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## Activities Measure for Upper Limb Amputees (AM-ULA)

*Please refer to the AM-ULA Instructions Script*

Using the scale below, please indicate how easily the subject performs the following activities:					
0. Unable to perform task		2. Fair performance			
1. Poor performance		3. Good performance			
		Excellent performance			
		a. Time to Completion (Seconds)	b. Score	b. Did Not Attempt	Document Time (mm:ss) Do not put into REDCap
<b>1. Brush/comb hair</b>	1) Grasp comb 2) Bring comb to head 3) Comb hair or perform a combing motion 4) Release the comb from grasp	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	
<b>2. Put on T-shirt</b>	1) Grasp the t-shirt 2) Thread head through neck opening 3) Thread arms through sleeves 4) Pull shirt down to fit properly	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	
<b>3. Remove T-shirt</b>	1) Grasp the t-shirt 2) Lift the shirt over head 3) Undress arms 4) Place shirt on table 5) Release grasp	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	
<b>4. Button shirt with front buttons</b>	1) Grasp the shirt 2) Push button through hole 3) Pull button out other side 4) Complete buttoning of 3 buttons 5) Release grasp on shirt	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	
<b>5. Attach end of zipper and zip jacket</b>	1) Grasp zipper and vest 2) Initiate the zipper 3) Pull zipper up at least 2/3 of the way 4) Unzip the zipper	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	
<b>6. Put on socks</b>	1) Grasp the sock 2) Pull the sock over toes 3) Pull the sock over the heel so that it is fully donned	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	
<b>7. Tie shoe laces</b>	1) Grasp a lace with each hand 2) Criss-cross the laces 3) Make loops 4) Pull the bow tight 5) Release grasp on the laces	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	
<b>8. Drink from a paper cup</b>	1) Pick up a paper cup from a table 2) Bring the cup to touch the mouth 3) Tilt the cup and simulate drinking (or drink) 4) Return the cup to the table 5) Release the grip on the cup	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	

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## Activities Measure for Upper Limb Amputees (Continued)

Using the scale below, please indicate how easily the subject performs the following activities:					
0.	Unable to perform task	2.	Fair performance		
1.	Poor performance	3.	Good performance		
		Excellent performance			
		a. Time to Completion (Seconds)	b. Score	b. Did Not Attempt	Document Time (mm:ss) Do not put into REDCap
<b>9. Use a fork</b>	1) Grasp fork 2) Bring fork all the way to the mouth as if taking a bite of food 3) Move fork away from mouth and return to table 4) Release grip on the fork	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	
<b>10. Use a spoon</b>	1) Grasp spoon 2) Bring spoon all the way to the mouth as if taking a bite of food 3) Move spoon away from mouth and return to table 4) Release grip on the spoon	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	
<b>11. Pour from a 12oz can</b>	1) Pick up soda can 2) Grasp cup with opposite hand to stabilize 3) Pour soda into cup 4) Set can down on table 5) Release cup and can	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	
<b>12. Write legibly</b>	1) Grasp the pen or pencil 2) Write the word "LETTER" 3) Set the pen down 4) Release grip	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	
<b>13. Use scissors</b>	1) Grasp the scissors 2) Grasp paper in the other hand 3) Cut the paper with scissors (make at least 3 cuts) 4) Release paper 5) Release scissors	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	
<b>14. Open door with knob</b>	1) Reach for the doorknob 2) Grasp the doorknob 3) Turn the door knob to release the latch 4) Release the knob	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	
<b>15. Dial a touch tone phone</b>	1) Grasp cell phone in one hand 2) Position phone to see touch pad 3) Use appropriate part of terminal device or sound hand to press buttons to dial a phone number	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	<input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/>	

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Mon/day/year					

## Activities Measure for Upper Limb Amputees (Continued)

Using the scale below, please indicate how easily the subject performs the following activities:					
0. Unable to perform task		2. Fair performance			
1. Poor performance		3. Good performance			
		Excellent performance			
		a. Time to Completion (Seconds)	b. Score	b. Did Not Attempt	Document Time (mm:ss) Do not put into REDCap
<b>16. Use a hammer and nail</b>	1) Pick up the hammer with one hand and the nail with the other hand 2) Position the nail vertically on top of wood 3) Lift hammer and bring it down to drive the nail into the wood 4) Remove hand that was positioning the nail away and continue to hammer nail into wood 5) Release hammer from grip	<input style="width: 30px; height: 30px;" type="text"/> <input style="width: 30px; height: 30px;" type="text"/> <input style="width: 30px; height: 30px;" type="text"/>	<input style="width: 30px; height: 30px;" type="text"/>	<input style="width: 30px; height: 30px;" type="text"/>	
<b>17. Fold a bath towel</b>	1) Grasp ends of towel 2) Brings ends together to fold twice 3) Release grip on the towel	<input style="width: 30px; height: 30px;" type="text"/> <input style="width: 30px; height: 30px;" type="text"/> <input style="width: 30px; height: 30px;" type="text"/>	<input style="width: 30px; height: 30px;" type="text"/>	<input style="width: 30px; height: 30px;" type="text"/>	
<b>18. Reach overhead (i.e. to the top of refrigerator door)</b>	1) Lift the arm overhead 2) Bring arm/hand to top of surface 3) Grasp object on shelf 4) Bring the arm down with object in hand	<input style="width: 30px; height: 30px;" type="text"/> <input style="width: 30px; height: 30px;" type="text"/> <input style="width: 30px; height: 30px;" type="text"/>	<input style="width: 30px; height: 30px;" type="text"/>	<input style="width: 30px; height: 30px;" type="text"/>	

### Comments about AM-ULA

19. Please comment on the subject's performance on the AM-ULA performance measure OVERALL, specifically focusing on prosthesis function (whether it failed during the exam, did it hinder continuation of the exam, etc).

20. Please comment on the subject's performance on a SPECIFIC SUBTEST of the AM-ULA performance measure, specifically focusing on the prosthesis function (whether it failed during the exam, did it hinder continuation of the exam, etc).

ID  
Number

Date:

Mon/day/year

# **Activities Measure for Upper Limb Amputees (AM-ULA) WRITING SUBTEST**

Please write the word: **LETTER**

## Activities Measure for Upper Limb Amputees (AM-ULA) Scoring Instructions

### Overview

The AM-ULA is a clinician rated measure of an upper limb amputee's performance of daily functional activities using the prosthesis. Each item is graded on a scale of 0-4 (unable to excellent). To obtain the total score: add the overall scores of all items, calculate the average, and then multiply by 10.

### Rules of Administration:

- Tester should familiarize themselves with all tasks and necessary sub-components (see attached Task List).
- Tester asks the Amputee to perform all of the unilateral tasks using the prosthesis and to use the prosthesis as much as possible when performing tasks that require bilateral engagement.
- Tester is not to provide assistance, except for safety.
- The amputee may use an aide, such as a button hook or other adaptive equipment.
- The test items should be administered in order. .

### Materials:

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Comb                     | <input type="checkbox"/> Fork           | <input type="checkbox"/> Touch tone phone |
| <input type="checkbox"/> T-shirt                  | <input type="checkbox"/> Spoon          | <input type="checkbox"/> Hammer           |
| <input type="checkbox"/> Shirt with front buttons | <input type="checkbox"/> 12oz can       | <input type="checkbox"/> Nail             |
| <input type="checkbox"/> Zipper and zip jacket    | <input type="checkbox"/> Pen            | <input type="checkbox"/> Bath towel       |
| <input type="checkbox"/> Shoe laces               | <input type="checkbox"/> Paper          | <input type="checkbox"/> Refrigerator     |
| <input type="checkbox"/> Socks                    | <input type="checkbox"/> Scissors       |   |
| <input type="checkbox"/> Paper cup                | <input type="checkbox"/> Door with knob |   |

### Scoring Rules

Amputees are scored on 5 elements, as described below. Please note that the AM-ULA scoring rules pertaining to sub-task completion have been slightly modified in version 1.1.

- Extent of completion. Grade the extent of completion of all sub-tasks of the activity.
- Speed of completion of entire activity. Grade the speed of task performance as compared to performance with a sound limb. The speed of task performance should include the time needed to pre-position the prosthesis in preparation for a task. Therefore, after the completion of an activity, the subject should be asked to refrain from making any device adjustments (to the wrist, terminal device or other joints) until the assessor says, "go."
- Movement quality: Grade the amount of awkwardness or compensatory movements resulting in/from lack of repositioning, limitations of the device, lack of skilled use or any other reason.
- Skillfulness of prosthetic use. Grade the type of use (no active use, use as a stabilizer, assist, or prime mover), control over voluntary grip functions.
- Independence. Grade the use of assistive device or adaptive equipment.

The grid below shows the scoring criteria for each element. The lowest score in any category is the one that is awarded for the overall score.

V

NOTE:

- Use of “excellent” category compares performance of the activity to performance with a sound limb. Test administrators should be aware that there will be few amputees who will be graded an “excellent”. This is a purposefully high bar for comparison, however it is included to avoid a ceiling effect- whereby there is no room for improvement, with advances in technology and methods of controls that will be evident in the near future.
- You will also be timing each activity, and recording time on the data collection sheet
- If a participant is “Unable to perform task” (score of 0), please still enter a time (if any) that elapsed while they attempted the task.
- If a participant “Did not attempt” a time of 999 seconds should be entered.
- If a participant completed a task in the AM-ULA they do not have to attempt the same task in the BAM-ULA.

Grade	Completion of sub-tasks		Speed of completion (as compared to non-disabled)	Movement quality	Skillfulness of prosthesis use	Independence
	Unilateral Tasks	Bilateral Tasks				
0 Unable	Less than all	No engagement of prosthesis in any subtask	N/A	N/A	No prosthetic use	N/A
1 Poor	N/A	Engagement of prosthesis in <50 of the task	Very slow to slow	Very awkward, many compensatory movements	<p>Inappropriate choice of grip for task (if choice is available)</p> <p>Loses grip multiple times during task, lack of proportional control (if available)</p> <p>Multiple unintentional activation of a control</p> <p>Prosthesis only used as a stabilizer during bimanual activities, i.e. there is <b>no active use</b> or use of grip, but arm or terminal device used to stabilize during the task</p>	May or may not use assistive device
2 Fair	N/A	N/A	Slow to medium	Some awkwardness or compensatory movement	<p>Sub-optimal choice of grip for task (if choice is available)</p> <p>Use of prosthesis as an assist for bimanual activities or prime mover unilateral activities</p> <p>Loses grip once during task</p> <p>More than one attempt needed to pre-position object within grasp and/or more than minimal awkwardness in pre-positioning object</p> <p>One incidence of unintentional activation of a control</p> <p>Fair proportional control</p>	May or may not use assistive device

3 Good	N/A	N/A	Medium-fast to normal	Minimal to no awkwardness or compensatory movement	<p>Skilled use of prosthesis as an assist for bimanual activities or as a prime mover for unilateral activities</p> <p>Quick and easy pre-positioning of object within grasp</p> <p>No unintentional loss of grip</p> <p>Optimal choice of grip for task (if choice is available)</p>	May or may not make use of assistive device
4. Excellent	All	Engagement in >50 of task	Equivalent to non-disabled	Excellent movement quality, no awkwardness or compensatory movement	<p>No inadvertent loss of grip or unwanted movement</p> <p>Optimal choice of grip for task (if choice is available)</p> <p>Sound side NOT used to pre-position object within grasp</p>	No assistive device use



# **Activities Measure for Upper Limb Amputees (AM-ULA) Script**

**Read the following to the client: “I want to see how you do some everyday activities. Please use your prosthetic arm to do these activities. Please use your sound arm only on those activities that require two hands. Please wait until I say go to make any changes to the position of your prosthesis or terminal device.”**

**Use the instructions below to guide the client in performing the testing tasks:**

1. Please take this comb and, while grasping it, run it through your hair (or over the top of their head if bald). Then put the comb down. Try to use only your prosthesis to do this task. You may place the comb in your prosthesis with your sound hand, if needed. Are you ready? Go!
2. Please put this t-shirt on. I want you to grasp t-shirt, thread your head through the neck opening, thread your arms through the arm holes and pull the shirt down over your body. Be sure to use your prosthesis while doing this. Are you ready? Go!
3. Now I'd like you to remove the t-shirt. While grasping the shirt, lift it over your head, remove your arms from the sleeves and place the shirt on the table. Be sure to use your prosthesis while doing this. Are you ready? Go!
4. Please put on this button-up shirt (the assessor may help don shirt) Assessor waits until the shirt is on before reading the rest of the instructions) Now I'd like you to button 3 buttons by putting the buttons through the holes and pulling them out the other side. Be sure to use your prosthesis while doing this. Are you ready? Go!
5. Please put this vest on (the assessor may help don vest) Assessor waits until the vest is on before reading the rest of the instructions Now, I'd like you to start the zipper and pull it at least 2/3 of the way up, then unzip the zipper. Be sure to use your prosthesis while doing this. Are you ready? Go!
6. Please take this sock and put it on, pull the sock over your heel and pull it up all the way so that it fits well. Be sure to use your prosthesis while doing this. Are you ready? Go!
7. Please take this shoe (placed either on a tabletop or on the floor) and tie the laces. Grasp a lace in each hand, crisscross the laces, making loops and tie the bow tight. Be sure to use your prosthesis while doing this. Are you ready? Go!
8. Pick up this paper cup from the table, bring it all the way to your mouth and pretend to drink from it. Then put the cup back on the table. Try to use only your prosthesis to do this task. Are you ready? Go!
9. Please grasp this fork and bring it to your mouth as if you were going to take a bite of scrambled eggs. Then put the fork back on the table. Try to use only your prosthesis to do this task. You may place the fork in your prosthesis with your sound hand, if needed. Are you ready? Go!
10. Please grasp this spoon with your prosthesis and bring it to your mouth as if you were going to feed yourself soup. Then put the spoon back on the table. Be sure to use your prosthesis while doing this. You may place the spoon in your prosthesis with your sound hand, if needed. Are you ready? Go!

11. Note on set-up: Place the soda can and cup in the midline in front of the participant equidistant from the testing and non-testing side. Please pick up the soda can from the table with one hand and grasp the cup with your other hand. Then pour all of the soda from the can into 1 cup. When finished, set the can and cup (if necessary) down on the table. Be sure to use your prosthesis while doing this. Are you ready? Go!
12. Please grasp this pen with your prosthesis and write the word “Letter” on the blank sheet of paper on the clipboard. Then set the pen down on the table. Try to use only your prosthesis to do this task. You may place the pen in your prosthesis with your sound hand, if needed. Are you ready? Go!
13. Note on Set-up: Place the scissors and paper at the participant’s midline- equidistant from the testing and non-testing side. Please take this blank a piece of paper and, grasping scissors in one hand and the paper in the other, make 3 cuts in the paper. Then place the cut paper and scissors on the table. Are you ready? Go!
14. Please reach for this doorknob (use a round doorknob), grasp the knob and turn it till the latch is released. Then release the knob. Try to use only your prosthesis to do this task. Are you ready? Go!
15. Please take this cell phone and dial a phone number with it. Be sure to use your prosthesis while doing this. Are you ready? Go!
16. Please pick up the hammer in one hand and the nail in the other. Position the nail vertically on the piece of wood and use the hammer to drive the nail into it. When the nail stands on its own, remove your hand that was holding the nail and hammer the nail twice more into the wood, then put the hammer down. Are you ready? Go!
17. Please grasp the ends of this bath towel, bringing the ends of the towel together to fold it **twice**. Then place the folded towel back on the table. Be sure to use your prosthesis while doing this. Are you ready? Go!
18. Using your prosthetic side, reach up to this overhead shelf and grasp the object (a lightweight cup) on the shelf, now lower your arm and hand the object to me. Try to use only your prosthesis to do this task. Are you ready? Go!

# Activities Measure for Upper Limb Amputees (AM-ULA)

## Frequently Asked Questions

### A. Questions about Sub-task completion and scoring

A1. Although the sub-tasks are mentioned in the instructions do you also tell people how they are being scored and all the items that must be completed?

**Answer:** We give clear instructions for the sub-tasks and tell subjects that all sub-tasks must be completed, but do not explicitly tell the people how they are being scored.

A2. How much cuing do you give for sub-task performance? For example, if you notice that the patient is putting their arms in the holes of the T-Shirt before their head, do you stop them and tell them they must do it the other way (especially since this is not the way they may have been instructed to do so in OT).

**Answer:** The order of the sub-tasks doesn't matter as long as all are accomplished. We recommend that you provide cuing to perform a sub-task only if they skip a sub-task

A3. If sub-component (over-all) was not done (or cannot be done) with prosthesis is it a "0"? Is there any partial credit (see below), especially if subtasks are accomplished but with assistance from sound arm or in alternative order?

**Answer:** The scoring rubric in the AM-ULA1.1 has been slightly modified for clarity.

Unilateral tasks: should be graded as a 0 if any of the sub-task cannot be done with the prosthesis the item should be graded as a 0.

Bilateral tasks: should be graded as a 0 if there was no engagement of the prosthesis in any sub-task, a 1 if the prosthesis was engaged in <50 of the subtasks, and a 4 if the prosthesis was engaged in the majority of the subtasks.

**A.4** I think that the patient could complete all of the sub-tasks (not necessarily unable), however during testing the subject did not do so. Should I give the subject another chance to complete the item?

**Answer:** If you feel that the patient did not hear or did not understand the instructions you can give them one additional attempt to perform the item.

**A.5.** How long do we give a patient attempt each task before we stop/interrupt the test activity? It seems like there may come a point when a patient can't complete part of a task with the prosthetic device. In this case, would it be recommended that we stop/interrupt the task and score it as 0 points?

**Answer:** Yes, the administrator should interrupt an activity when it is clear that the patient cannot perform and assign a 0 score. However, there is no capped amount of time that is used to halt the activity. The exact amount of time is a judgement call of the test administrator. We will soon be publishing average times for AM-ULA item performs and these may be useful for guidance.

**A.6.** Is the overall score based on the grading of any single task sub-component? Or are the 5

elements scored as an amalgamation of all the task sub-components? For example, if someone cannot complete one task sub-component, but the individual is able to complete the other task sub-components with high proficiency, would the score be somewhere between 0 and 5? Or would the score be 0 because there was a task sub-component that could not be completed?

**Answer:** The item score is based on completion of all 5 sub-components. If any sub-task is not completed the subject gets a score of “0”.

**A.7. Speed of Completion.** When considering speed of completion of an activity, how do I account for the time it takes for the patient to pre-position the prosthesis or terminal device in preparation for the activity?

**Answer:** The time to complete an activity should consider the time it takes for pre-positioning. Many patients begin adjusting their prosthesis once they see the activity that they will do.

Please instruct the patient to refrain from making any device adjustments (to the wrist, terminal device or other joints) until you say, “go”.

**A.8. Sub-optimal choice of grip.** When grading on skillfulness of prosthesis use what does it mean to have a sub-optimal grip choice?

**Answer:** Sub-optimal grip means that the grip choice looks awkward, however, the participant may be successful in completing the activity even with the suboptimal grip choice.

## **B. Questions about Specific Items**

### **B1. Brush/comb hair**

Are patients allowed to place the brush or comb with their sound hand into their prosthetic terminal device?

**Answer:** Yes, patients are allowed to use their sound hand to place/position the brush or comb, but if they do so the maximum score that you can grade them would be a 3.

**B. 2. Item 2 Donning a T- shirt.** My patient did not use his prosthesis when threading his head through neck opening, Should the whole task be graded a “0”?

**Answer:** No, because T- shirt donning is a bilateral activity- apply the scoring rules for bilateral activities and grade the whole task based on the amount of engagement of the prosthesis in the entire tasks (none, <50, majority of activity) Threading the head through the neck is commonly done with only one hand and can be done quickly and without awkwardness with only one hand. However, if the patient performs this sub-task in a slow or awkward manner, he should be graded accordingly.

### **B. 3. Item 2 Donning a T- shirt**

My patient passively dressed his prosthetic side when threading his prosthesis through the shirtsleeve and did not assist with the prosthesis side in any active way. How should this be graded?

**Answer:** Because T- shirt donning is a bilateral activity- apply the scoring rules for bilateral activities and grade the whole task based on the amount of engagement of the prosthesis in the entire tasks (none, <50, majority of activity)

#### **B.4** Item 3. Removing shirt

If the patient doesn't or can't use their prosthesis to pull the T-shirt overhead should the overall score be a "0"?

**Answer:** Because T- shirt doffing is a bilateral activity- apply the scoring rules for bilateral activities and grade the whole task based on the amount of engagement of the prosthesis in the entire tasks (none, <50, majority of activity) if you think that the patient would be able to use the prosthesis- but is not in the habit of doing so-you can give them a second chance and cue them to utilize it.

#### **B.5.** Item 3 Removing shirt

A sub-task element is placing the shirt on the table. Because this is a bilateral activity does the prosthesis need to be used when placing the shirt on the table? If the patient did not use his prosthesis should he be given a "0"?

**Answer:** No, this sub-element may be done with either side. Because T- shirt doffing is a bilateral activity- apply the scoring rules for bilateral activities and grade the whole task based on the amount of engagement of the prosthesis in the entire tasks (none, <50, majority of activity).

#### **B.6** Item 4. Button shirt with front buttons

Two of the subtasks are push the button through the hole and pull the button out through the other side. When performing this bimanually it would be normal to push the button through with one hand and pull with the other. However, to score "with the device" would you cue the subject to do both push and pull with the prosthesis, switching hands?

**Answer:** There is no requirement to both push the button in and pull it out with the prosthesis. In fact, there is no need to use the prosthesis to do either of these sub-tasks. However, the prosthesis must be used actively during all sub-tasks (holding the shirt fabric with an active grasp to score >1. If the prosthesis is only used as a stabilizer without an active grasp the score for that item would be a "1".

#### **B.7** Item 5 Attach end of zipper and zip jacket.

Does it matter if both hands were used to stabilize the zipper, or which hand is used to pull up the zipper and/or stabilize the jacket?

**Answer:** As long as the prosthesis is engaged in some aspect of each sub-task (either as a stabilizer or a prime mover) and is using an active grasp (eg stabilizing the jacket using the terminal device while zipping) you can consider them to be using their prosthesis for the sub-task) If the prosthesis is used as a stabilizer only without engaging the terminal device in any sub-task the score should be a "1".

#### **B.8** Item 6. Put on socks.

How do I grade a patient who puts the sock on their toes and forefoot but does not pull it up all the way over their heel?

**Answer:** The score should be "0"

#### **B.8** Item 6. Put on socks

When do I start and stop timing for the sock activity?

**Answer:** Begin timing on the word go and stop timing when the sock is pulled up all the way. There is no need to have the participant remove the sock. (unless it is no theirs)

**B.9** Item 7. Tie shoe laces

Should patients be making 2 loops, one with the sound hand and one with the prosthesis and then tying them together or more of the “normal” way? If it looks “normal” does that count?

**Answer:** There are many variations for tying shoelaces and no specific technique is required. You should grade on degree of awkwardness and use of compensatory movement.

**B.10** Item 8. Drink from a paper cup (Unilateral)

My subject completed all aspects of this task, however the cup was angled in such a manner that it was clear that the content (if filled even part-way) would have spilled all over him. How do I grade that?

**Answer:** This would be considered unsuccessful achievement of the task and would be scored a “0”

**B.10.a** Item 8. Drink from a paper cup (Unilateral)

My subject dropped the cup but later picked it up and put it down on the table. Technically, he did complete all subtasks, but dropping the cup clearly would have spilled the contents all over the table. How do I grade subtask performance?

**Answer:** This would be considered unsuccessful achievement of the subtask and would be scored a “0”.

**B.11** Items 9 and 10 Use a Spoon and Use a Fork.

We have decided to standardize the interpretation of the fork and spoon items by specifying the hypothetical food that would be eaten; given that the likelihood that foods would fall off or spill off would vary by type of food.

- For the fork item, please imagine that the patient is eating scrambled eggs.
- For the spoon item, please imagine that the patient is eating soup

**B.11 a.** How do I grade if the patient gets the utensil to their mouth, but it isn’t level or in an ideal position and you suspect that some of the food (scrambled egg (for fork) or soup (for spoon) would have spilled off?

**Answer:** In these instances, you should consider this as “awkwardness” and grade accordingly.

**B11.b** How do I grade if the patient gets the utensil near their mouth, but because of extreme positioning all of the food (scrambled egg (for fork) or soup (for spoon) would have dropped off?

**B11.c** How do I grade if the patient gets the utensil near their mouth, but the approach is such that they could not have reasonably taken a bite of the food because the utensil did not reach the mouth in a manner that would have allowed the participant to take a bite?

**Answer:** In these instances (B11.b and B11.c), you should consider that the subtasks were not completed and grade a “0”

**B.12.** Items 9 and 10 Use a Spoon and Use a Fork.

Are patients allowed to place fork or spoon with their sound hand into their prosthetic terminal device?

**Answer:** Yes, patients are allowed to use their sound hand to place the object, but if they do so the maximum score that you can grade them would be a 3.

**B.13** Item 12 Write legibly (Unilateral):

Does the patient need to pick up and position the pen using only the prosthesis? If they don't do that are they given a "0"? Or is it okay if they pick up the pen and/or help position it with their sound limb?

**Answer:** The patient can pick up the pen with the sound hand and place into the prosthetic hand, or they may pick up the pen with the prosthetic hand and reposition with the sound limb, or pick up with the prosthetic hand. The participant may also use their contralateral hand to remove the pen from their grasp and place on the table. You should grade the completion, speed, movement quality and skillfulness.

**B.14** Item 12 Write legibly (Unilateral):

A prosthesis can't always hold like a non-prosthetic hand. To be secure, the "best" grip might be a very awkward one, but they are selecting what might be the most appropriate. If they do a good job with the "best" grip we would assume this to be a "2". Would you agree?

**Answer:** Yes, a score of "2" would be appropriate.

**B.15.** Item 12 Write legibly (Unilateral):

Are patients allowed to place the pen with their sound hand into their prosthetic terminal device?

**Answer:** Yes, patients are allowed to use their sound hand to place the pen into their terminal device, The participant may also use their sound hand to remove the pen from their grasp and place on the table, however, if they do either, the maximum score that you can grade them would be a 3.

**B.16** Item 13. Use Scissors.

Does grasp mean the patient has to initiate with the prosthesis? Can the patient pick up the scissors with the sound hand and position it in the prosthesis? If they don't do that are they given a "0"?

**Answer:** The patient is allowed to use the sound hand to pick up and/or position the scissors in the prosthesis, however the maximal score you can give when this happens is a 3.

**B. 17** Item 13. Use Scissors. Does the patient need to operate the scissors using the prosthesis? Or are they allowed to operate the scissors with the sound hand and use the prosthesis to manipulate and stabilize the paper?

**Answer:** Either option is acceptable, and one is not necessarily scored better than the other.

**B.18** Item 13. Use scissors. It appears that only 2 of 5 subtasks require two-hands. So, if a subject uses their prosthesis to hold the paper during the entire task and the other hand to cut, how would you score the completion of subtasks?

**Answer:** There are 3 subtasks that require the prosthesis. Subtask #3 (cut the paper with the scissors) should involve the prosthesis-in that the paper must be secured while cutting. If the subject does not utilize the prosthesis to secure the paper (either actively or as a stabilizer) than they would receive a maximum of 1 for subtask completion.

**Note:** If the participant only uses their prosthesis as a stabilizer during the task, i.e. there is no active use or use of grip to stabilize the paper, the highest possible score will be a '1' for 'Skillfulness of Prosthesis Use'.

**B.19** Item 16 Use a hammer and nail. Does the patient need to switch hands after letting go of the nail and use the hammer in the prosthetic side? What happens if the patient stabilizes the board by leaning on it with the prosthesis (once the nail has been placed in the wood?)

**Answer:** As long as the prosthesis is engaged in some aspect of task (either as a stabilizer or a prime mover) they can be given a score >0. If the prosthesis is used as a stabilizer only, by leaning on the board without engaging the terminal device the score should be a "1".

**B. 20** Item 16 Use a hammer and nail. Because we sometimes re-use the block of wood for the hammer and nails task, there are times when a patient uses a pre-existing hole in the wood and places the nail within that hole, instead of hammering the nail into a new hole. Should I account for this in the grading?

**Answer:** Yes. Our recommendation is to consider the pre-made hole like you would any "assistive device" and thus grade a maximum of 3 for this activity.

### **C. Questions about test administration and instructions**

**C. 1.** What happens if the device malfunctions during the test? Should the score be graded down?

**Answer:** If the device is broken or not functioning properly (not because of user error), do not score the item. If the device malfunctions because of user error or lack of skill that should be graded accordingly.

**C.2** If the prosthesis malfunctions and the clinician has to help the patient complete the task, how is that graded?

**Answer:** If the device is broken or not functioning properly (not because of user error), do not score the item. If the device malfunctions because of user error or lack of skill then this should be graded a "0".

**C.3** Does grasp with prosthesis – mean the patients have to initiate grasping with the prosthesis? Or can they place an object with the other hand.

**Answer:** Grasp can be done by initiating with the prosthesis or by grasping an object placed in the terminal device by the sound hand. However, if the sound hand is used to place the object the maximal score would be a 3.

**C.4** The instructions mention that participants can use assistive/adaptive aides such as a button hook. Are there some standard assistive/adaptive aides included in the testing materials kit?

**Answer:** We have not included any such items to date. If a patient has their own devices with them they may utilize them for testing.

**C.5** I don't think that the patient understood the instructions because he/she skipped some



aspects of the task. What should I do?

**Answer:** If you believe a patient did not understand the instructions you can allow a second attempt. You should read the instructions again, and during the test you may cue the patient to perform sub-task elements. However you should never provide cueing or coaching about how to perform any aspect of the activity.

**C.6** Are patients allowed to place objects with their sound hand into their prosthetic terminal device when they are attempting to do unilateral activities? The instructions state, “Try to use only your prosthesis to do this task.”

**Answer:** Yes, as stated in the individual questions and answers above, patients are allowed to use their sound hand to place the object, but if they do so the maximum score that you can grade them would be a 3.

- i. This applies to the following activities: Brush/comb hair, Eat with fork, Eat with spoon, Write legibly