STUDY OF OSTEOPOROTIC FRACTURES (V4)

V4 Performance Cohort

Timed Manual Performance (3 door Williams' Board)

1. Introduction

Timing older people as they perform simple manual tasks has been shown to complement other functional status assessments in identifying individuals with increased risk for functional deterioration. Timed manual performance quantifies manual and cognitive abilities by timing subjects in the performance of tasks chosen to simulate daily activities. Timed manual testing provides a sensitive and reproducible method which assists clinicians in making judgments regarding an older individual's care requirements and benefits researchers in developing strategies designed to improve functional performance.

We will be using the timed manual performance board which evaluates the opening and closing of three door latches mounted on a panel attached to a card table. Each subject is seated in front of the panel and is timed opening and closing the doors by an observer with a stopwatch. This 3 door board has been adapted from the original 9 door Williams' board. This protocol has been adapted from "Timed Manual Performance in Older Persons" - a handbook and training guide written by Mark E. Williams, MD and Carol Ann Mitchell, RN, ED.D.

2. Equipment

1. Timed Manual Performance (TMP) board.
2. Stopwatch.
3. Sturdy table or desk and chair.

Set Up: The 3 door board should be placed on a sturdy table or desk. During the testing, the examiner should hold the board from behind to prevent any movement of the board or the board can be fastened and held in place using clamps or other means. The doors can be numbered 1 through 3 from left to right.

Place a chair directly in front of the middle door of the panel and have the participant sit down facing the panel. The participant should be comfortable and should be allowed to reposition herself until she feels comfortable. The panel should be within easy reach of the participant but not too close. If necessary, adjust the height of the chair so that the subject can reach all three latches on the board. If the participant is in a wheelchair, remove the armrest, push the subject to the table and lock the wheelchair brakes. Do not remove handsplints, casts, slings, or other physical appliances but record these conditions on the examination form.

3. Measurement Procedures

A. On the 3 door panel, 2 doors will be timed for both opening and closing, while the third door (the middle door) will only be timed for opening (it closes by gravity). Remember that after the door has been opened, the door must be realigned so that it is perpendicular to the panel to begin the closing sequence (you may use tabs on the panel to mark perpendicular). Each door is opened and closed before moving to the next door. The doors should always be opened and closed in the same sequence, from left to right.

All of the following material, except that italicized and in parentheses, should be communicated to the subject as it is written.

"This is a procedure to see how well you function on things you do everyday. It'll only take a minute or two."

"This panel has 3 doors, each with a different latch. The object of this test is for you to use either hand to undo the latch and to open, and later close, each door as quickly as possible. I will time you in doing this. You may rest after opening each door. The method of opening the doors and releasing the latches or locks will be demonstrated before each door. Please do not open the doors until we actually begin."

Door #1 (2,3):
"Here is door number 1 (2, 3). When I say 'Go', you are to reach up from the table and open door #1 *(demonstrate)*. With your hand on the latch, open door #1 AS FAR AS POSSIBLE. Then place your hands back on the table."

"Then when I next say 'Go', you are to reach up for the open door latch and close it like this." *(when demonstrating the closing of the door, be sure to have your hand on the latch and to operate the latch correctly)*.

"Do you have any questions about either opening or closing door #1 (2,3)?" *(Answer the questions and repeat the demonstration if necessary, but do not allow the subject to touch the door or to have a "practice run".)*

"Now, place both of your hands on the table. When I say "go," open door number 1 (2,3) as far as possible." *(Point to the door.)*

"Are you ready? Go."

(Using the stopwatch, time the participant from when you say "go" until the door is perpendicular to the front of the panel. Because the door will be in motion, use

your best estimate of when it reaches the perpendicular point. Do not wait for the subject to remove her hand from the fastener. Small tabs can be placed on the board to mark when the door is perpendicular to the panel.

No matter how well the participant performs, reinforce her with "Good!" and record the time, to the tenth of a second, on the form.

After the subject has opened the door, realign the door so that it is perpendicular to the panel and then begin the closing sequence.)

"Now, please place both of your hands back on the table. When I say 'Go', reach for the latch on door #1 and close the door (2,3). Are you ready? Go!"

(Time from 'go' until door is closed and fastener is done. If the participant just pushes the door shut without actually operating the latch that is okay.)

No matter how well the participant performs, reinforce her with "Good!" and record the time, to the tenth of a second, on the form.

Doors #2 and #3:
Repeat protocol for door numbers 2 and 3.

Door #2, the round knob door, is not timed for closing. (It closes by gravity.)

If the participant does not open the door at least as far as perpendicular on the first try, then she may repeat the trial. Make sure she understands to open the door AS FAR AS POSSIBLE (so that she hopefully passes perpendicular). If she fails on the second try, record unable on the form and proceed to the next door.

Record what hand (right, left, or both) that the participant used to open and close the doors. Record whether the participant was using or wearing any special devices on the hand she used while performing the test.

Vision problems: A situation may occur that may cause you to think that the patient does not understand you or does not see adequately because she starts at a door other than the one you indicated. The subject may have a visual field deficit. In this situation, move the table (or box) to the side the subject responds to and determine if the subject is then able to work on the door you indicated. If so, remember to move the table so that the other doors can be reached. Record this condition on the form. As the timing for each door is completed, record the total time in tenths of seconds on the form. If the subject is unable to open or close a door, check unable, or if she refuses to open or close a door, check refused on the form.

Please write useful notes or observations on the form at any time. Also, record the reason for terminating any testing session.

TIMED MANUAL PERFORMANCE (TMP) BOARD WORKSHEET

Name _____ **I.D.#** _____

Physician _____ **Birth Date** _____

Diagnosis _____ **Sex** M F

Evaluator _____ **Date** _____

DIRECTIONS: Follow the cards for the three-door TMP script precisely, so that all subjects are tested under equal conditions. Record the hand the subject uses and the time in seconds when performing each skill. Add all five scores together for the combined total.

Also, circle whether the subject is normally right- or left-handed and note any visual/physical impairments, performance irregularities, reasons for early termination, or other pertinent comments on the worksheet.

Compartment and Fastener	Hand	Open	Close
1. Door knob	R L	_____	_____
2. Round knob	R L	_____	
3. Cabinet lock	R L	_____	_____

Combined total _____ seconds

Subject is normally: **Right-handed** **Left-handed**

Obvious physical/visual impairments? If "Yes," explain.

Performance irregularities? If "Yes," explain.

Early termination of test? If "Yes," explain.

Other comments?

KEY POINTS WHEN ADMINISTERING THE TIMED MANUAL PERFORMANCE TEST

Using the stopwatch: Practice using the stopwatch before testing each subject to make certain that you know how to use it well and that it is working properly.

Don't forget to zero the stopwatch between each TMP task. Start the watch when the subject begins to reach for the door. Stop the watch when the door is perpendicular to the front of the panel. Because the door will be in motion, use your best estimate of when it reaches the perpendicular point. Do not wait for the subject to remove his or her hand from the fastener. After the subject has opened the door, realign the door so that it is perpendicular to the panel and then begin the closing sequence, starting the stopwatch when the subject, in response to the 'Go' command, reaches for the door and stopping the watch when the door is closed.

Working with the subject: Make sure the subject is comfortable. If he or she sits too low, or has a physical impediment that prevents reaching any of the doors, use a cushion to elevate him or her on the chair, or try pushing the chair closer to the table. Check to see if the subject can now reach the row of doors from a seated position. If the problem remains, note it on the worksheet and proceed.

Sometimes the subject may not appear to hear you. If you feel that the subject has a **hearing** problem, speak more loudly, or sit on the patient's "good" side.

If during testing, the subject starts at a door other than the one you indicated, he or she may have a **visual field problem.** If this appears to be the case, move the TMP board to the side the subject responds to and determine if the subject is then able to work on the door you indicated. Also, move the board so that all other doors can be reached.

When necessary, you may answer the subject's questions and/or repeat a demonstration. However, do not allow the subject to touch the door or to have a "practice run."

Using the worksheet: Fill out as much information as you can about the subject from the patient's chart **prior** to beginning.

Ask the subject what hand he/she normally uses and record the response. Then, circle R or L for whether the subject uses the right or left hand when recording scores for each door. Once timing for opening or closing each door is completed, record the time in seconds in the appropriate column on the worksheet and give a composite total for the two columns.

Briefly explain any impediments or performance irregularities on the worksheet, adding any other noteworthy comments.

STUDY OF OSTEOPOROTIC FRACTURES (V4)

Timed Manual Performance
(3 door Williams' Board)

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2. Equipment

1. Timed Manual Performance (TMP) board
2. Stopwatch.
3. Sturdy table or desk and chair.

Set Up: The 3 door board should be placed on a sturdy table or desk. During the testing, the examiner should hold the board from behind to prevent any movement or the board can be fastened and held in place using clamps or any other means. The doors can be numbered 1 through 3 from left to right.

Place a chair directly in front of the middle door of the panel and have the participant sit down facing the panel. The participant should be comfortable and is allowed to reposition herself if she so desires. The panel should be within easy reach of the participant but not too close. If necessary, adjust the height of the chair so that the subject can reach all latches on the board. If the participant is in a wheelchair, remove the armrest, push the subject to the table and lock the wheelchair brakes. Do not remove handsplints, casts, slings, or other physical appliances but record these conditions on the examination form.

3. Measurement Procedures

A. On the 3 door panel, 2 doors will be timed for both opening and closing, while the third door will only be timed for opening (it closes by gravity). Remember that after the door has been opened, realign the door so that it is perpendicular to the panel to begin the closing sequence (you may use tabs on the panel to mark

perpendicular). Each door is opened and closed before moving to the next door. The doors are always opened and closed in the same sequence, from left to right.

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Door #1 (2,3):

"This is a procedure to see how well you function on things you do everyday. It'll only take a minute or two."

"This panel has 3 doors, each with a different latch. The object of this test is for you to use either hand to undo the latch and to open, and later close, each door as quickly as possible. I will time you in doing this. You may rest after opening each door. The method of opening the doors and releasing the latches or locks will be demonstrated before each test. Please do not open the doors until we actually begin."

"Here is door number 1 (2, 3). When I say 'Go', you are to reach up from the table *(demonstrate)* and open door #1. With your hand on the latch, open door #1 AS FAR AS POSSIBLE. Then place your hands back on the table."

"Then when I next say 'Go', you are to reach up for the open door and close it like this." *(demonstrate closing the door, be sure to have your hand on the latch and to operate the latch correctly during the demonstration).*

"Do you have any questions about either opening or closing door #1 (2,3)?" *(Answer the questions and repeat the demonstration if necessary, but do not allow the subject to touch the door or to have a "practice run".)*

"Now, place both of your hands on the table. When I say "go," open door number 1 (2,3) as far as possible." *(Point to the door.)*

"Are you ready? Go."

(Time from "go" until the door is perpendicular to the front of the panel. Because the door will be in motion, use your best estimate of when it reaches the perpendicular point. Small tabs can be placed on the board to mark when the door is perpendicular to the panel. Do not wait for the subject to remove her hand from the fastener. After the subject has opened the door, realign the door so that it is perpendicular to the panel and then begin the closing sequence.)

No matter how well the participant performs, reinforce her with "Good!" and record the time, to the tenth of a second, on the form.

"Now, please place both of your hands back on the table. When I say 'Go', with your hand on the latch, close door #1 (2,3). Are you ready? Go!"

(Time from 'go' until door is closed and fastener is done.)

No matter how well the participant performs, reinforce her with "Good!" and rrecord the time, to the tenth of a second, on the form.

Doors #2 and #3:
Repeat protocol for doors numbers 2 and 3.

Door #2, the round knob door, is not timed for closing. (It closes by gravity.) Draw a line on the worksheet for documentation.

If the participant does not open the door at least as far as perpendicular on the first try, then she may repeat the trial. Make sure she understands to open the door AS FAR AS POSSIBLE. If she fails on the second try, record unable on the form and proceed to the next door.

A situation may occur that may cause you to think that the patient does not understand you or does not see adequately because she starts at a door other than the one you indicated. The subject may have a visual field deficit. In this situation, move the table to the side the subject responds to and determine if the subject is then able to work on the door you indicated. If so, remember to move the table so that other doors can be reached. Record this condition on the form. As the timing for each door is completed, record the total time in tenths of seconds on the form. If the subject is unable to open or close a door, check unable, or if she refuses to open or close a door, check refused on the form.

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