

The Chedoke Arm and Hand Activity Inventory

Singapore Version (CAHAI-SG)

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General Instructions for Administering the CAHAI-SG

The purpose of this measure is **to evaluate the functional ability of the hemiplegic arm and hand to perform tasks** that have been identified as important by stroke survivors. It is NOT designed to measure the client's ability to complete the task using only their unaffected hand, but rather to encourage bilateral function.

Explain to your clients that some tasks are difficult and they should not get frustrated if unable to complete all the tasks. Encourage them to give their best effort using BOTH arms and hands. *The client may attempt each task twice.*

When attempting each task, always consider safety, especially for Stage I* upper limb.

There is no pre-requisite training required for the use of the CAHAI-SG.

Standard starting position

Posture: seated in chair without armrests or in wheelchair with armrests removed, encourage erect posture, feet flat on the floor

Height of table: at the level of the last costal rib

Distance from table: client's elbow comes to the table edge

Hands: resting on the table

Variations from the standard starting position will be indicated at the top of the task page.

*Stage I of Brunnstrom Stages of Motor Recovery (flaccid paralysis)

To ensure the client's understanding:

Every effort should be made to ensure the client understands the task.

- each task should be demonstrated once, twice if needed
- the client may be cued to use both hands twice
- the client may be reminded not to rest elbows on the table twice

Scoring

Score the performance of the affected upper limb using the 7 point Activity scale (*fig. 1.0*). Observe the performance of the affected upper limb and:

- 1) Use the Task Component Chart to determine what part of the task the affected limb performed. E.g. affected hand turning the lid or affected hand stabilising the jar
- 2) Identify the specific components of manipulation and stabilisation the affected limb completed
- 3) Use the 7 point Activity Scale to determine the score.

If different performances are observed then assign the lower score. Record which part of the task the affected hand performed in order for retesting to be consistent.

Figure 1.0

TASK COMPONENT CHART

Task 1: Open jar of peanut butter

If affected hand is holding the jar Components of arm mobility and hand manipulation <ul style="list-style-type: none"> • Reaches and grasps jar ▪ Lifts jar off table Components of stabilisation <ul style="list-style-type: none"> • Maintains grasp on jar ▪ Maintains jar off table 	If affected hand is holding the jar lid 2) Identify the specific components completed Components of stabilisation <ul style="list-style-type: none"> • Maintains grasp on lid while it is removed
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1) Use the Task Component Chart to determine the role of the weak limb

3) Use the 7 Point Activity Scale to determine the score

THE CHEDOKE ARM AND HAND ACTIVITY INVENTORY

Score Form Page

OPEN JAR OF PEANUT BUTTER

Instructions: "Open this jar using both hands."

Positioning: Standard starting position with jar placed at extended arm distance.

Unacceptable: To place jar between knees to stabilise

Required: To use both hands

Please score the above task as follows:

7	COMPLETE INDEPENDENCE - Able to hold jar off the table and use the other hand to open the jar, without resting arms on table.
6	MODIFIED INDEPENDENCE - Requires use of assistive device (e.g. non-slip mat) OR requires more than reasonable time OR there are safety considerations.
5	SUPERVISION - Requires supervision (e.g. standby, cueing or coaxing).
4	MINIMAL ASSISTANCE - The weak upper limb requires light touch assistance to manipulate or stabilise during the task. Client performs 75% or more of the effort to complete the task.
3	MODERATE ASSISTANCE - Weak upper limb partially manipulates and stabilises during task . Requires assistance (e.g. hand over hand technique OR uses table or body as support). Client performs 50 - 74% of the effort to complete the task.
2	MAXIMAL ASSISTANCE - Weak upper limb stabilises during task. Requires assistance (e.g. hand over hand technique). Client performs 25 - 49% of the effort to complete the task.
1	TOTAL ASSISTANCE - Client performs less than 25% of the effort to complete the task.

THE CHEDOKE ARM AND HAND ACTIVITY INVENTORY

The Chedoke Arm and Hand Activity Inventory is designed to compliment the Chedoke-McMaster Stroke Assessment. The scoring key is similar to that used in the Functional Independence Measure (Adult FIM™).

SCORE EACH ITEM IN THE BOXES PROVIDED; THEN SUM THE SCORES AT THE END OF THE COLUMN.

DESCRIPTION OF THE LEVELS OF FUNCTION FOR THE ACTIVITY SCALE

- 7 COMPLETE INDEPENDENCE** - All of the tasks are performed safely, without modification, assistive devices or aids, and within reasonable time.
- 6 MODIFIED INDEPENDENCE** - Activity requires any one or more of the following: an assistive device, more than reasonable time, or there are safety (risk) considerations.
- 5 SUPERVISION** - The client requires no more help than standby, cueing or coaxing, without physical contact. A helper sets up needed items or applies orthoses.
- 4 MINIMAL ASSISTANCE** - With physical contact the client requires no more than touching, and client expends 75% or more of the effort.
- 3 MODERATE ASSISTANCE** - Weak limb **manipulates and stabilises** during the task. The client requires more help than touching, or expends.
- 2 MAXIMAL ASSISTANCE** - Weak limb stabilises during task. The client expends less than 50% of the effort, but at least 25%.
- 1 TOTAL ASSISTANCE** - The client expends less than 25% of the effort.

Score 6 if more than reasonable time is required. (e.g. more than 3 times the normal time is required)

Score 6 if assistive devices (e.g. built up handles, non-slip mat, cock-up/ dynamic splints) are used

Score 6 if there are safety concerns in doing upper limb tasks (e.g. impulsivity, balance, poor motor control)

Score 5 if you need to cue throughout the clients' second attempt of the task

Score 4 if client touches table very briefly

Score 3 if client continually uses table for support

Score 1 if client uses only one arm/hand

Score 1 if two people are required to assist in completing task

Score 1 if you feel it is unsafe to try the task.

Administration time (approximately 30 minutes)

Questions: Please contact Susan Barreca at sbarreca@cogeco.ca or Lisa Masters at mastersl@hhsc.ca

Equipment required:

CAHAI-SG-7 Version (Items 1-7) requires all items in Equipment List A **Equipment List A**

- height adjustable table
- chair/wheelchair without armrests
- non-slip mat
- 340g jar of peanut butter
- push-button telephone
- 30cm/12” ruler
- A4 paper
- pencil
- 2.3L plastic jug with lid
- 250 ml plastic cup
- face towel
- plastic basin (24.5 cm. in diameter, height 8 cm.)
- pull-on vest with 5 buttons* (one side male & one side female)
- bath towel (65cm X 100cm)

CAHAI-SG-8 Version (Items 1-8) requires all items in Equipment List A and B **Equipment List B**

- 75ml toothpaste with screw lid, >50% full
- toothbrush

CAHAI-SG-9 Version (Items 1-9) requires all items in Equipment List A, B, and C **Equipment List C**

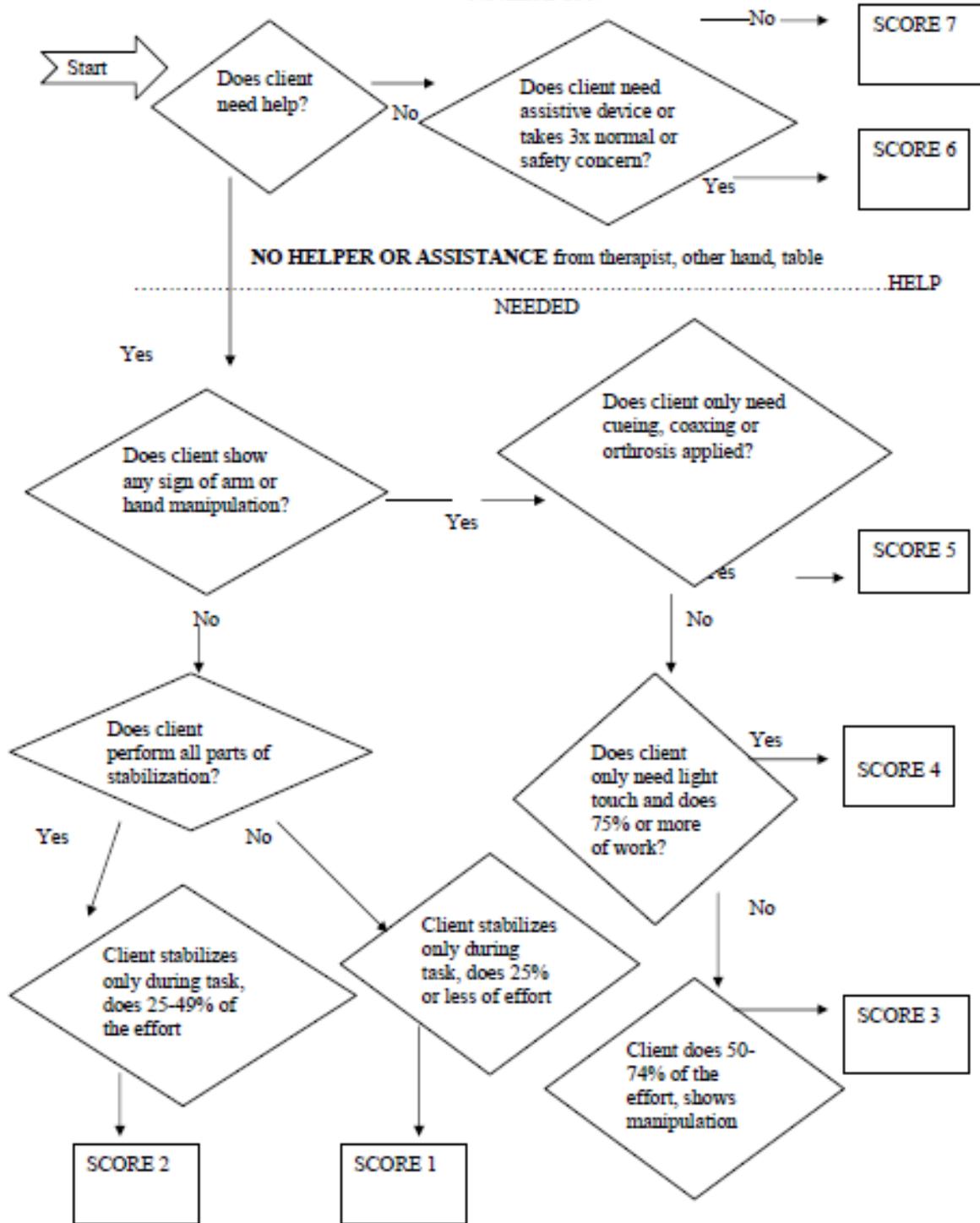
- dinner plate (melamine or heavy plastic, 25 cm. in diameter)
- medium resistance putty
- knife and fork
- built up handles the length of the utensil handle

CAHAI-SG-13 Version (Items 1-13) requires all items in Equipment List A, B, C, and D **Equipment List D**

- 67cm /27” metal zipper in flannel poncho*
- spectacles
- handkerchief
- Toyogo 38L box (50 x 37 x 27cm)
- 4 standard size steps with rail
- plastic grocery bag holding 2kg/4lb weight

*Instructions for creating the zipper poncho and button-up vest available at www.cahai.ca/resources.html

Algorithm for application of the Chedoke Arm and Hand Activity Inventory
November 2007



THE CHEDOKE ARM AND HAND ACTIVITY INVENTORY (SINGAPORE VERSION)

OPEN JAR OF PEANUT BUTTER

Instructions: “Open this jar using both of your hands.”

“用你的双手将这个罐打开。”

“Buka botol ini menggunakan kedua-dua tangan anda.”

Positioning: Standard starting position with jar placed at extended arm distance.

Unacceptable: To place jar between knees to stabilise

Required: To use both hands.

Please score the above task as follows:

- 7 COMPLETE INDEPENDENCE** - Able to hold jar off the table and use the other hand to open the jar, without resting arms on the table.
- 6 MODIFIED INDEPENDENCE** - Requires use of assistive device (e.g. non-slip mat) OR requires more than reasonable time OR there are safety considerations.
- 5 SUPERVISION** - Requires supervision (e.g. standby, cueing or coaxing).
- 4 MINIMAL ASSISTANCE** - The weak upper limb requires contact assistance to manipulate or stabilise during the task. Client performs 75% or more of the effort to complete the task.
- 3 MODERATE ASSISTANCE** - Weak upper limb partially **manipulates and stabilises during task**. Requires assistance (e.g. hand over hand technique OR uses table or body as support). Client performs 50 - 74% of the effort to complete the task.
- 2 MAXIMAL ASSISTANCE** - Weak upper limb **stabilises** during task. Requires assistance (e.g. hand over hand technique). Client performs 25 - 49% of the effort to complete the task.
- 1 TOTAL ASSISTANCE** - Client performs less than 25% of the effort to complete the task.

TASK COMPONENT CHART

Task 1: Open jar of peanut butter

If affected hand is holding the jar	If affected hand is holding the jar lid
<p>Components of arm mobility and hand manipulation</p> <ul style="list-style-type: none">• Reaches and grasps jar• Lifts jar off the table <p>Components of stabilisation</p> <ul style="list-style-type: none">• Maintains grasp on jar• Maintains jar off the table	<p>Components of arm mobility and hand manipulation</p> <ul style="list-style-type: none">• Turns and removes lid <p>Components of stabilisation</p> <ul style="list-style-type: none">• Maintains grasp on lid while it is removed



THE CHEDOKE ARM AND HAND ACTIVITY INVENTORY (SINGAPORE VERSION)

CALL 995

Instructions: “Call 995 using both of your hands.”
“用你的双手拨打995。”
“Telefon 995 menggunakan kedua-dua tangan anda.”

Positioning: Standard, phone placed at extended arm distance in front of client.

Please score the above task as follows:

- 7 COMPLETE INDEPENDENCE** - Able to pick up receiver and hold to ear with one hand while using other hand to dial the above listed number, without resting arms on table.
- 6 MODIFIED INDEPENDENCE** - Requires use of assistive device (e.g. splint) OR requires more than reasonable time to complete task OR there are safety considerations.
- 5 SUPERVISION** - Requires supervision (e.g. standby, cueing or coaxing).
- 4 MINIMAL ASSISTANCE** - Requires contact assistance (e.g. to maintain phone at ear, OR to place phone in hand, OR to guide finger towards number pads). Client performs 75% or more of the effort to complete the task.
- 3 MODERATE ASSISTANCE** - Weak upper limb partially **manipulates and stabilises during task**. Requires assistance (e.g. to bring the receiver to ear OR uses table as support). Client performs 50 - 74% of the effort to complete the task.
- 2 MAXIMAL ASSISTANCE** - Weak upper limb **stabilises** during task. Requires assistance (e.g. to pick up the receiver, hold it to the ear and dial). Client performs 25 - 49% of the effort to complete the task.
- 1 TOTAL ASSISTANCE** - Client performs less than 25% of the effort to complete the task.

TASK COMPONENT CHART

Task 2: Call 995

If affected hand is holding receiver	If affected hand is dialling 995
<p>Components of arm mobility and hand manipulation</p> <ul style="list-style-type: none">• Reaches and grasps ear/mouth piece• Brings phone to ear <p>Components of stabilisation</p> <ul style="list-style-type: none">• Maintains sufficient grasp on phone and holds to ear	<p>Components of arm mobility and hand manipulation</p> <ul style="list-style-type: none">• Reaches for buttons• Pushes individual buttons clearly



THE CHEDOKE ARM AND HAND ACTIVITY INVENTORY (SINGAPORE VERSION)

DRAW A LINE WITH A RULER

Instructions: “Draw a straight line the length of the ruler using both of your hands.”
“用你的双手画一条和尺一样长的线。”
“Lukis garisan lurus sepanjang pembaris menggunakan kedua-dua tangan anda.”

Required: Not to rest forearms on table

Positioning: Standard, pencil and ruler set at top edge of paper. Paper placed horizontally at the edge of the table.

Please score the above task as follows:

- 7 COMPLETE INDEPENDENCE** - Able to pick up pencil and ruler, correctly position ruler across the page, hold ruler in place and draw a straight line the length of the ruler, without resting arms on the table.
- 6 MODIFIED INDEPENDENCE** - Requires use of assistive device (e.g. splint or built up handle) OR requires more than reasonable time.
- 5 SUPERVISION** - Requires supervision (e.g. standby, cueing or coaxing)
- 4 MINIMAL ASSISTANCE** - Requires contact assistance (e.g. to stabilise proximal or distal segment of upper limb) OR uses strong hand to pick up pencil or ruler and place in weak hand OR able to complete task but while drawing line with weak hand, produces an uneven line. Client performs 75% or more of the effort to complete the task.
- 3 MODERATE ASSISTANCE** - Weak upper limb partially **manipulates and stabilises during task**. Requires assistance (e.g. to place pencil in hand appropriately, but then able to complete task but not smoothly OR uses table as support). Client performs 50 - 74% of the effort to complete the task.
- 2 MAXIMAL ASSISTANCE** - Weak upper limb **stabilises** during task. Requires assistance (e.g. hand over hand to maintain position of pencil in hand and then able to complete task) OR uses weak hand to stabilise ruler but not able to hold sufficiently to draw half of the line. Client performs 25 - 49% of the effort to complete the task.
- 1 TOTAL ASSISTANCE** - Client performs less than 25% of the effort to complete the task.

TASK COMPONENT CHART

Task 3: Draw a line with a ruler

If affected hand is holding the ruler	If affected hand is holding the pencil
<p>Components of arm mobility and hand manipulation</p> <ul style="list-style-type: none">• Reaches and picks up ruler• Places ruler horizontally on paper <p>Components of stabilisation</p> <ul style="list-style-type: none">• Places fingers on ruler• Applies sufficient force to keep ruler in place	<p>Components of arm mobility and hand manipulation</p> <ul style="list-style-type: none">• Reaches and picks up pencil• In-hand manipulation to allow for writing with pencil• Drawing action along ruler <p>Components of stabilisation</p> <ul style="list-style-type: none">• Maintains grip on pencil



THE CHEDOKE ARM AND HAND ACTIVITY INVENTORY (SINGAPORE VERSION)

POUR A GLASS OF WATER

Instructions: “Pour a full glass of water using both of your hands.”

“用你的双手倒满一杯水。”

“Tuangkan segelas air yang penuh menggunakan kedua-dua tangan anda.”

Positioning: Standard position, 250 ml glass beside 2.3L drinking jug full with water placed at extended arm length distance.

Please score the above task as follows:

- 7 COMPLETE INDEPENDENCE** - Able to pick up glass and jug, then fill the glass with water to 2 cm from the top without resting glass, jug or arms on the table.
- 6 MODIFIED INDEPENDENCE** - Requires assistive device (e.g. splint) OR client stabilises elbows only on table OR takes more than reasonable time to complete task OR there are safety considerations.
- 5 SUPERVISION** - Requires supervision (e.g. standby, cueing or coaxing) Any spillage is scored as a 5.
- 4 MINIMAL ASSISTANCE** - The weak upper limb requires contact assistance (e.g. with either the glass or the jug in order to fill the glass with water). Client performs 75% or more of the effort to complete the task.
- 3 MODERATE ASSISTANCE** - Weak upper limb partially **manipulates and stabilises during task**. Requires assistance OR client reaches for glass and holds it on table while lifting jug to fill glass with water. Client performs 50 - 74% of the effort to complete the task.
- 2 MAXIMAL ASSISTANCE** - Weak upper limb **stabilises** during task. Requires assistance (e.g. hand over hand technique throughout all the components of the task). Client performs 25 - 49% of the effort to complete the task.
- 1 TOTAL ASSISTANCE** - Client initiates reaching for glass or jug, but unable to complete task even with hand over hand assistance. Client performs less than 25% of the effort to complete the task.

TASK COMPONENT CHART

Task 4: Pour a glass of water

If affected hand is holding the glass	If affected hand is holding the jug
<p>Components of arm mobility and hand manipulation</p> <ul style="list-style-type: none">• Reaches and grasps glass• Lift glass off the table <p>Components of stabilisation</p> <ul style="list-style-type: none">• Maintain sufficient grasp to hold the glass away from table• Maintain glass steady while pouring	<p>Components of arm mobility and hand manipulation</p> <ul style="list-style-type: none">• Reaches and grasps jug• Lifts jug off the table• Pours water from jug <p>Components of stabilisation</p> <ul style="list-style-type: none">• Maintain sufficient grasp to hold the jug off the table• Maintain jug steady while pouring



THE CHEDOKE ARM AND HAND ACTIVITY INVENTORY (SINGAPORE VERSION)

WRING OUT FACE TOWEL

Instructions: “Wring out the face towel using both of your hands.”

“用你的双手将面巾拧干。”

“Perahkan tuala muka menggunakan kedua-dua tangan anda.”

Positioning: Standard position, face towel placed in basin half full of water at table's edge.

Unacceptable: To squeeze face towel, must use wringing action.

Please score the above task as follows:

- 7 COMPLETE INDEPENDENCE** - Able to pick up face towel from basin and wring out face towel completely, without resting arms on the table. Therapist wrings out face towel to ensure task is complete.
- 6 MODIFIED INDEPENDENCE** - Requires more than reasonable time
- 5 SUPERVISION** - Requires supervision (e.g. standby, cueing or coaxing). Any spillage is scored as a 5.
- 4 MINIMAL ASSISTANCE** - The weak upper limb requires contact assistance OR client able to wring out 75% of water from face towel. Client performs 75% or more of the effort to complete the task.
- 3 MODERATE ASSISTANCE** - Weak upper limb partially **manipulates and stabilises during task**. Requires assistance (e.g. hand over hand technique to complete the task but client able to wring out at least 50% of the water out of the face towel OR uses table as support). Client performs 50 - 74% of the effort to complete the task.
- 2 MAXIMAL ASSISTANCE** - Weak upper limb **stabilises** during task. Requires assistance (e.g. hand over hand) OR client holds face towel and squeezes with the other hand (i.e. client does not perform wringing action). Client performs 25 - 49% of the effort to complete the task.
- 1 TOTAL ASSISTANCE** - Client performs less than 25% of the effort to complete the task.

TASK COMPONENT CHART

Task 5: Wring out face towel

Score the affected hand on ability to:

Components of arm mobility and hand manipulation

- Reaches and grasps face towel
- Hand in wringing action

Components of stabilisation

- Holds face towel in place
- Holds face towel to permit wringing action



THE CHEDOKE ARM AND HAND ACTIVITY INVENTORY (SINGAPORE VERSION)

BUTTON FIVE BUTTONS

Instructions: “Button up all five buttons using both of your hands, starting at the top”
“用你的双手，从最上面开始，扣五个钮扣。”
“Butangkan semua lima butang menggunakan kedua-dua tangan anda.”

Positioning: Sitting away from table, client wearing shirt

Please score the above task as follows:

- 7 COMPLETE INDEPENDENCE** - Able to button up five buttons on the shirt.
- 6 MODIFIED INDEPENDENCE** - Requires use of assistive device OR requires more than reasonable time OR there are safety considerations.
- 5 SUPERVISION** - Requires supervision (e.g. standby, cueing or coaxing)
- 4 MINIMAL ASSISTANCE** - The weak upper limb requires contact assistance to manipulate or stabilise during the task OR client is able to fasten four buttons. Client performs 75% or more of the effort to complete the task.
- 3 MODERATE ASSISTANCE** - Weak upper limb partially **manipulates and stabilises during task**. Requires assistance OR client able to fasten three buttons. Client performs 50 - 74% of the effort to complete the task.
- 2 MAXIMAL ASSISTANCE** - Weak upper limb **stabilises** during task. Requires assistance OR able to fasten two buttons. Client performs 25 - 49% of the effort to complete the task.
- 1 TOTAL ASSISTANCE** - Client unable to fasten more than one button. Client performs less than 25% of the effort to complete the task.

TASK COMPONENT CHART

Task 6: Button five buttons

If the affected hand is holding the material	If the affected hand is holding the buttons
<p data-bbox="250 394 781 464">Components of arm mobility and hand manipulation</p> <ul data-bbox="250 499 841 783" style="list-style-type: none"><li data-bbox="250 499 662 531">• Reaches and grasps material<li data-bbox="250 569 716 600">• Brings sides of material together<li data-bbox="250 638 841 711">• Assists in threading the button through the holes<li data-bbox="250 749 524 781">• Releases material <p data-bbox="250 821 631 852">Components of stabilisation</p> <ul data-bbox="250 890 792 921" style="list-style-type: none"><li data-bbox="250 890 792 921">• Holds and maintains grasp on material	<p data-bbox="889 394 1421 464">Components of arm mobility and hand manipulation</p> <ul data-bbox="938 499 1487 783" style="list-style-type: none"><li data-bbox="938 499 1343 531">• Reaches and grasps buttons<li data-bbox="938 569 1403 600">• Brings sides of material together<li data-bbox="938 638 1487 711">• Assists in threading the button through the holes<li data-bbox="938 749 1203 781">• Releases buttons <p data-bbox="938 800 1320 831">Components of stabilisation</p> <ul data-bbox="938 848 1419 921" style="list-style-type: none"><li data-bbox="938 848 1419 921">• Holds and maintains grasp on buttons



THE CHEDOKE ARM AND HAND ACTIVITY INVENTORY (SINGAPORE VERSION)

DRY BACK WITH TOWEL

Instructions: “Dry your back completely with the towel using both of your hands”
“用你的双手和浴巾，将你的背部彻底擦干。”
“Keringkan badan belakang anda sepenuhnya menggunakan kedua-dua tangan anda.”

Positioning: Sitting away from table. Towel is placed on the table at extended arm distance.

Please score the above task as follows:

- 7 COMPLETE INDEPENDENCE** - Able to take towel, place it over back and use both hands to manoeuvre towel to dry entire back.
- 6 MODIFIED INDEPENDENCE** - Requires more than reasonable time OR there are safety considerations (e.g. balance).
- 5 SUPERVISION** - Requires supervision (e.g. standby, cueing or coaxing)
- 4 MINIMAL ASSISTANCE** - Weak upper limb requires contact assistance to manipulate or stabilise during the task OR only dries half of back. Client performs 75% or more of the effort to complete the task.
- 3 MODERATE ASSISTANCE** - Weak upper limb partially **manipulates and stabilises during task**. Requires assistance. Client performs 50 - 74% of the effort to complete the task.
- 2 MAXIMAL ASSISTANCE** - Weak upper limb **stabilises** during task. Requires assistance. Client performs 25 - 49% of the effort to complete the task.
- 1 TOTAL ASSISTANCE** - Client performs less than 25% of the effort to complete the task.

TASK COMPONENT CHART

Task 7: Dry back with towel

If the affected hand is reaching and grasping for towel	If the affected hand is grasping the towel end
<p>Components of arm mobility and hand manipulation</p> <ul style="list-style-type: none">• Reaches and grasps towel• Manipulates towel in hand to place on back• Rubbing motion along upper and lower back <p>Components of stabilisation</p> <ul style="list-style-type: none">• Maintains grasp on towel sufficient to complete task	<p>Components of arm mobility and hand manipulation</p> <ul style="list-style-type: none">• Grasps towel end• Manipulates towel in hand to place on back• Rubbing motion along upper and lower back <p>Components of stabilisation</p> <ul style="list-style-type: none">• Maintains grasp on towel sufficient to complete task



THE CHEDOKE ARM AND HAND ACTIVITY INVENTORY (SINGAPORE VERSION)

PUT TOOTHPASTE ON TOOTHBRUSH

Instructions: “Put some toothpaste on the toothbrush using both of your hands.”
“用你的双手将一些牙膏放到牙刷上。”
“Letakkan sedikit ubat gigi pada atas berus gigi menggunakan kedua-dua tangan anda.”

Positioning: Standard position, toothbrush and toothpaste positioned horizontally on table at extended arm distance.

*Note: The new tube of toothpaste should be marked at half its length and the tube rolled up, as it is used, until it reaches this point. It should not be used for testing after that.

Please score the above task as follows:

- 7 COMPLETE INDEPENDENCE** - Able to pick up toothpaste, undo cap, pick up toothbrush in opposite hand and apply toothpaste to toothbrush, without resting arms on the table.
- 6 MODIFIED INDEPENDENCE** - Requires the use of assistive device (e.g. splint or built up handle) OR requires more than reasonable time.
- 5 SUPERVISION** - Requires supervision (e.g. standby, cueing or coaxing)
- 4 MINIMAL ASSISTANCE** - Requires contact assistance (e.g. to remove cap from toothpaste OR steadying assistance while applying toothpaste). Client performs 75% or more of the effort to complete the task.
- 3 MODERATE ASSISTANCE** - Weak upper limb partially **manipulates and stabilises during task**. Requires assistance (e.g. either to place toothbrush and/or tube in hands OR unscrew cap and initiate the squeezing of the toothpaste OR uses table as support). Client performs 50 - 74% of the effort to complete the task.
- 2 MAXIMAL ASSISTANCE** - Weak upper limb **stabilises** during task. Requires assistance (e.g. hand over hand technique). Client performs 25 - 49% of the effort to complete the task.
- 1 TOTAL ASSISTANCE** - Client performs less than 25% of the effort to complete the task.

TASK COMPONENT CHART

Task 8: Put toothpaste on toothbrush

If affected hand is holding toothpaste	If affected hand is holding toothbrush
<p>Components of arm mobility and hand manipulation</p> <ul style="list-style-type: none">• Reaches and grasps toothpaste• Squeezes toothpaste with enough force to get toothpaste on brush <p>Components of stabilisation</p> <ul style="list-style-type: none">• With sufficient force holds toothpaste while manipulating lid	<p>Components of arm mobility and hand manipulation</p> <ul style="list-style-type: none">• Unscrews lid• Reaches and grasps toothbrush <p>Components of stabilisation</p> <ul style="list-style-type: none">• Sufficient force holding toothbrush



THE CHEDOKE ARM AND HAND ACTIVITY INVENTORY (SINGAPORE VERSION)

CUT MEDIUM RESISTANCE PUTTY

Instructions: “Cut 5 small separate pieces using both of your hands.”

“用你的双手分别切出5个小片。”

“Potongkan lima kepingan kecil yang berasingan menggunakan kedua-dua tangan anda.”

Positioning: Standard position, putty (size of examiner’s palm) on plate at table edge.

Knife and fork on either side of plate.

Unacceptable: To cut large pieces. (larger than approximately 2.5 cm long)

Please score the above task as follows:

- 7 COMPLETE INDEPENDENCE** - Able to pick up knife and fork appropriately and cut putty into 5 bite size separate pieces, without resting arms on the table.
- 6 MODIFIED INDEPENDENCE** - Requires use of assistive device (e.g. built up handles, non-slip mat) OR requires more than reasonable time to cut 5 bite size separate pieces OR there are safety considerations.
- 5 SUPERVISION** - Requires supervision (e.g. standby, cueing or coaxing) OR set up is required, then able to cut 5 bite size separate pieces.
- 4 MINIMAL ASSISTANCE** - The weak upper limb requires contact assistance (e.g. to place utensils into hands) and then able to cut at least 5 bite size separate pieces. Client performs 75% or more of the effort to complete the task.
- 3 MODERATE ASSISTANCE** - Weak upper limb partially **manipulates and stabilises during task**. Requires assistance (e.g. to place utensils into hands OR hand over hand technique OR stabilises forearms on the table) and then able to cut 4 bite size separate pieces. Client performs 50 -74%. of the effort to complete the task.
- 2 MAXIMAL ASSISTANCE** - Weak upper limb **stabilises** during task. Requires assistance (e.g. to place utensils into hands OR hand over hand technique) and then able to cut 3 bite size separate pieces. Client performs 25 -49% of the effort to complete the task.
- 1 TOTAL ASSISTANCE** - Client performs less than 25% of the effort to complete the task.

TASK COMPONENT CHART

Task 9: Cut medium resistance putty

If affected hand is holding the knife	If affected hand is holding the fork
<p>Components of arm mobility and hand manipulation</p> <ul style="list-style-type: none">• Reaches and grasps knife and manipulate (in-hand) to prepare for the task• Places knife in putty• Cutting motion with knife (not pulling) <p>Components of stabilisation</p> <ul style="list-style-type: none">• Sufficient grasp to hold knife throughout task	<p>Components of arm mobility and hand manipulation</p> <ul style="list-style-type: none">• Reaches and grasps fork and manipulate (in-hand) to prepare for task• Places fork in putty• Places cut pieces to the side with fork <p>Components of stabilisation</p> <ul style="list-style-type: none">• Sufficient grasp to hold fork throughout task• Maintains position of putty while knife cuts



THE CHEDOKE ARM AND HAND ACTIVITY INVENTORY (SINGAPORE VERSION)

ZIP UP THE ZIPPER

Instructions: “Zip up the zipper using both of your hands.”
“用你的双手将拉链拉上。”
“Zipkan zip menggunakan kedua-dua tangan anda.”

Positioning: Sitting away from table, therapist puts poncho on client.

Please score the above task as follows:

- 7 COMPLETE INDEPENDENCE** - Able to pick up both ends of zipper and join ends together. Using one hand to stabilise zipper, client uses other hand to grasp tab and close zipper.
- 6 MODIFIED INDEPENDENCE** - Requires use of assistive device (e.g. splint) OR requires more than reasonable time OR there are safety considerations.
- 5 SUPERVISION** - Requires supervision (e.g. standby, cueing or coaxing).
- 4 MINIMAL ASSISTANCE** - The weak upper limb requires light touch assistance (e.g. to stabilise proximal or distal segment of upper limb). Client performs 75% or more of the effort to complete the task.
- 3 MODERATE ASSISTANCE** - Weak upper limb partially **manipulates and stabilises during task**. Requires assistance (e.g. to place zipper end in weak hand or to start closure of zipper) OR uses lap to stabilise. Client performs 50 - 74% of the effort to complete the task.
- 2 MAXIMAL ASSISTANCE** - Weak upper limb **stabilises** during task. Requires assistance (e.g. to join zipper ends but can complete closing zipper on own OR joins zipper but needs assistance to close zipper). Client performs 25 - 49% of the effort to complete the task.
- 1 TOTAL ASSISTANCE** - Client performs less than 25% of the effort to complete the task.

TASK COMPONENT CHART

Task 10: Zip up the zipper

If affected hand is holding the zipper	If affected hand is holding the zipper pull
<p>Components of arm mobility and hand manipulation</p> <ul style="list-style-type: none">• Reaches and grasps end of zipper• Places ends of zipper together <p>Components of stabilisation</p> <ul style="list-style-type: none">• Stabilises bottom of poncho while zipper is pulled up	<p>Components of arm mobility and hand manipulation</p> <ul style="list-style-type: none">• Reaches and grasps one end of zipper• Places ends of zipper together• Grasps zipper pull• Pulls zipper up <p>Components of stabilisation</p> <ul style="list-style-type: none">• Maintains grasp on zipper pull throughout task



THE CHEDOKE ARM AND HAND ACTIVITY INVENTORY (SINGAPORE VERSION)

CLEAN A PAIR OF SPECTACLES

Instructions: “Clean the spectacles with the handkerchief using both of your hands.”
“用你的双手和手巾，将眼镜擦干净。”
“Bersihkan cermin mata dengan sapu tangan menggunakan kedua-dua tangan anda.”

Positioning: Standard position. Wet both lenses and place open spectacles bridge down at extended arm distance. Handkerchief placed beside the spectacles.

Please score the above task as follows:

- 7 COMPLETE INDEPENDENCE** - Able to pick up spectacles in one hand, pick up handkerchief with the other hand and clean both lenses completely, without resting arms on the table.
- 6 MODIFIED INDEPENDENCE** - Requires assistive device (e.g. splint) OR requires more than reasonable time OR there are safety considerations.
- 5 SUPERVISION** - Requires supervision (e.g. standby, cueing or coaxing)
- 4 MINIMAL ASSISTANCE** - Weak upper limb requires contact assistance to manipulate or stabilise during the task. Client performs 75% or more of the effort to complete the task.
- 3 MODERATE ASSISTANCE** - Weak upper limb partially **manipulates and stabilises during task**. Requires assistance OR uses table as support, then able to pick up spectacles or handkerchief with weak hand. Client performs 50 - 74% of the effort to complete the task.
- 2 MAXIMAL ASSISTANCE** - Weak upper limb **stabilises** during task. Requires assistance. Client performs 25 - 49% of the effort to complete the task.
- 1 TOTAL ASSISTANCE** - Client performs less than 25% of the effort to complete the task.

TASK COMPONENT CHART

Task 11: Clean a pair of spectacles

If the affected hand is holding/grasping spectacles	If the affected hand is wiping lens of spectacles
<p>Components of arm mobility and hand manipulation</p> <ul style="list-style-type: none">• Reaches and grasps spectacles• Manipulation of hand or spectacles to be able to clean all areas of the spectacles <p>Components of stabilisation</p> <ul style="list-style-type: none">• Maintains grasp on spectacles throughout task	<p>Components of arm mobility and hand manipulation</p> <ul style="list-style-type: none">• Reaches and grasps handkerchief• In hand manipulation of the handkerchief• Rubbing motion using handkerchief <p>Components of stabilisation</p> <ul style="list-style-type: none">• Maintains grasp on handkerchief throughout task



THE CHEDOKE ARM AND HAND ACTIVITY INVENTORY (SINGAPORE VERSION)

PLACE BOX ON TABLE

Instructions: “Place the box on the table.”

“将箱子放到桌子上。”

“Meletakkan kotak di atas meja.”

Positioning: Client standing, with strong side facing table. Box filled with 5kg/10lb weight (total weight = 8.6kg/19lbs) and placed on the floor in front of client.

Unacceptable: To twist trunk while feet remain planted on the floor, trunk extension to lift box.

Please score the above task as follows:

- 7 COMPLETE INDEPENDENCE** - Able to reach down for box, pick it up, turn, step and place the box on the table.
- 6 MODIFIED INDEPENDENCE** - Requires use of assistive device (e.g. splint) OR requires more than reasonable time OR there are safety considerations.
- 5 SUPERVISION** - Requires supervision (e.g. standby, cueing or coaxing)
- 4 MINIMAL ASSISTANCE** - Requires contact assistance (e.g. steadying while lifting box OR to maintain balance) or the box is not lifted high enough to easily clear table. Client performs 75% or more of the effort to complete the task.
- 3 MODERATE ASSISTANCE** - Weak upper limb partially **manipulates and stabilises during task**. Requires assistance (e.g. to complete lifting into standing position). Client performs 50 - 74% of the effort to complete the task.
- 2 MAXIMAL ASSISTANCE** - Weak upper limb **stabilises** during task. Requires assistance through entire phase of lifting box. Client performs 25 - 49% of the effort to complete the task.
- 1 TOTAL ASSISTANCE** - Client performs less than 25% of the effort to complete the task.

TASK COMPONENT CHART

Task 12: Place box on table

Using both the affected and unaffected hand

Components of arm mobility and hand manipulation

- Reaches down and grasps box
- Elbow flexion to lift box enough to easily clear table
- Places box on table

Components of stabilisation

- Maintains sufficient grasp
- Stabilises box during lifting without using body for support



THE CHEDOKE ARM AND HAND ACTIVITY INVENTORY (SINGAPORE VERSION)

CARRY THE BAG UP THE STAIRS

- Instructions: “Carry the bag up 4 steps using your affected arm.”
“用你受影响的手臂将袋子提上4阶楼梯。”
“Bawa beg sehingga langkah ke empat menggunakan tangan yang terjejas anda.”
- Positioning: Client standing or sitting in front of stairs, bag containing
2 kg/ 4lb weight is placed on floor in front of client.
- Required: To use the weak limb to carry the bag.
-

Please score the above task as follows:

- 7 COMPLETE INDEPENDENCE** - Able to pick up bag with the weak hand, while sitting or standing and carry bag in weak hand up 4 steps safely without use of handrail.
- 6 MODIFIED INDEPENDENCE** - Requires the use of a handrail or cane OR requires more than reasonable time OR there are safety considerations.
- 5 SUPERVISION** - Requires supervision (e.g. standby, cueing or coaxing).
- 4 MINIMAL ASSISTANCE** - Requires contact assistance (e.g. for balance OR to pick up bag). Client performs 75% or more of the effort to complete the task.
- 3 MODERATE ASSISTANCE** - Weak upper limb partially **manipulates and stabilises during task**. Requires assistance (e.g. hand over hand technique required to maintain hold of bag) OR only able to carry bag up 2 steps. Client performs 50 - 74% of the effort to complete the task.
- 2 MAXIMAL ASSISTANCE** - Weak upper limb **stabilises** during task. Requires assistance (e.g. to place bag in hand and hand over hand technique required to maintain hold of bag). Client performs 25 - 49% of the effort to complete the task.
- 1 TOTAL ASSISTANCE** -Client performs less than 25% of the effort to complete the task.

TASK COMPONENT CHART

Task 13: Carry the bag up the stairs.

Score the affected hand on the ability of
Components of arm mobility and hand manipulation <ul style="list-style-type: none">• Grasps bag through both handles
Components of stabilisation <ul style="list-style-type: none">• Maintains grasp and holds bag with hand or crook of arm



Chedoke Arm and Hand Activity Inventory (Singapore Version): Score Form

CAHAI-SG-13 Version

Name:

Date:

Activity Scale			
1. total assist (weak U/L < 25%) 2. maximal assist (weak U/L = 25-49%) 3. moderate assist (weak U/L = 50-74%) 4. minimal assist (weak U/L > 75%)	5. supervision 6. modified independence (device) 7. complete independence (timely, safely)		
Affected Limb:			Score
1. Open jar of peanut butter	<input type="checkbox"/> holds jar	<input type="checkbox"/> holds lid	<input style="width: 100%;" type="text"/>
2. Call 995	<input type="checkbox"/> holds receiver	<input type="checkbox"/> dials phone	<input style="width: 100%;" type="text"/>
3. Draw a line with a ruler	<input type="checkbox"/> holds ruler	<input type="checkbox"/> holds pen	<input style="width: 100%;" type="text"/>
4. Pour a glass of water	<input type="checkbox"/> holds glass	<input type="checkbox"/> holds jug	<input style="width: 100%;" type="text"/>
5. Wring out face towel			<input style="width: 100%;" type="text"/>
6. Button five buttons			<input style="width: 100%;" type="text"/>
7. Dry back with towel	<input type="checkbox"/> reaches for towel	<input type="checkbox"/> Grasps towel end	<input style="width: 100%;" type="text"/>
8. Put toothpaste on toothbrush	<input type="checkbox"/> holds toothpaste	<input type="checkbox"/> holds brush	<input style="width: 100%;" type="text"/>
9. Cut medium resistance putty	<input type="checkbox"/> holds knife	<input type="checkbox"/> holds fork	<input style="width: 100%;" type="text"/>
10. Zip up the zipper	<input type="checkbox"/> holds zipper	<input type="checkbox"/> holds zipper pull	<input style="width: 100%;" type="text"/>
11. Clean a pair of spectacles	<input type="checkbox"/> holds spectacles	<input type="checkbox"/> wipes lenses	<input style="width: 100%;" type="text"/>
12. Place box on table			<input style="width: 100%;" type="text"/>
13. Carry bag up the stairs			<input style="width: 100%;" type="text"/>
Total Score			<input style="width: 100%;" type="text"/> /91
Comments			

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Chedoke Arm and Hand Activity Inventory (Singapore Version): Score Form

CAHAI-SG-9 Version

Name:

Date:

Activity Scale			
1. total assist (weak U/L < 25%)		5. supervision	
2. maximal assist (weak U/L = 25-49%)		6. modified independence (device)	
3. moderate assist (weak U/L = 50-74%)		7. complete independence (timely, safely)	
4. minimal assist (weak U/L > 75%)			
Affected Limb:			Score
1. Open jar of peanut butter	<input type="checkbox"/> holds jar	<input type="checkbox"/> holds lid	□
2. Call 995	<input type="checkbox"/> holds receiver	<input type="checkbox"/> dials phone	□
3. Draw a line with a ruler	<input type="checkbox"/> holds ruler	<input type="checkbox"/> holds pen	□
4. Pour a glass of water	<input type="checkbox"/> holds glass	<input type="checkbox"/> holds jug	□
5. Wring out face towel			□
6. Button five buttons			□
7. Dry back with towel	<input type="checkbox"/> reaches for towel	<input type="checkbox"/> grasps towel end	□
8. Put toothpaste on toothbrush	<input type="checkbox"/> holds toothpaste	<input type="checkbox"/> holds brush	□
9. Cut medium resistance putty	<input type="checkbox"/> holds knife	<input type="checkbox"/> holds fork	□
Total Score			□/63
Comments			

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Chedoke Arm and Hand Activity Inventory (Singapore Version): Score Form

CAHAI-SG-8 Version

Name:

Date:

Activity Scale			
1. total assist (weak U/L < 25%) 2. maximal assist (weak U/L = 25-49%) 3. moderate assist (weak U/L = 50-74%) 4. minimal assist (weak U/L > 75%)		5. supervision 6. modified independence (device) 7. complete independence (timely, safely)	
Affected Limb:			Score
1. Open jar of peanut butter	<input type="checkbox"/> holds jar	<input type="checkbox"/> holds lid	<input style="width: 40px; height: 20px;" type="text"/>
2. Call 995	<input type="checkbox"/> holds receiver	<input type="checkbox"/> dials phone	<input style="width: 40px; height: 20px;" type="text"/>
3. Draw a line with a ruler	<input type="checkbox"/> holds ruler	<input type="checkbox"/> holds pen	<input style="width: 40px; height: 20px;" type="text"/>
4. Pour a glass of water	<input type="checkbox"/> holds glass	<input type="checkbox"/> holds jug	<input style="width: 40px; height: 20px;" type="text"/>
5. Wring out face towel			<input style="width: 40px; height: 20px;" type="text"/>
6. Button five buttons			<input style="width: 40px; height: 20px;" type="text"/>
7. Dry back with towel	<input type="checkbox"/> reaches for towel	<input type="checkbox"/> grasps towel end	<input style="width: 40px; height: 20px;" type="text"/>
8. Put toothpaste on toothbrush	<input type="checkbox"/> holds toothpaste	<input type="checkbox"/> holds brush	<input style="width: 40px; height: 20px;" type="text"/>
Total Score			<input style="width: 40px; height: 20px;" type="text"/> /56
Comments			

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Chedoke Arm and Hand Activity Inventory (Singapore Version): Score Form

CAHAI-SG-7 Version

Name:

Date:

Activity Scale			
1. total assist (weak U/L < 25%) 2. maximal assist (weak U/L = 25-49%) 3. moderate assist (weak U/L = 50-74%) 4. minimal assist (weak U/L > 75%)		5. supervision 6. modified independence (device) 7. complete independence (timely, safely)	
Affected Limb:			Score
1. Open jar of peanut butter	<input type="checkbox"/> holds jar	<input type="checkbox"/> holds lid	<input style="width: 40px; height: 20px;" type="text"/>
2. Call 995	<input type="checkbox"/> holds receiver	<input type="checkbox"/> dials phone	<input style="width: 40px; height: 20px;" type="text"/>
3. Draw a line with a ruler	<input type="checkbox"/> holds ruler	<input type="checkbox"/> holds pen	<input style="width: 40px; height: 20px;" type="text"/>
4. Pour a glass of water	<input type="checkbox"/> holds glass	<input type="checkbox"/> holds jug	<input style="width: 40px; height: 20px;" type="text"/>
5. Wring out face towel			<input style="width: 40px; height: 20px;" type="text"/>
6. Button five buttons			<input style="width: 40px; height: 20px;" type="text"/>
7. Dry back with towel	<input type="checkbox"/> reaches for towel	<input type="checkbox"/> grasps towel end	<input style="width: 40px; height: 20px;" type="text"/>
Total Score			<input style="width: 40px; height: 20px;" type="text"/> /49
Comments			

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Chedoke Arm and Hand Activity Inventory (CAHAI)

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Chedoke Arm and Hand Activity Inventory (CAHAI) References

Barreca S, Gowland C, Stratford P, et al. (2004). Development of the Chedoke Arm and Hand Activity Inventory: Theoretical constructs, item generation, and selection. *Top Stroke Rehabil*; 11(4): 31-42.

Barreca S, Stratford P, Lambert C, Masters L & Streiner D. (2005). Test-retest reliability, validity, and sensitivity of the Chedoke Arm and Hand Activity Inventory: A new measure of upper-limb function for survivors of stroke. *Arch Phys Med Rehabil*; 86: 1616-1622.

Barreca S, Stratford P, Masters L, Lambert C, & Griffiths J. (2006). Comparing 2 versions of the Chedoke Arm and Hand Activity Inventory with the Action Research Arm Test. *Phys Therapy*; 86(2): 245-253.

Barreca S, Stratford P, Masters L, Lambert C, Griffiths J, & McBay C. (2006). Validation of three shortened versions of the Chedoke Arm and Hand Activity Inventory. *Physiother Can*; 58: 1-9.

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