

# TEST PROTOCOL FOR A NEW SCORING HIERARCHY FOR ASSESSING HAND MOVEMENTS AND HAND ACTIVITIES ON THE MOTOR ASSESSMENT SCALE

## HAND MOVEMENTS

Scores range from 0 (unable to perform any of the test movements) to 6.0  
A score represents the most difficult item the person can perform

### Notes about positioning:

- Patient is seated at a table in a straight back, armless chair
- *Forearm mid-position: resting the hand on the ulnar side, thumb in line with the forearm and wrist on the table. Patient is encouraged to "cradle" the forearm in the other hand.*
- *Forearm pronated or supinated: patient is encouraged to use other hand to stabilize the hemiparetic forearm on all tasks, if necessary.*

### For a Score of 0.6: Mass Flexion of Fingers - Gravity Eliminated

*Position:* Forearm in mid position between pronation and supination. Patient may use other hand to hold forearm in position. Fingers are extended to the full available ROM.

*Instruction:* "Bend your fingers like this." Demonstrate the movement.

*Criteria for passing:* Patient flexes digits 2-5. Full ROM is not required; but patient must exhibit some degree of flexion at all digits.

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### For a Score of 1.2: Thumb Motion At Any Joint

*Position:* Forearm in midposition or supinated (based on what's most comfortable for the patient), and either cradled on other hand or resting on the table.

*Instruction:* "Make any motion you can with your thumb."

*Criteria for passing:* Patient moves the thumb at CMC, MCP or IP joint in any direction.

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### For a Score of 1.8: Forearm Supination

*Position:* Arm at side, elbow flexed (humerus must be in contact with trunk), forearm in midposition. If stabilization of the humerus from the therapist is needed to prevent shoulder motion, this is permissible.

*Instructions:* "Hold your arm like this with your thumb facing up. Turn your forearm so your palm faces the ceiling." Demonstrate the movement.

*Criteria for passing:* Patient must supinate the forearm. Full ROM is not required; but the patient must supinate enough so that the thumb is no longer facing up.

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For a Score of 2.4: **Finger Mass Extension-Against Gravity**

*Position:* Forearm pronated, and cradled on the other hand. Therapist passively flexes MCP and IP joints of the fingers but keeps the tips of the fingers on the table (fingers should not be locked in a fist).

*Instruction:* "Straighten out your fingers."

*Criteria for passing:* Patient extends fingers from flexion. Full ROM is not required; but patient must exhibit some degree of extension at all joints.

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For a Score of 3.0: **Wrist Extension- Against Gravity**

*Position:* Forearm pronated and flat on table or cradled on the other hand. Heel of the hand is in contact with the table surface. Fingers can be flexed or extended, at patient's preference.

*Instruction:* "Lift your hand off the table." Demonstrate the movement. Patient lifts hand off the table by extending the wrist.

*Criteria for passing:* Patient must extend the wrist so entire palm of hand clears the table.

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For a Score of 3.6: **Wrist Radial Deviation - Gravity Eliminated**

*Position:* Forearm pronated, flat on table OR may use other hand to stabilize forearm). Palm is facing down, and hand is at midline between radial and ulnar deviation.

*Instruction:* "Move your wrist like this." Demonstrate the movement.

*Criteria for passing:* Patient must move hand radially (toward midline) in relation to a stable forearm. Full ROM is not required.

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For a Score of 4.2: **Wrist Radial Deviation - Against Gravity**

*Position:* Forearm in mid position. (may use other hand to "cradle" forearm). Ulnar side of hand must be in contact with the table.

*Instruction:* "Move your wrist like this to raise the side of your hand off the table. Do not move at your elbow." Demonstrate the movement.

*Criteria for passing:* Patient radially deviates wrist against gravity. Full ROM is not required; but the ulnar side of the hand must fully clear the table.

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For a Score of 4.8: **Finger MCP Flexion with IP's Extended ("Intrinsic" Action) – Gravity Eliminated**

*Position:* Forearm in mid position between pronation and supination, cradled on other hand or resting on the table.

*Instruction:* "Bend your fingers at the knuckles while keeping the other finger joints straight." Demonstrate the movement. Tester corrects patient if he/she erroneously flexes IP joints. If patient is unable to maintain IP joints extended, tester compares movement to person's movement with the other hand.

*Criteria for passing:* Patient performs MP flexion with IP's extended. Patient must isolate MP flexion, while holding PIP and DIP joints at the full available ROM for extension.

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For a Score of 5.4: **Timed Opposition of Thumb**

*Position:* Forearm supinated, to patient's comfort. May be cradled in other hand or resting on table.

*Instruction:* "Touch all your fingers using your thumb like this, as fast as you can." Demonstrate the movement sequence.

*Criteria for passing:* Patient must oppose thumb to all successive fingers (14 times in 10 seconds).

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For a Score of 6.0: **Finger MCP Flexion with IP's Extended ("Intrinsic" Action) -Against Gravity).**

*Position:* Forearm supinated, and either cradled on other hand or resting on the table. If necessary, therapist may hold the forearm in position. Do NOT penalize score for inability to achieve full supination. The behavior to be evaluated is the ability to perform the motion against gravity.

*Instruction:* "Bend your fingers at the knuckles while keeping the other finger joints straight." Demonstrate the movement. Tester corrects patient if he/she erroneously flexes IP joints. If patient is unable to maintain IP joints extended, tester compares movement to person's movement with the other hand.

*Criteria for passing:* The patient performs MP flexion with IP's extended. Patient must isolate MP flexion, while holding PIP and DIP joints at the full available ROM for extension.

## HAND ACTIVITIES

**Scores range from 0 (unable to perform any of the test movements) to 6.0  
A score represents the most difficult item the person can perform**

**Notes:**

- **Patient is seated at a table in a straight back, armless chair**
- **Items here are presented in order of anticipated difficulty**
- **All items are possible to perform with a non-dominant hand**
- **On items that require making marks, dots, or lines with a pencil, any external means of stabilizing the paper is permissible**
- **All items involving a pencil require that All patient pick up and hold the pencil with pad to pad pinch (grasp).**

**Materials:**

- 3 removable adhesive dots (to mark placement of test items)
- 3 sheets blank 8 ½ X 11” paper
- 2 sheets 8 ½ X 11” paper with vertical lines, drawn 1/2” away from each vertical side
- .5 liter bottle (empty)
- 8 oz. disposable cup (3.5” height)
- Standard #2 pencil
- U.S. penny
- Stop watch
- Universal remote control device (any model or brand)

To simplify placement of test materials, place 3 adhesive dots on the table:

- 1) 6” from edge of table at patient’s midline (for items 2, 3, 4, 5, and 6)
- 2) 12” from edge of table at patient’s midline (for items 1, 7, 8, and 9)
- 3) 6” to the left or right (whichever is the patient’s affected side) of the 12”dot (for item 8)

For a score of 0.75: **Slide Paper**

**Position:** Place a blank sheet of paper, centered and in front of patient, 6” from edge of table, in portrait orientation. Therapist places patient’s affected hand at the center of the paper, palm down. The lower border of the paper is 6” from the edge of the table. Paper can be placed in any direction. Fingers can be flexed or extended.

**Instructions:** “Use your hand to move the paper.”

**Criteria for Passing:** Patient must move the paper with the affected hand. Fingers may be flexed or extended.

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For a score of 1.5: **Use Remote Control**

**Position:** Place remote control in patients affected hand, in any position that is comfortable for the patient.

**Instructions:** “Use your thumb to press any button”.

**Criteria for Passing:** Patient uses any independent thumb motion to depress any key on the universal remote control. The light will come on if the patient depresses any key.

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For a score of 2.25: **Pick Up Penny (slide to edge)**

**Position:** Place coin directly in front of patient, at midline, 12” from edge of table.

**Instructions:** “Slide the coin to the edge of the table and use your fingers to pick it up, like this.” Therapist demonstrates.

**Criteria for Passing:** Patient must slide coin to the edge of the table and pick the coin up. Lateral pinch, in which the thumb contacts the lateral side of the index finger, is acceptable.

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For a score of 3.0: **Pick Up Pencil**

**Position:** Place pencil on the table, centered in front of the patient, parallel to and 12” from edge of table.

**Instructions:** “Pick up pencil with thumb and finger and then put it down.” Demonstrate pad to pad pinch and correct patient if s/he starts to use a different grasp pattern. Pad to pad pinch requires that the pad of the thumb contacts the pad of the index and middle fingers, or the pad of one of these fingers.

**Criteria for Passing:** Patient must pick up the pencil, using pad to pad pinch. Pad to pad pinch requires that the pad of the thumb contacts the pads of the index and middle fingers, or the pad of one of these fingers.

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For a score of 3.75: **Pick Up And Place Penny In Cup**

**Position:** Place cup (3.5” height) on table 12” from edge, at midline. Place coin on table 12” from edge on affected side, with 6” between cup and coin.

**Instructions:** “Pick up the coin with your fingers, without sliding, and put in the cup, like this.” Therapist demonstrates.

**Criteria for Passing:** Patient picks up the coin without sliding and places it in the cup. Any grasp is acceptable as long as the patient does not slide the penny off the table.

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For a score of 4.5: **Draw A Horizontal Line**

**Position:** Paper, with two vertical lines (each ½” from the edge), is centered and in front of patient, 6” from edge of table, in portrait orientation. Patient may stabilize the paper with the other hand. Place a vertically oriented pencil on the side border of the paper (with its lower end lined up with the lower border of the paper) on the side of the patient’s affected hand. The pencil should be oriented so that it is pointing toward the patient. Patient must pick up the pencil with affected hand, using pad to pad pinch.

**Instructions:** “Draw a line from here to here.” Therapist points to the vertical lines and pantomimes the direction of the horizontal lines the patient is asked to draw. If patient does not use pad to pad pinch, the examiner should instruct him how to hold the pencil and ask him to try again.

**Criteria for Passing:** Patient draws one horizontal line between the two vertical lines on the page. Patient must pick up and hold the pencil using pad to pad pinch. Pad to pad pinch requires that the pad of the thumb contacts the pads of the index and middle fingers, or the pad of one of these fingers.

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For a score of 5.25: **Timed Dots**

**Position:** Place a blank sheet of paper, centered and in front of patient, 6” from edge of table, in portrait orientation. Patient may stabilize the paper with the other hand. Therapist places the vertically oriented pencil on the side border of the paper (as in *Draw a Horizontal Line* – with its lower end lined up with the lower border of the paper on the side of the patient’s affected hand, and oriented so that it is pointing toward the patient). Therapist starts stopwatch as soon as the patient is directed to start.

**Instructions:** “Pick up the pencil and make lots of dots on the paper as fast as you can.” If patient does not use pad to pad pinch, the examiner should instruct him how to hold the pencil and ask him to try again.

**Criteria for Passing:** Patient must make rapid dots on the paper – 10 dots in 5 seconds. Patient must pick up and hold the pencil using pad to pad pinch. Pad to pad pinch requires that the pad of the thumb contacts the pads of the index and middle fingers, or the pad of one of these fingers.

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For a score of 6.0: Timed Horizontal Lines

**Position:** Paper, with two vertical lines (each ½” from the edge), is centered and in front of patient, 6” from edge of table, in portrait orientation. Patient may stabilize the paper with the other hand. The pencil is positioned as for *Draw a Horizontal Line* and *Timed Dots*. Patient picks up pencil, using pad to pad pinch. Therapist starts stopwatch as soon as the patient is directed to start.

**Instructions:** “Draw many lines from here to here as fast as you can.” Therapist points to the vertical lines and pantomimes the direction of the horizontal lines the patient is asked to draw. If patient does not use pad to pad pinch, the examiner should instruct him how to hold the pencil and ask him to try again

**Criteria for Passing:** In 20 seconds, the patient draws 10 lines between the two vertical lines on the paper while holding the pencil in a pad to pad pinch. Patient must pick up and hold the pencil using pad to pad pinch. Pad to pad pinch requires that the pad of the thumb contacts the pads of the index and middle fingers, or the pad of one of these fingers.