

A holistic, partnered approach to memory care.

Allen Cognitive Level Screen

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Who is Claudia Allen?

- She is an occupational therapist
- Claudia developed six specific cognitive levels based on the hierarchical sequence of sensorimotor abilities
- One of the first researchers who hypothesized this sequence could be observed in the progression and remission of mental illness, dementia and fatigue in adult individuals.

Claudia Allen







Brief History

- 1960's the cognitive disabilities model has its beginnings in the field of psychiatry
- Interest was based on observed patterns of performance difficulties with adult patients with mental disorders
- Focus of inquiry was the "sensorimotor actions originating in the physical or chemical structures of the brain and producing observable and assessable limitations in routine task behavior" (Allen, 1985).



Purpose of the Screen

The screen is used to obtain a quick measure of the following:

- Global cognitive processing capacities
- Learning potential
- Performance abilities
- Detect unrecognized or suspected problems related to functional cognition



Purpose of the Screen

- Allows the interdisciplinary team, family and caregivers to understand the individual's abilities and limitations using the same language
- Evidenced Based Practice
 - Patient Approach
 - Activity Analysis
 - Realistic Goals

Purpose of the Screen

- Guide Discharge Planning
 - Anticipated location
 - Level of supervision
 - Restorative Programs
 - Activity Programs
 - Functional Maintenance Programs



Why Arts and Crafts?

- Cognition
- Visual Perception
- Memory
 - Working Memory:
 - First area affected by dementia. Temporary storage and processing center. Needed to learn something new.
 - The ACLS is assessing the working memory using an unfamiliar task. It will be used to stage the disease process.
 - Procedural Memory:
 - Preserved the longest in the disease process. Includes routines and over-learned habits used in activities of daily living.
 - Procedural memory will be used as a component of our treatment approach to facilitate function.



Dementia Staging Research

- American Alzheimer's Association
- Cognitive Disabilities Model -Claudia Allen, OTR
- Theory of Retro-genesis –Barry Reisberg, MD
- Person Centered Care Approach Thomas Kitwood, PhD
- GEMSTM Teepa Snow



Using the Same Language: Dementia Staging

Dementia Stage	Allen Cognitive Level	Teepa Snow Gems	FAST Stage	GDS Stage
Normal	High 5 (New Learning Activity) Or 6 (Planned Activity)	Sapphire	1 or 2	1 or 2
MCI	Low 5 (New Learning Activity)	Diamond	3	2 or 3
High Early Stage	High 4, 4.6-4.8 (Goal-Directed Activity)	Emerald	4	3 or 4
Low Early Stage	Low 4, 4.0-4.4 (Goal –Directed Activity)	Amber	5	5
High Middle Stage	High 3, 3.6-3.8 (Manual Actions)	Amber	6a, b, c	6
Low Middle Stage	Low 3, 3.0-3.4 (Manual Actions)	Ruby	6d, e	6
Late Stage	2 (Postural Actions)	Pearl	7a, b	7
End Stage	1 (Automatic Actions)	Pearl	7c, d, e	7



Retro-Genesis Correlation

Stage of Dementia	Approximate Developmental Age Correlation	
Early Stage	4-10.5 years old	
Middle Stage	18 months to 3 year old	
Late Stage	12 to 18 months old	
End Stage	Infant	



Administration of the Screen

- No certification or specialized training to use the test.
- Can be administered by any discipline.
- Requires study and practice to gain competency.
- Use of standardized protocol with instructions and observation coding.
- Scoring *must be used* to communicate with all team members to ensure consistency and optimize success.



Allen Cognitive Level Screen

The Allen Cognitive Level Screen (ACLS) can help you identify the Allen Cognitive Levels of clients with Alzheimer's disease, dementia, and other cognitive disabilities.

Also referred to as the *leather lacing tool*, this cognitive assessment tool measures global cognitive processing capacities, learning potential, and performance abilities. This Allen Battery Assessment Tool can also help you detect unrecognized or suspected problems related to functional cognition.

The large cognitive level screen (LACLS) is the preferred tool to utilize.



Standardized Cognitive Performance Testing 96125

- Formal cognitive test; per hour of face to face healthcare professionals time, both face to face time interpreting these test results and preparing the report. This code is considered a special test and measure that includes the time for test interpretation
- Time based code available for both OT and SLP, reported per hour.
- Medicare Part A bill time spent with the patient, therefore non face-to-face time to prepare the report not be included in the minutes for 96125
- Medicare Part B bill per the description of the code so non face-to-face time to prepare the report can be billed without the patient as this is part of the code description



Standardized Cognitive Performance Testing 96125

- Daily documentation should support the medical necessity of additional, separate, distinct and in-depth cognitive testing via 96125 beyond the initial evaluation
- 96125 should be billed AFTER an initial evaluation code is billed: To develop a functional communication outcome from an SLP perspective and a functional ADL outcome from an OT perspective, we should INITIALLY complete a comprehensive SLP (92523) or OT (97003) evaluation with follow up on specific cognitive skills assessment (96125) thereafter. For example, we need to determine how language and motor planning relate to cognition for each individual; this is accomplished through initial completion of the comprehensive SLP / OT evaluation followed up with a detailed cognitive evaluation. Therefore, SLPs and OTs should bill 92523 or 97003 BEFORE billing 96125.



Administration Overview

When administering the test, observe the person's remaining abilities, as well as the person's deficits, looking for a clear pattern of behavior between the two.

Together with the Allen Cognitive Model, the leather lacing test will help you identify a person's remaining abilities. Once you recognize a person's abilities, you can foster his success with activities and help him feel useful, respected, and cared for.

When administering the leather lacing test, you engage the person in three visual-motor tasks (leather-lacing stitches) of increasing complexity.

The cognitive assessment tool requires that the person attend to, understand, and use sensory and motor cues, your verbal and demonstrated instructions and cues, and feedback from motor actions. Obtain the person's leather lacing test score using the Allen Cognitive Scale of levels and modes of performance.



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Video Presentation

https://www.youtube.com/watch?v=kqbi6kBbK5g



Allen Cognitive Level Screen-5 Manual

Manual for the
Allen Cognitive Level Screen-5
(ACLS-5)
and
Large Allen Cognitive Level Screen-5
(LACLS-5)



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- Use this manual for administering the screen.
- Provides the history of the Cognitive Disabilities Model, color-coded administration instructions, revised scoring tables, and a review of published research.
- The manual features photos, references, and resources for occupational therapists and other health care professionals using the Cognitive Disabilities Model.

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Instructions for the LACLS-5

- Set up of the Leather Lacing Tools (Large)
 - One pre-punched 6X7 rounded leather rectangle
 - One brown textured shoelace with plastic tips
 - Two large, brass threaded locking needles
 - One hank of wide leather lace with two visibly distinct sides
- Prior to administration, set up the leather lacing by completing three stitches
 - Running Stitch
 - Whip Stitch
 - Single Cordovan Stitch



Instructions for Running Stitch

- The large version will use the shoelace with plastic tips at both ends. Do not cut the shoelace. Tie a knot at one end and use the tip of the other end as a needle.
- Start the stitch: hold leather with smooth, finished side facing you and with the longer sides placed horizontally. Starting at the left, top corner, push the needle through the hole from back to front and pull it tight.
- Working from left to right (clockwise), complete three running stitches. The thread will have gone through six holes in addition to the start stitch without skipping any holes.



Instructions for Whip Stitch

- Cut two, 30 inch pieces of leather lace. Cut one end of each lace at a 60 degree angle. Securely attach the round, threaded needle to the cut ends by twisting. The lace should be able to resist a gentle tug.
- Turn the leather so the edge opposite the edge with the running stitch is at the top. Beginning at the top, left corner, insert the needle from front to back. Leave a 1 ½ inch tail. Secure the tail under the next stitch. Complete three whip stitches, avoiding any twists in the lace or crossing itself on the back.



Instructions for the Single Cordovan Stitch

- Turn the leather in a counter clockwise manner so the stitch will be inserted to the right of the whip stitch.
- Beginning at the top, left corner, insert the needle from front to back. Leave a 1 ½ inch tail. Secure the tail under the next stitch.
- Bring the needle over the edge of the leather to the front. Working from left to right (clockwise), push it through the next hole from front to back. Next, pull the lace through until a ½ inch loop is formed over the top edge of the leather. Bring the needle to the front and push it through the loop from the front toward the back of the leather. Keep the needle to the left of the lace at the back of the leather. Tighten the stitch until it is snug. The completed stitch sits atop the edge of the leather.
- Complete two additional stitches.



Appendix E: Set Up LACLS-5 Front and Back



Figure 14. Set up LACLS-5 Front



Figure 15. Set up LACLS-5 Back

- Task 1- Running Stitch
 - Introduction to the tool and running stitch
 - First demonstration of running stitch
 - Provide second demonstration if needed
 - Completion criteria: 3 correct running stitches in consecutive holes
 - If the individual is unable to obtain the completion criteria, you score your observations. Move to Task 2.
 - If the individual successfully completes 3 correct running stitches in consecutive holes, move to Task 2



- Task 2 Whip Stitch
 - Introduction to the tool and whip stitch
 - First demonstration of whip stitch
 - Completion criteria: 3 correct whip stitches in consecutive holes including recognizing and correcting the cross in back and twisted lace errors.
 - Provide encouragement and cues as needed
 - If the person does not try to complete at least one whipstitch with encouragement, provide second demonstration.
 - If they make an error, note behavior and allow time for the individual to identify and correct the error.
 - If the individual is unable to obtain the completion criteria, you score your observations. Move to Task 3.



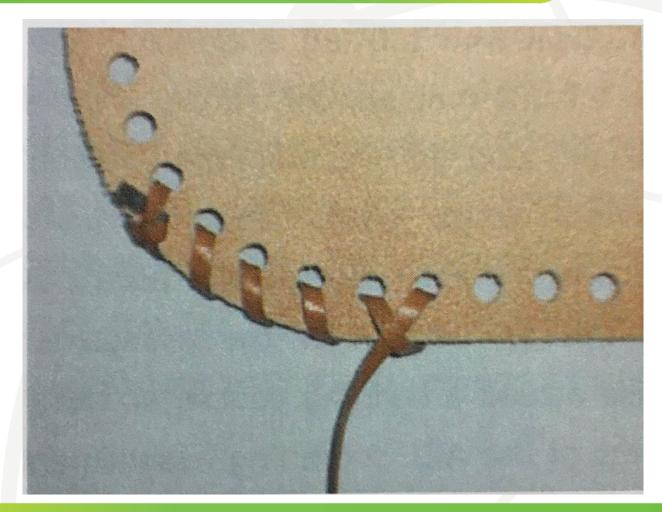
- Task 2 Whip Stitch (continued)
 - If the individual is able to meet the completion criteria including the identification and correction of errors, move to Task 3 the single cordovan stitch.
 - If the individual complete 3 whip stitches without errors, continue to the problem solving whip stitch errors.



- Problem Solving Whip Stitch Errors: Cross in Back Error
 - Insert cross-in-back error
 - Position leather out of individual's sight saying "I am going to make a mistake to see if you can fix it"
 - Make cross over mistake by bringing needle over edge of leather to front and pushing it from front to back through next hole. Leave a small loop on the top edge of the leather. On the back of leather, push needle through loop right to left and tighten lace to from a cross over on back. Release needle letting lace fall toward the back of leather.



Cross in Back Error





- Problem Solving Whip Stitch Errors: Cross in Back Error (continued)
 - If individual seeks assurance, state "just do the best you can".
 - Whether or not the individual recognizes and corrects cross in back error, no additional problem solving cues are provided. Note behavior and allow the person time to identify and correct the error.
 - If the individual was not observed to recognize and correct a cross in back lace error, then continue to the twisted lace error.
 - If the individual was able to recognize and correct a cross in back lace error, then continue to Task 3 Single Cordovan Stitch.



- Problem Solving Whip Stitch Errors: Twisted Lace Error
 - Insert twisted lace
 - Position leather out of individual's sight saying "I am going to make a mistake (or another mistake) to see if you can fix it"
 - Make two twisted lace errors (only one is required for scoring but two are required). Twist lace one at a time just behind hole on back before bringing it over edge of leather in front. Push needle from front to back into next hole and tighten twisted whip stitch. Inserted twists should be clearly visible on both stitches. Release needle letting it fall towards back on leather.
 - Hand leather to individual and say "Please show me my mistake. Please try to fix it".



Twisted Lace Error





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- Problem Solving Whip Stitch Errors: Twisted Lace Error (continued)
 - Allow the individual time to recognize and correct at least one error
 - If they remove the lace from the hole to correct the error, then note behavior and say "Please correct the mistake without taking the lace out of the hole".
 - If they seek reassurance, then note behavior and cue with "Just do the best you can".
 - Whether or not the individual recognizes and corrects the error, note behavior, acknowledge person's efforts then continue to Task 3 Single Cordovan Stitch.



- Task 3 Single Cordovan Stitch
 - Unlike the previous two tasks, the individual is asked to engage in self-directed problem solving to figure out and complete the stitch before one verbal cue or demonstrations are offered. Deciding when to offer one verbal cue or demonstration requires careful observation of what the person is recognizing and attending in this problem solving process. One verbal cue is provided when requested or when it appears to be needed. A demonstration can only be offered or provided two times. If the individual does not appear to initiate or tolerate this process, even with encouragement, continue to the first demonstration.
 - Completion criteria: 3 correct single cordovan stitches in consecutive holes.



- Task 3 Single Cordovan Stitch
 - Position leather by rotating it so the single cordovan stitch is on top edge. Hand leather to the person. State "please make three stitches without me showing you how to make them. If you cannot figure it out, I will show you". Allow person to complete the task.
 - If the person is able to successfully met the criteria, note behavior and end the assessment.



- Task 3 Single Cordovan Stitch
 - If the appear to need encouragement, not behavior and cue to encourage continued performance.
 - If the individual doesn't appear to try to figure out and complete the stitch, then note behavior and say "Please try it and do the best you can".
 - If the person stops before completing 3 stitches, note behavior and say "Please make three stitches".
 - If the person seeks assurance, note behavior and give encouraging messages "You are making progress", "this stitch is hard", "this is a difficult task", "most people try different things," or "just keep trying".
 - If they seek validation, responses can be used like "I'd like you to decide" or "I need to see what you can do without my help".
 - No problem-solving cues are provided at this point. Continue to allow the individual time to complete the stitches independently.



Task 3 - Single Cordovan Stitch

- If, after encouragement, the individual does not correct errors, or appears anxious, frustrated or at risk of abandoning the task, then note behavior and say "Would you like some help?" or "Would you like a hint?".
 - If they say NO and continues to try to problem solve then note behavior and allow more time for completion.
 - If they meet the criteria, note behavior and end the assessment.
 - If their problem solving behavior continues to be ineffective and they do not request a hint, not behavior and offer the first demonstration.
 - If they say YES, then note behavior and continue to one verbal cue



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- Task 3 Single Cordovan Stitch
 - One verbal cue
 - "You have the first part right"
 - "Look at how you are going through the hole"
 - "Is there another way you can go through the loop"
 - Is there another way to tighten the lace"
 - Avoid giving a solution or using non-verbal cues.
 - Allow time for the individual to recognize and correct error
 - If the individual is able to meet the criteria, note behavior and end the assessment.



- Task 3 Single Cordovan Stitch
 - If the individual's attempt to solve problem continues to be ineffective, then ask "Would you like for me to show you how?"
 - Provide first demonstration
 - Position leather in front of individual so they can only see the front side. Hold so the holes and stitches are not obstructed by the administrator's hands or fingers.



- Task 3 Single Cordovan Stitch
 - Demonstration and instructions
 - "Watch me carefully. Bring the needle to the front of the leather and push the needle through the next hole from front to back. Don't pull the lace tight but leave a loop in it. Bring the lace to the front of the leather; this time put the needle through the loop you have made. As you go through the loop, keep the needle to the left of the lace. Pull the lace through the loop. Tightened the stitch by pulling the lace from the back, and then by pulling the long lace end. Make sure the lace isn't twisted. Please do three stitches".
 - Release needle letting lace fall freely toward back of leather. Hand leather to the person. Allow time to complete the three stitches.



- Task 3 Single Cordovan Stitch
 - If the person meets the criteria, note behavior and end the assessment.
 - If they appear to need encouragement, then cue to continue performance.
 - If they shop before completing 3 stitches, say "Please make three stitches".
 - If they seek assurance, say "Just do the best you can".
 - If the person doesn't try after encouragement, note behavior and end the assessment.



- Task 3 Single Cordovan Stitch
 - If the person makes errors, no problem solving cues are provided after the first demonstration.
 - If the individual's attempts to have ineffective problem solving, then ask "Would you like for me to show you again"?
 - If person responds NO, then note behavior and end the assessment.
 - If person responds YES, then note behavior and continue to the 2nd demonstration.



- Task 3 Single Cordovan Stitch
 - Second demonstration saying "Let me show you again".
 - Follow the sample instructions and encouragement as described for the first demonstration. As with the first demonstration, no problem solving cues are provided.
 - Allow the person time to complete the stitches.
 - The assessment ends when, after two demonstrations,
 - The person completes 3 correct stitches per the criteria
 - The person does not complete 3 stitches and the person's problem-solving behavior, as evaluated by the administrator, continues to be ineffective OR
 - The person asks to end screening assessment.



What Construct Is Being Measured?

- "Functional cognition" encompasses functional performance abilities and global cognitive processing capacities.
- It incorporates the complex, dynamic interplay between
 - A person's information processing abilities, occupational performance skills, values and interests
 - The increasingly complex motor, perceptual and cognitive activity demands of three graded visual-motor tasks
 - Feedback from performance of these tasks in context.



Ending the Assessment

- Determining when to end the assessment requires clinical judgement.
- Individuals who do NOT make task errors or who are able to correct their errors should be encouraged to progress through the assessment.
- Individuals who DO make errors are encouraged to progress through the assessment as well.
- This is change from previous versions ...
 - Failure to complete three correct running or whip stitches is no longer a criterion for ending the assessment.



Ending the Assessment

- Criteria for determining the end of the assessment
 - Completes all three stitching tasks
 - Fails to correct an error in single cordovan stich after a second demonstration and the person's problem solving behavior continues to be ineffective
 - Refused the first or second single cordovan demonstrations
 - Requests that the assessment end or refuses to continue
 - Expresses significant anxiety and/or frustration
 - Administrator determines the individual's problem solving continues to be ineffective even with encouragement, demonstrations and prescribed verbal cues.

Scoring of the ACLS

- Scoring Table is provided for each task.
- Four Columns are provided for data analysis
 - Column 1 lists the scores. These theoretically correspond to the Allen scale of levels and modes of performance
 - Column 2 lists the corresponding observed behaviors required for assigning the score in that row on the table
 - Column 3 lists additional observations which may frequently be observed along with the Rating Criteria behaviors, not are not required for the score in that row on the table
 - Column 4 lists the performance abilities that are theoretically associated with the observed behaviors and scores in the corresponding row.



Table 1 Scores for the Running Stitch Task				
Score	Rating Criteria (observations required for score)	Rating Criteria (not required for score)	Hypothesized Abilities	
Less than 3.0	Does not reach for or actively grasp leather or needle or shoelace	Fingers may close around leather when it is placed in the person's hand	Grasp is not associated with objects	
3.0	Actively reaches for and grasps leather/shoelace tip OR Actively pushes leather away or does not grasp shoelace tip	May grasp leather and shoelace tip and move it in a random fashion OR may grasp leather and shoelace tip and aim toward a hole	Associated grasp with an object separate from self	
3.2	Pushes shoelace tip completely through at least one hole anywhere on the leather	May push shoelace tip through two or more holes which are not consecutive	Associates objects with particular manual actions Coordinates eyes and hands to execute a particular action	
3.4	Completed at least 3 running stitches in consecutive holes with any of the three laces. These stiches may be anywhere on the leather.		Repeats a prompted manual action of interest Reverses direction of an action Perceived row/line Moves in a direction (left/right)	

Table 2.1 Scores for the Whipstitch Task				
Score	Rating Criteria (observations required for score)	Rating Criteria (not required for score)	Hypothesized Abilities	
3.4	 Complete only one whipstitch from front to back of leather OR completes 1 or more stitches that go over the edge of the leather from back to front. When asked to find and fix their mistake, does not find visible twisted lace and/or cross-in-back errors 	 May revert to making running stiches May recognize a running stitch error on front of leather as not the same and the sample stitch 	Fleeing ability to approximate a two step action sequence Fleeing association of 2 mismatched cues Beginning to sense error recognition	
3.6	 Completes at least 2 whipstitches in consecutive holes going from front to back of leather Stops before all holes are filled or lace is used up Recognizes a running stitch error on front of leather as not the same as the sample stitch When asked to find and fix their mistake, notes not find visible twisted lace and/or cross-in-back errors 		Briefly associated cause and effect for a two-action sequence Aware of being led/instructed by another person	
3.8	 Complete multiple whipstitches in consecutive holes going from front to back of leather until all holes are filled or lace is used up OR Completes at least 3 whipstitches in consecutive holes, stops before all holes are filled or lace is used up, and may show uncertainty about being "done" When asked to find and fix their mistake, does not find visible twisted lace and/or cross-in-back errors 	 May make brief attempts to correct running stitch error on front of leather When asked to find and fix their mistake, does not find running stitch errors on back of leather 	Sustains cause and effect for a two-action sequence. Beginning sense of completion Sense of completion is cued by material objects.	

Table 3.1	Scores	for tl	he Wh	ipstitch	Task

Score	Rating Criteria (observations required for score)	Rating Criteria (not required for score)	Hypothesized Abilities		
4.2	 Does not complete 3 correct single cordovan stiches in consecutive holes after 2 demonstrations Makes repeated whipstitches OR makes 1 whipstitch followed by an error, such as going through the same hole twice or making a running stitch Does not recognize errors OR recognizes error(s) but does not attempt to correct OR recognizes error and attempts to correct error by reversing only last stitch performed 	Is likely to decline offer of a second demonstration	Replicated one or two actions of a longer sequence of actions Undoes or reverses actions just done to complete a problem		
4.4	 Does not complete 3 correct single cordovan stiches in consecutive holes after 2 demonstrations Makes a whipstitch and immediately pushes needle through loop from back as if it were 1 step. Lacing is under, but not wrapped around, loop OR pushes needle through hole from back to front and through loop from front to back Does not recognize in correct stitch OR attempts to correct an identified error by removing entire stitch and repeating unsuccessful methods 	May decline offer of second demonstration	Chunks of sequences exceeding two actions (first part, lace through hole; second part, lace through loop) Oriented to top and bottom of objects Flips or turns objects to solve a problem Oriented to prescribed order or sequence of events		

Scoring of the ACLS

- Scores from the ACLS serve as a basic reference or estimate of an individual's functional cognitive ability and mode of performance on the Allen scale.
- When reporting a screen score, it is important to include the purpose of the ACL screening assessment.
- Must include an interpretation of what the score represents in terms of what the individual is able to do and the implications for functional performance and safety.
- A screen score should usually be reported within the context of additional assessment findings.

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Intended Use

- The ACLS-5/LACLS-5 is used to screen functional cognition for persons whose cognitive abilities appear to be in the range of 3.0 to 5.8 on the Allen scale of cognitive levels of performance.
- The strengths and problems that may be identified must be verified and supplemented with other assessments, e.g. Allen Diagnostic Module-2nd edition (ADM-2), the Routine Task Inventory Expanded (RTI-2), and skilled observations grounded in the cognitive disabilities model and theory.
- This screen is not intended for use in isolation of other assessments or as a diagnostic tool. The information obtained is used to guide occupation-based interventions at the level of activity demands, performance skills, and occupations based on the Occupational Therapy Practice Framework.



Allen Diagnostic Module (ADM)

- An evidence-based, standardized assessment of functional cognition developed within the framework of the cognitive disabilities model.
- It includes 34 craft based activity assessments (ADMs) which provide opportunities for individuals to do new learning and problem solving in a meaningful activity that produces a useful, safe, and attractive end product.
- ADMs may be used by therapists to verify results of the Allen Cognitive Level Screen (ACLS) or serially to identify a pattern of performance in a comprehensive functional evaluation.
- The ADM-2nd Edition (ADM-2; Earhart, 2007) contains revised guidelines for use that clarify theoretical constructs derived from the cognitive disabilities model, as well as updated rating criteria for several assessments to enhance suitability for research on these tools.



Routine Task Inventory-Expanded (RTI-E)

- An evidence-based, semi-standardized assessment tool developed within the framework of the cognitive disabilities model.
- The test is comprised of 25 Activities of Daily Living and Instrumental Activities of Daily Living. These routine tasks or activities are divided into four subscales
 - 1) Physical Scale-ADLs
 - 2) Community Scale-IADLs
 - 3) Communication Scale,
 - 4) Work Readiness Scale

Functional cognition is assessed based on therapists' direct observation of performance in naturalistic contexts or on the perceptions of performance reported by the client or a caregiver using a checklist or standardized interview questions. Scores are associated with the Allen Scale of cognitive levels 1-6 and a mean score is calculated for each subscale. The manual for the RTI-E is available as a free download from the Allen Cognitive Network's website: http://www.allen-cognitive-network.org/



Resources

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