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Performance Based Cognitive Assessment After Stroke

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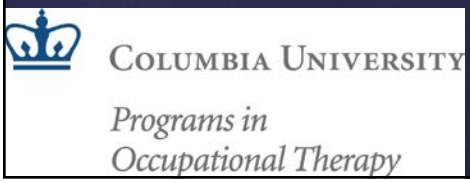


Learning Objectives

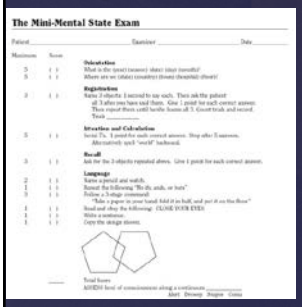
- By the end of this course, participants will be able to identify a comprehensive model of performance based cognitive assessment.
- By the end of this course, participants will be able to describe the differences between standard cognitive testing and performance based cognitive testing.
- By the end of this course, participants will be able to recognize the properties of at least three performance based assessments.

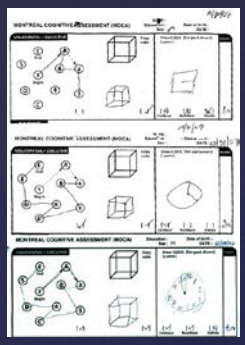
Outline

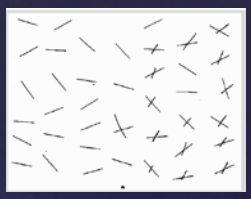
- Approaches to cognitive & perceptual assessment
- Assessing and documenting the impact of cognitive & perceptual impairment on everyday living: A 2 step process
- Review clusters of neurobehavioral impairments observed during everyday function
- Review of potential standardized assessments for adoption
- Questions & comments…..

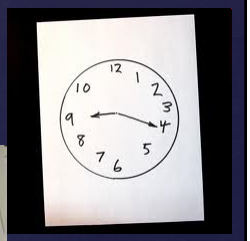
Two schools of thought regarding evaluating cognitive and perceptual impairments.

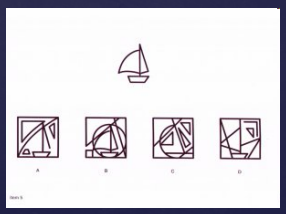
Documenting Cognitive/Perceptual Impairment(s)

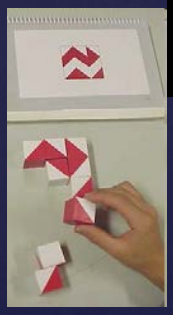




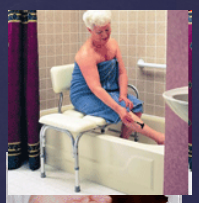








Documenting the *impact* of cognitive and perceptual impairments on daily life. Independence and safety!



Documenting the *impact* of cognitive and perceptual impairments on daily life… 2 steps.

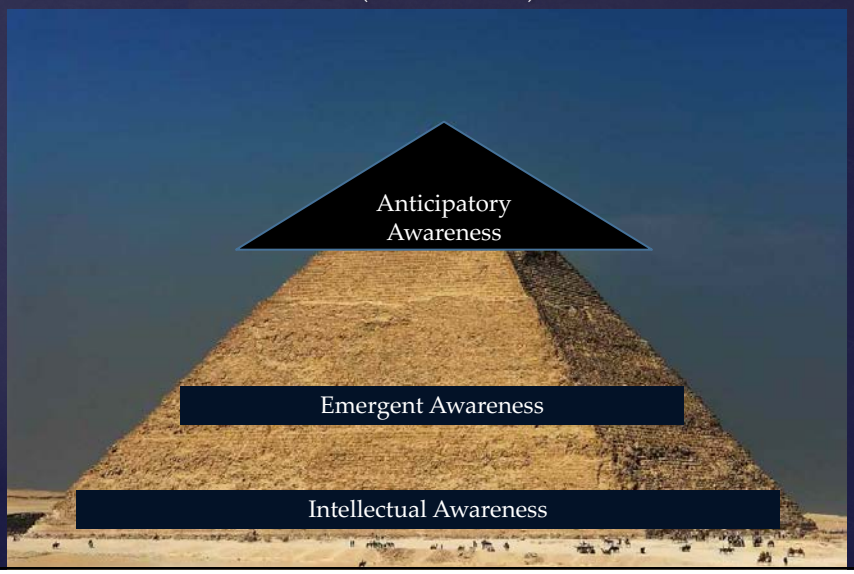
STEP 1

Level of Self-Awareness

STEP 2

Performance Based Testing

Ascertaining Level of Self-Awareness (Crosson et al.)

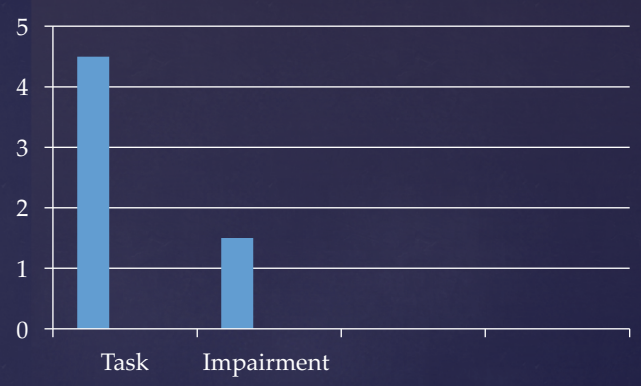


Awareness Evaluation

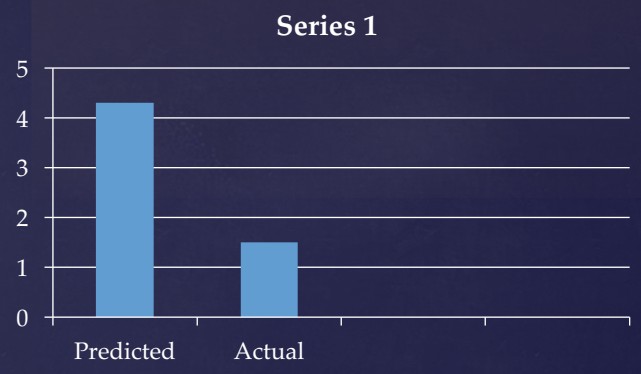
- Questionnaires (self or clinician rated)
- Interviews
- Rating scales
- Functional observations
- Comparisons of self-ratings and ratings made by others such as significant others, caretakers, or rehabilitation staff
- Comparisons of self-ratings and ratings based on objective measures of function or cognitive constructs

Awareness Assessments

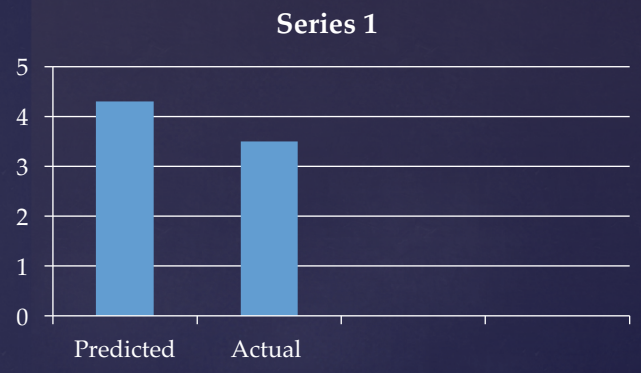
- *Self-Awareness of Deficits Interview* (Fleming & Strong)
- *Self-Regulation Skills Interview* (Ownsworth, et al.)
- *The Patient Competency Rating Scale* (Prigatano)
- *Awareness Questionnaire* (Sherer, et al.)
- *Awareness Interview* (Anderson & Tranel)
- *Assessment of Awareness of Disability* (Kottorp & Tham)



Skewed Self-Awareness

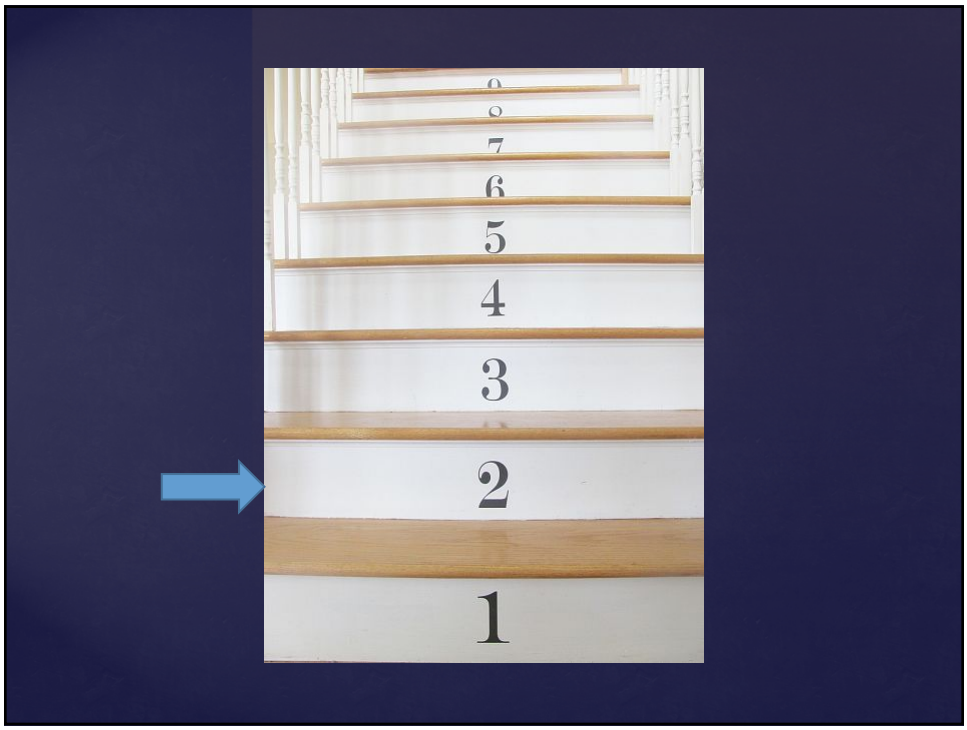


Skewed Ability to Predict Everyday Function



Safety!

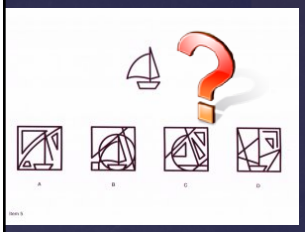

Anticipatory Compensation
Situational Compensation
Poor awareness compensations to improve everyday function.
External Compensation
11:30
Tuesday, May 31
Wake up! Start work early and quit by 5PM!
Snooze
slide to stop alarm
Recognition Compensation

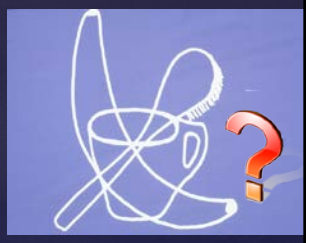

9
8
7
6
5
4
3
2
1

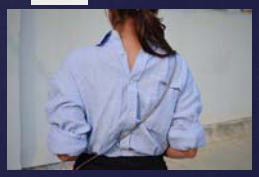
Engagement in any daily activity requires multiple cognitive and perceptual processes to support function….

Impaired cognitive or perceptual processing may limit daily performance and result in an *observable error* during attempts to function..

Evaluate Cognition/Perception in Context







Performance Based Cognitive Assessment

- Tasks performed in context are ecologically valid.
- Require multitasking.
- Require access to a variety of supporting processes.
- More accurate indicator of performance in an unstructured situation. "Fly on the wall" perspective.
- Valid, reliable, accurate.

Mechanics of Performance Based Cognitive Assessment

- Everyday activities that a patient wants to do, needs to do, and/or has to do.
- "Fly on the wall": Let safe errors occur (awareness and problem solving observed).
- Intervene for safety concerns or breakdown in performance prevents continuation.

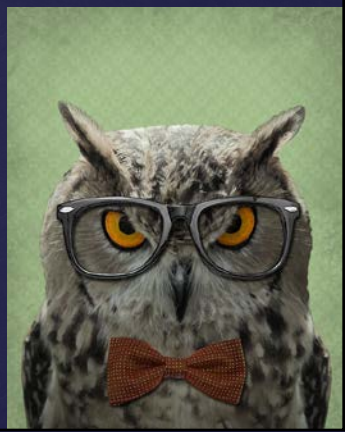
Mechanics of Performance Based Cognitive Assessment

- Error analysis based on operational definitions and descriptive terminology.
- Structured cuing procedures to support performance.
- Identifies the impact of impaired cognitive/perceptual processing that limits everyday function.
- Identifies cognitive and perceptual processes that support everyday function.

Let safe errors occur…

Observe for patterns of neurobehavioral deficits.

Examples……



- Lack of an idea of *what* to do
- Poor initiation
- Performance latency
- Incorrect tool use
- Mouthing objects
- Inability to organize and sequence
- Flat affect
- Poor awareness and judgment (safety!)
- Loss of the foundation of everyday performance
- May co-exist with aphasia

Ideational Apraxia: Cluster of Behaviors

- Does not know *how* to perform
- Clumsy movements
- May impact limbs and/or trunk activities
- Gross and fine mobility tasks impaired
- Static/awkward hand postures
- Poor manipulation
- Difficulty crossing midline
- Easily frustrated
- May co-exist with expressive aphasia

Motor Apraxia: Cluster of Behaviors

- Hypo-attentive to the left side of the world
- Hyper-attentive to the right side of the world
- Can impact any sensory system
- Poor awareness
- Decreased leftward limb and eye movements
- Presents with topographical disorientation
- Occasionally attends to left (attentional bias)
- Difficulty crossing midline towards left
- May present related to near space, far space, or both
- May or may not co-exist with a field cut
- Safety concerns during mobility

Unilateral Spatial Neglect: Cluster of Behaviors

- Hypo-attentive to the left side of the body
- Hyper-attentive to the right side of the body
- Attentional bias towards the right side of the body
- Higher % of time managing the right side of the body
- Poor awareness
- Errors related to personal space and body management
- Safety

Unilateral Body Neglect: Cluster of Behaviors

- Incorrect end point when reaching or stepping
- Figure-ground impairment
- Difficulty way finding
- Difficulty spatially orienting objects to each other or to self
- "Lost in space"
- Safety concerns
- Perseverative errors
- Easily frustrated
- May co-exist with decreased overall attention

Visual-Spatial Impairment: Cluster of Behaviors

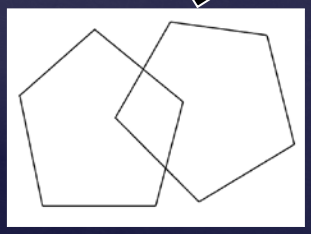
- Difficulty multi-tasking
- Poor decision making
- Poor problem solving
- Difficulty task switching
- Poor abstraction
- Impulsive
- Lack of insight
- Disorganization
- Impaired sequencing
- Decreased time pressure management
- Safety

Executive Dysfunction: Cluster of Behaviors

From Non-Standardized Observations to Standardized Assessment

Ecological Validity is a Critical Factor to Consider....

100,93,86,79…



A-ONE

(Arnadottir, 1990, 1999, 2015)

Analysis of everyday performance

- Dressing
- Grooming and Hygiene
- Transfers and Mobility
- Feeding
- Communication

Cognitive processes that support/limit performance

- Organization
- Sequencing
- Neglect
- Spatial Dysfunction
- Initiation
- Alertness
- Attention
- Memory
- Ideation
- Etc.

Catherine Bergego Scale (CBS)

(Azouvi, 2003)

Analysis of everyday performance

- Dressing
- Grooming/hygiene
- Mobility
- Feeding
- Social interactions
- 10 items in total

Cognitive processes that support/limit performance

- Lateralized Attention Deficit
- Awareness
- Topographical Disorientation

Note: Kessler Foundation Neglect Assessment Process (KF-NAP)

Executive Function Performance Test (EFPT)

(Baum et al., 2008; Katz et al., 2007; Goverover et al., 2005)

Analysis of everyday performance

- Cooking Oatmeal
- Making Phone Call
- Taking Medication
- Paying a Bill

<u>Alternate</u>

- Cooking Pasta
- Sorting Meds
- Order from a catalogue
- Calling MD

Cognitive processes that support/limit performance

- **Initiation**
- **Organization**
- **Sequencing**
- **Safety and Judgment**
- **Completion**

Multiple Errands Test

(Knight, Alderman, & Burgess, 2002; Shallice & Burgess, 1991)

Analysis of everyday performance

- Multi tasking during a shopping/community experience
- Purchase 3 items, pick up an envelope from reception, use telephone, post the envelope
- Writing down four items re: information (ex. gift shop hours)
- Meet assessor and ask the time
- Inform assessor that the test was completed

Cognitive processes that support/limit performance

- Executive functions
- Dysexecutive syndrome
- Initiation
- Planning
- Attentional switching
- Working memory

Assesment of Disabilities in patients with Apraxia

(Van Heugten, 1999, 2000).

Analysis of everyday performance

- Hygiene
- Dressing
- Preparing food
- Patient chosen activity

Cognitive processes that support/limit performance

- Initiation
- Planning
- Ideation
- Control
- Execution
- Awareness of errors

The Kettle Test

(Hartman-Maeir, Armon, & Katz, 2005)

Analysis of everyday performance

- Making two hot beverages with different ingredients using an electric kettle.
- 13 discrete steps in total.

Cognitive processes that support/limit performance

- Screening for a broad range of basic and higher level cognitive processes.
- Executive functions
- Working memory
- Awareness/safety

Weekly Calendar Planning Activity (Toglia, 2015)

Analysis of everyday performance

- Ability to use a list, follow rules, and enter information accurately into a weekly schedule.

Cognitive processes that support/limit performance

- Executive functions: planning, working memory, organization, self-monitoring, self-regulation, etc.

Questions, comments, thank you!