input type="checkbox"/> ^R | Not attempted/Refused | End Balance Test/Go to Q3 |

Q2. Number of seconds held, if less than 10: ____ . ____ ____

Q3. If participant did not attempt test, indicate reason with an "X". **End Balance Test; Go to Gait Speed Test**

- | | |
|---|--|
| <input type="checkbox"/> ¹ | Tried, but unable |
| <input type="checkbox"/> ² | Participant could not hold position unassisted |
| <input type="checkbox"/> ³ | Not attempted, interviewer felt unsafe |
| <input type="checkbox"/> ⁴ | Not attempted, participant felt unsafe |
| <input type="checkbox"/> ⁵ | Participant unable to understand instructions |
| <input type="checkbox"/> ⁶ | Other (Please Specify) _____ |
| <input type="checkbox"/> ^R | Participant Refused |

Semi-Tandem Stand

Interviewer Script: *Now I will show you the second movement. (Demonstrate) I want you to try to stand with the side of the heel of one foot touching the big toe of the other foot for about 10 seconds. You may put either foot in front, whichever is more comfortable for you. You may use your arms, bend your knees, or move your body to maintain your balance, but try not to move your feet. Try to hold this position until I tell you to stop.*

- *Stand next to the participant to help him/her into the semi-tandem position.*
- *Supply just enough support to the participant's arm to prevent loss of balance.*
- *When the participant has his/her feet in position, ask "Are you ready?"*
- *Then let go and begin timing as you say, "Ready, begin."*
- *Stop the stopwatch and say "Stop" after 10 seconds or when the participant steps out of position or grabs your arm.*
- *If participant is unable to hold the position for 10 seconds, record result and go to the gait speed test.*

Participant ID: _____

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Q4. Is the participant able to do a semi-tandem stand (balance unaided) for 10 seconds?

- ¹Yes, held for 10 seconds **Go to Tandem Stand, Q7**
- ⁰No, not held for 10 seconds **Record Result in Q5; End Balance Test; Go to Gait Speed Test**
- ^RNot attempted/Refused **End Balance Test; Go to Q6**

Q5. Number of seconds held, if less than 10: ____ . ____ ____ **Go to Gait Speed Test**

Q6. If participant did not attempt test, indicate reason with an "X". **End Balance Test; Go to Gait Speed Test**

- ¹Tried, but unable
- ²Participant could not hold position unassisted
- ³Not attempted, interviewer felt unsafe
- ⁴Not attempted, participant felt unsafe
- ⁵Participant unable to understand instructions
- ⁶Other (Please Specify) _____
- ^RParticipant Refused

Tandem Stand

Interviewer Script: *Now I will show you the third movement. (Demonstrate) I want you to try to stand with the heel of one foot in front of and touching the toes of the other foot for about 10 seconds. You may put either foot in front, whichever is more comfortable for you. You may use your arms, bend your knees, or move your body to maintain your balance, but try not to move your feet. Try to hold this position until I tell you to stop.*

- *Stand next to the participant to help him/her into the tandem position.*
- *Supply just enough support to the participant's arm to prevent loss of balance.*
- *When the participant has his/her feet in position, ask "Are you ready?"*
- *Then let go and begin timing as you say, "Ready, begin."*
- *Stop the stopwatch and say "Stop" after 10 seconds or when the participant steps out of position or grabs your arm.*
- *If participant is unable to hold the position for 10 seconds, record result and go to the gait speed test.*

Q7. Is the participant able to do a tandem stand (balance unaided) for 10 seconds?

- ¹Yes, held for 10 seconds **Go to Gait Speed Test, Q10**
- ⁰No, not held for 10 seconds **Record Result in Q8; End Balance Test; Go to Gait Speed Test**
- ^RNot attempted/Refused **End Balance Test; Go to Q9**

Q8. Number of seconds held, if less than 10: ____ . ____ ____ **Go to Gait Speed Test**

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Participant Name Code: _____

Q9. If participant did not attempt test, indicate reason with an "X". End Balance Test; Go to Gait Speed Test

- 1Tried, but unable
- 2Participant could not hold position unassisted
- 3Not attempted, interviewer felt unsafe
- 4Not attempted, participant felt unsafe
- 5Participant unable to understand instructions
- 6Other (Please Specify)_____
- RParticipant Refused

Measure: Gait Speed Test

First Gait Speed

Interviewer Script: *Now I am going to observe how you normally walk. If you use a cane or other walking aid and you feel you need it to walk a short distance, then you may use it.*

This is our walking course. I want you to walk to the other end of the course at your usual speed, just as if you were walking down the street to go to the store. (Demonstrate the walk for the participant.)

Walk all the way past the other end of the tape before you stop. I will walk with you. Do you feel this would be safe? (Have the participant stand with both feet up to (nearly touching), but not crossing the starting line.)

When I want you to start, I will say: "Ready, begin." When the participant acknowledges this instruction say "Ready, begin."

- *Press the start/stop button to start the stopwatch when the participant begins to move their feet.*
- *Walk behind and to the side of the participant.*
- *Stop timing when one of the participant's feet is completely across the end line.*

Q10. Length of walk test course:

- 14 Meters
- 23 Meters (if 4 meter course is unavailable)

Q11. Time for 3 or 4 meters: _____ . _____ Seconds Go to Q13

Participant ID: _____

Participant Name Code: _____

Q12. If participant did not attempt test, indicate reason with an "X":

- 1Tried, but unable
- 2Participant could not walk unassisted
- 3Not attempted, interviewer felt unsafe
- 4Not attempted, participant felt unsafe
- 5Participant unable to understand instructions
- 6Other (Please Specify)_____
- RParticipant Refused

GO TO CHAIR STAND TEST, Q18

Q13. Aids used for first walk:

- 0None
- 1Cane
- 2Other (Please Specify)_____

Second Gait Speed

Interviewer Script: *Now I want you to repeat the walk. Remember to walk at your usual pace, and go all the way past the other end of the course.*

Have the participant stand with both feet up to (nearly touching), but not crossing the starting line.

When I want you to start, I will say: "Ready, begin." *When the participant acknowledges this instruction say "Ready, begin."*

- *Press the start/stop button to start the stopwatch when the participant begins to move their feet.*
- *Walk behind and to the side of the participant.*
- *Stop timing when one of the participant's feet is completely across the end line.*

Q14. Time for 3 or 4 meters: _____ . _____ Seconds **Go to Q16**

Q15. If participant did not attempt test, indicate reason with an "X":

- 1Tried, but unable
- 2Participant could not walk unassisted
- 3Not attempted, interviewer felt unsafe
- 4Not attempted, participant felt unsafe
- 5Participant unable to understand instructions
- 6Other (Please Specify)_____
- RParticipant Refused

Go to Chair Stand Test, Q18

Participant ID: _____

Participant Name Code: _____

Q16. Aids used for Second walk:

- ⁰None
- ¹Cane
- ²Other (Please Specify) _____

Q17. What is the time for the faster of the two walks? (**Record the shorter of the two times; if only one walk done, record that time**) _____ . _____

Measure: Chair Stand Test

Single Chair Stand

Interviewer Script: *Let's do the last movement test. Do you think it would be safe for you to try to stand up from a chair without using your arms? (Record result)*

The next test measures the strength in your legs. First, fold your arms across your chest and sit so that your feet are on the floor; then stand up keeping your arms folded across your chest. (Demonstrate and explain the procedure.)

Please stand up keeping your arms folded across your chest. (Record result)

If the participant cannot rise without using arms, say "Okay, try to stand up using your arms." This is the end of the test. Record result onto the scoring page.

Q18. Safe to stand without help?

- ¹Yes
- ⁰No

Q19. Results:

- ¹Participant stood without using arms **Go to Repeated Chair Stand Test**
- ²Participant used arms to stand **End Test; Proceed to Section B Q24**
- ⁰Test not completed (0 points) **End Test; Go to Q20**

Participant ID: _____

Participant Name Code: _____

Q20. If participant did not attempt test, indicate reason with an "X":

- 1Tried, but unable
- 2Participant could not stand unassisted
- 3Not attempted, interviewer felt unsafe
- 4Not attempted, participant felt unsafe
- 5Participant unable to understand instructions
- 6Other (Please Specify) _____
- RParticipant Refused

Interviewer: Skip to Grip Strength, Q24

Repeated Chair Stand

Interviewer Script: Do you think it would be safe for you to try to stand up from a chair five times without using your arms? (Record result)

Please stand up straight as QUICKLY as you can five times, without stopping in between. After standing up each time, sit down and then stand up again. Keep your arms folded across your chest. I'll be timing you with a stopwatch. (Demonstrate and explain the procedure.)

- When the participant is seated properly, say: "**Ready? Stand.**" and begin timing.
- Count out loud as the participant straightens after each rise, up to five times.
- Stop if participant becomes tired or short of breath during repeated chair stands.
- Stop the stopwatch when he/she has straightened up completely for the fifth time.
- Also stop:
 - If participant uses his/her arms.
 - After 1 minute, if participant has not completed all 5 rises
 - At your discretion, if concerned for participant's safety.

If the participant stops and appears to be fatigued before completing the five stands, confirm this by asking "Can you continue?"

Q21. Safe to stand five times?

- 1Yes
- 0No

Go to Q23

Q22. Time to complete five stands? (Only if participant completes 5 stands)

_____ . _____ Seconds

Go to Q24

Q23. If participant did not attempt/complete test, indicate reason with an "X":

- 1Tried, but unable
- 2Participant could not stand unassisted
- 3Not attempted, interviewer felt unsafe
- 4Not attempted, participant felt unsafe
- 5Participant unable to understand instructions
- 6Other (Please Specify)_____
- RParticipant Refused

B. GRIP STRENGTH

Interviewer Script: *In this exercise, I am going to use this instrument to measure the strength in both of your hands. I am going to ask you some questions to determine safety for the test.*

Q24. Are you right or left-handed?

- 1Right
- 2Left
- 3Both

Q25. Which is your stronger hand?

- 1Right
- 2Left
- 3Same

Determining safety for right hand:

Q26a. Do you have severe pain or severe arthritis in your **right hand**?

- 1Yes
- 0No

Q26b. Have you had any surgery on your **right hand** or wrist in the past three months?

- 1Yes
- 0No

Do not test right hand, Go to Q27a

Q26c. Do you think you could safely squeeze this with your **right hand**, as hard as you can?

- 1Yes
- 0No

OK to test right hand

Do not test right hand; Go to Q27a to evaluate left hand

Participant ID: _____

Participant Name Code: _____

Determining safety for left hand:

Q27a. Do you have severe pain or severe arthritis in your **left hand**?

¹Yes
⁰No

Q27b. Have you had any surgery on your **left hand** or wrist in the past three months?

¹Yes
⁰No

Do not test left hand, Go to Q28.

Q27c. Do you think you could safely squeeze this with your **left hand**, as hard as you can?

¹Yes
⁰No

OK to test left hand

Do not test left hand

Q28. Is it possible to test both hands?

⁴**Both**
¹**Right**
²**Left**
³**Neither**

Go to Q29

Go to Q29

Go to Q33

END TEST

Q29. Dynamometer Setting, RIGHT Hand:

¹One
²Two
³Three
⁴Four
⁵Five

Interviewer Script: *I'd like you to sit down and take your right arm and please place it next to your body and bend your elbow at a 90° angle. Grip the two bars in your hand, like this. You need to squeeze the bars as hard as you can."*

Hand the Dynamometer to the participant. Adjust if needed.

Now try it once just to get the feel for it. For this practice, just squeeze gently. It won't feel like the bars are moving, but your strength will be recorded. Are the bars the right distance apart for a comfortable grip?

Show dial to participant.

We'll do this three times. This time it counts, so when I say "Squeeze", squeeze as hard as you can. Ready? Squeeze! Squeeze! Squeeze! Okay now, STOP.

Q30. RIGHT Hand Trial 1:

_____ kg

- UUnable to test/exclusion
- CParticipant unable to understand instructions
- RRefused

Examiner Note: Wait 10 seconds before second trial.

Now, one more time. Squeeze as hard as you can. Ready? Squeeze! Squeeze! Squeeze! Okay now, STOP.

Q31. RIGHT Hand Trial 2:

_____ kg

- UUnable to test/exclusion
- CParticipant unable to understand instructions
- RRefused

Examiner Note: Wait 10 seconds before Third trial.

Now, one more time. Squeeze as hard as you can. Ready? Squeeze! Squeeze! Squeeze! Okay now, STOP.

Q32. RIGHT Hand Trial 3:

_____ kg **If unable to test LEFT Hand, END HERE, otherwise go to Q33**

- UUnable to test/exclusion
- CParticipant unable to understand instructions
- RRefused

Script: Switch to your left hand. Are the bars the right distance apart for a comfortable grip?

Q33. Dynamometer Setting, LEFT Hand:

- 1One
- 2Two
- 3Three
- 4Four
- 5Five

Q34. LEFT Hand Trial 1:

Interviewer Script: *I'd like you to take your left arm and please place it next to your body and bend your elbow at a 90° angle. Grip the two bars in your hand, like this. You need to squeeze the bars as hard as you can."*

Hand the Dynamometer to the participant. Adjust if needed.

Now try it once just to get the feel for it. For this practice, just squeeze gently. It won't feel like the bars are moving, but your strength will be recorded. Are the bars the right distance apart for a comfortable grip?

Show dial to participant.

We'll do this three times. This time it counts, so when I say "Squeeze", squeeze as hard as you can. Ready? Squeeze! Squeeze! Squeeze! Okay now, STOP.

_____ kg

- UUnable to test/exclusion
- CParticipant unable to understand instructions
- RRefused

Examiner Note: Wait 10 seconds before second trial.

Now, one more time. Squeeze as hard as you can. Ready? Squeeze! Squeeze! Squeeze! Okay now, STOP.

Q35. LEFT Hand Trial 2:

_____ kg

- UUnable to test/exclusion
- CParticipant unable to understand instructions
- RRefused

Examiner Note: Wait 10 seconds before Third trial.

Participant ID: _____

Participant Name Code: _____

Now, one more time. Squeeze as hard as you can. Ready? Squeeze! Squeeze! Squeeze! Okay now, STOP.

Q36. LEFT Hand Trial 3:

_____ kg

- UUnable to test/exclusion
- CParticipant unable to understand instructions
- RRefused

C. 1 MINUTE SIT TO STAND TEST

Interviewer: First Determine Safety

Q37a. Was participant able to complete 5 chair stands <60 sec during the SPPB?

- 1Yes **Go to Q37b**
- 0No **DO NOT TEST – Go to Q41**

Interviewer Script: *This next test measures your endurance. I’m going to ask you to stand up and down from a chair for one minute. Before we start, I have a few questions.*

Q37b. Do you have any back, hip or knee pain that would prevent you from doing this test?

- 1Yes **DO NOT TEST – Go to Q41**
- 0No **Go to Q37c**

Q37c. Have you had a heart attack, chest pain, heart surgery, stroke or any other serious medical condition in the past 6 months?

- 1Yes **DO NOT TEST – Go to Q41**
- 0No **Go to Q37d**

Q37d. Do you think it would be safe to stand up and down from a chair for up to 1 minute as quickly as you can without using your arms?

- 1Yes **OKAY to conduct Test, Go to Q38a0**
- 0No **DO NOT TEST – Go to Q41**
- D Don’t know **Go to Q37e**

Q37e. Would you be willing to try it and see how you feel?

¹Yes
⁰No
^D Don't know

OKAY to conduct Test, Go to Q38a0
DO NOT TEST – Go to Q41
DO NOT TEST – Go to Q41

Interviewer Script: This next test is similar to the chair stands you did earlier except now we will ask you to do them for a longer period of time.

First, I would like you to fold your arms across your chest and sit so that your feet are flat on the floor. When I say go, I want you to repeatedly stand all the way up and sit down as quickly as you can without stopping in between. You will do this for up to 1 minute. If you need to rest, you are free to do so. However, you should continue again as soon as possible as the goal is to complete as many sit-to-stand-to-sit cycles as possible in 1 minute. I'll be timing you with a stopwatch.

Halfway through and at the end of the test, I'm going to ask you to rate how hard you feel you are working on this Ratings of Perceived Exertion (RPE) Scale from 6 (no exertion at all) to 20 (maximal exertion) (show scale and give participant a few seconds to familiarize themselves). I will also ask if you feel you can continue the test. Please keep going while I ask these questions.

When the participant is seated properly:

Interviewer Script: Ready? Stand. and begin timing.

Note: Do not provide encouragement, but reminders to stand up fully are allowed. Do inform the participant when 10 seconds remain.

- Count each full stand aloud. Give credit only for a complete sit-to-stand-to-sit cycle.
- Stop if participant becomes tired or short of breath during repeated chair stands.
- Stop if RPE at 30 seconds is >14
- Also stop:
 - If participant uses his/her arms.
 - At your discretion, if concerned for participant's safety.

Q38a0. Was participant able to complete the test for 30 seconds?

¹Yes
⁰No

Stop Test – Go to Q40a

At 30 seconds:

Interviewer Script: Please tell me how hard you feel you are working. Pause for their answer and then say, ***Do you feel you can continue this test?***

Q38a. Record RPE at 30 seconds.

_____ **If RPE >14 STOP TEST and Go to Q40a**

Q38b. Record number of complete sit-to-stand-to-sit cycles at 30 seconds.

Q38c. Was participant able to continue test?

¹Yes

⁰No **Stop Test – Go to Q40a**

Alert the participant when there is 10 seconds left in the test.

Interviewer Script: You have 10 seconds left.

Q38d. Was participant able to complete the test for one minute?

¹Yes

⁰No **Stop Test – Go to Q40a**

At 1 minute:

Interviewer Script: Please tell me how hard you feel you were working.

Q39a. Record RPE at 1 minute.

Q39b. Record number of complete sit-to-stand-to-sit cycles at 1 minute.

_____ **Test Complete...END FORM**

Answer Q40a-d for stopped tests.

Interviewer Script: Please tell me how hard you feel you were working.

Q40a. Record RPE at the time the test was stopped.

Q40b. Record number of complete sit-to-stand-to-sit cycles at the time the test was stopped.

Q40c. Record time that test was stopped.

_____ . _____ Seconds

Participant ID: _____

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Q40d. *Why did you feel you couldn't continue?* (Read responses and mark all that apply)

- 1Shortness of Breath
- 2Chest Pain
- 3Leg/Hip Pain
- 4Feeling Faint or Dizzy
- 5Fatigue
- 6Other (Please Specify) _____
- DDon't know

Q41. If participant did not attempt/complete test, indicate reason with an "X":

- 1Tried, but unable
- 2Participant could not stand unassisted
- 3Not attempted/not completed, interviewer felt unsafe
- 4Not attempted/not completed, participant felt unsafe
- 5Participant unable to understand instructions
- 6Other (Please Specify) _____
- 7Not attempted, did not complete 5 chair stands in <60 seconds
- RParticipant Refused