Brief Cognitive Assessment Tool (BCAT®) Training Program

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Certified BCAT Trainer

Proficiency in the cognitive assessment of persons who have a subjective or objective memory or cognitive complaint is critically important to effective diagnosis, treatment, education, and support. The primary goal of this program is to equip you with the knowledge and skills necessary to be proficient in administering, scoring, and interpreting the BCAT.
Program Objectives

- Be able to administer, score, and interpret the BCAT
- Be able to apply BCAT scores to clinical care
- Understand the strengths and limitations of cognitive screening tools
- Understand basic neuro-cognitive structure-function concepts
Course Outline

- The basics of primary neuro-cognitive domains in everyday living

- The utility of cognitive screening tools

- Commonly used cognitive screening tools

- The BCAT and BCAT System of tests
Neuro-Cognitive Domains
The basics of primary neuro-cognitive domains in everyday living

- Structure-function
- Neurons
- Basic brain structures
Basic Brain Structures

Whole Brain
Basic Brain Structures

Executive Processes
Basic Brain Structures

Temporal Lobes

Learning & Memory
Basic Brain Structures

Parietal Lobes

Attentional Awareness of the Environment
Basic Brain Structures

Hippocampus

Early Memory Stage
The Three Central Cognitive Domains
(The Cognitive Task Manager)

- Contextual memory
  The case of story recall

- Executive functions
  The case for executive controls

- Attentional capacity
  The case for attention as “the oil”
Utility of Cognitive Screening Tools
The utility of cognitive screening tools

- We have an aging society with associated problems.

- As people live longer, the incidence/prevalence of dementia rates increase.

- Over 5 million people have Alzheimer’s disease (AD), anticipated to be 13 million by 2050.

- Numbers are vastly greater if you include other dementias and people with Mild Cognitive Impairment (MCI).
When to use screening tools

- U.S. Preventive Services Task Force Statement
- Routine screening versus screening when there is a subjective or objective memory complaint
- Age as risk factor and screening for people over 80
- The special case of MCI and dementia conversion (10-15% annually)
Uses of screening tools

- Aide in diagnosis
- Early recognition enhances efficacy of treatments
- Improve disease management and planning
- Identify functional issues
- Manage expectations of patients, families, providers, staff
- Time and cost effective
- Lowers patient resistance and encourages compliance
What should a good cognitive screening tool be able to do?

- Administered by professionals and techs
- Completed in less than 15 minutes (sometimes five minutes)
- Able to differentiate between MCI and dementia
- Broadly assess memory skills
- Broadly assess executive skills
- Assess attentional skills
- Predict ADLs & IADLs
Commonly Used Screening Tools
Commonly used cognitive screening tools

- Mini-Mental State Examination (MMSE)
- Short Test of Mental Status (STMS)
- Montreal Cognitive Assessment (MoCA)
- Saint Louis University Mental Status Examination (SLUMS)
- Brief Cognitive Assessment Tool (BCAT) & BCAT-SF
MMSE (Folstein, Folstein, & McHugh, 1975)

- The first major screening instrument
- Sensitive for moderate to severe dementia
- Less sensitive for MCI and mild dementia
- Education bias (overestimates for those with little education)
- Weak on memory and executive functions
- Floor effect
STMS (Kokmen et al., 1987)

- Verbal features are more complex than MMSE
- Relatively poor sensitivity to MCI
MoCA (Nasreddine et al., 2005)

- Sensitive to cognitive spectrum
- Designed primarily for frontline providers
- Relatively weak on memory
- No story recall component
- Stronger on executive functions, but no complex reasoning item
SLUMS (Tariq et al., 2006)

- Sensitive to cognitive spectrum
- Designed primarily for frontline providers
- Has a story recall, but no free recall or delayed recall
- Has complex reasoning, but no cognitive set-shifting
**BCAT** (Mansbach, MacDougall, & Rosenzweig 2012)

- Four studies, starting in 2005
- 21 items, 50 maximum points
- 10-15 minutes in administration
- Has a MCI versus dementia “cut” score (37/38)
- Has score ranges for cognitive categories
- Has three cognitive “clusters”
- Predicts ADL & IADL
- Website-based scoring program
BCAT Test

COMMONLY USED SCREENING TOOLS
## BCAT Item Detail

### ORIENTATION

<table>
<thead>
<tr>
<th></th>
<th>Year</th>
<th>Month</th>
<th>Day/Week</th>
<th>State</th>
<th>City</th>
<th>Situation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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### IMMEDIATE VERBAL RECALL

*(Instructions: Score Only 1st Trial)*

- **BANANA**: 1st Trial
- **JUSTICE**: 2nd Trial
- **SARA**: 1st Trial
- **BRIDGE**: 2nd Trial

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### VISUAL RECOGNITION/NAMING

- **Combs**: 1st Trial
- **Phone**: 2nd Trial
- **Keys**: 1st Trial

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## BCAT Item Detail

### ATTENTION

**Letter List:** *(Instructions: Read Letters, Instructing Patient to Tap with Hand at Each Letter C; No Errors=1 Point, Error=0 Points)*

| C | F | B | T | O | L | C | C | Q | A | Z | C | B | R | B | Q | W | D | C | S | B | L | R | B | C | B | Z | X | C | B |

______/1

**Mental Control:** *(Instructions: Count Backward from 20-1)*

*(Instructions: Recite Days of the Week Backward from Sunday)*

______/1

______/1

**Digits:**

**FORWARD**

<table>
<thead>
<tr>
<th>2</th>
<th>5</th>
<th>9</th>
<th>7</th>
<th>4</th>
</tr>
</thead>
</table>

______/2

**BACKWARD**

<table>
<thead>
<tr>
<th>6</th>
<th>2</th>
<th>7</th>
</tr>
</thead>
</table>

______/2
<table>
<thead>
<tr>
<th>ABSTRACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(Instructions: Find the Similarities)</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LANGUAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Repeat:</strong> <em>(Instructions: No Errors=1 Point, Error=0 Points)</em></td>
</tr>
<tr>
<td>“Michael married Marie’s mother.”</td>
</tr>
</tbody>
</table>

| Fluency: *(Instructions: Girl Names/60 Seconds; X ≥ 15 = 2 points, X = 8-14 = 1 point, X ≤ 7 = 0 points)* | ______ / 2 |
**BCAT Item Detail**

### EXECUTIVE

**Cognitive Shifting:** *(Instructions: $X \geq 8 = 2$ points, $6 \leq X < 8 = 1$ point, $X < 6 = 0$ points)*

<table>
<thead>
<tr>
<th>1 A</th>
<th>2 B</th>
<th>3 C</th>
<th>4 D</th>
<th>5 E</th>
<th>6 F</th>
<th>7 G</th>
<th>8 H</th>
<th>9 I</th>
<th>10 J</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

| Score | 2 |

**Arithmetic Reasoning:**

"You have $25 to spend at the grocery store. You buy milk for $3. You buy 2 apples for $1. How much money do you have left?"

| Score | 1 |

**Judgment:**

"Suppose you have a 1 PM appointment with your doctor. It takes 45 minutes to get there. What is the latest you can leave to get there at 1 PM?"

| Score | 1 |
# BCAT Item Detail

### VISUOSPATIAL

**Design/Clock:**

[Diagram of a design and clock]

\[
\frac{1}{2} \quad \text{(Design)}
\]

\[
\frac{1}{2} \quad \text{(Clock)}
\]

### DELAYED VERBAL RECALL

__(Instructions: Score Uncued Only)__

<table>
<thead>
<tr>
<th></th>
<th>BANANA</th>
<th>JUSTICE</th>
<th>SARA</th>
<th>BRIDGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Cue</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With Cue</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## BCAT Item Detail

### Immediate Story Recall

*Instructions: X ≥ 8 = 2 points, X = 4-7 = 1 point, X ≤ 3 = 0 points*

Carol / borrowed / $10 / from her brother / Jack / last week. / She couldn’t pay him back / because she bought / a delicious / ice cream cone / at the circus instead.

---

### Delayed Visual Memory

- □
- □
- □

---

### Delayed Story Recall

*Instructions: X ≥ 8 = 2 points, X = 4-7 = 1 point, X ≤ 3 = 0 points*

Carol / borrowed / $10 / from her brother / Jack / last week. / She couldn’t pay him back / because she bought / a delicious / ice cream cone / at the circus instead.

---

### Story Recognition

<table>
<thead>
<tr>
<th>Question</th>
<th>Option 1</th>
<th>Option 2</th>
<th>Option 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>What was the name of the woman who borrowed money?</td>
<td>Carol</td>
<td>Mary</td>
<td>Sue</td>
</tr>
<tr>
<td>How much money did she borrow?</td>
<td>$15</td>
<td>$10</td>
<td>$16</td>
</tr>
<tr>
<td>What was the name of the woman’s brother?</td>
<td>Robert</td>
<td>Tom</td>
<td>Jack</td>
</tr>
<tr>
<td>What did the woman buy?</td>
<td>Ice Cream</td>
<td>Sandwich</td>
<td>Soda</td>
</tr>
<tr>
<td>Where did the woman go?</td>
<td>Mall</td>
<td>Circus</td>
<td>Grocery</td>
</tr>
</tbody>
</table>
BCAT Scoring Program
BCAT Scoring & Interpreting

- Computer-assisted scoring
- Total score & Factor scores
- Clinical considerations
- Report that can be printed and/or emailed
# BCAT CROSSWALK TO FUNCTIONAL STATUS

<table>
<thead>
<tr>
<th>Cognitive Stage</th>
<th>BCAT Range</th>
<th>Cognitive &amp; Functional Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>46-50</td>
<td>No functional deficit; independent living; may be subjective memory complaints but little to no objective evidence.</td>
</tr>
<tr>
<td>Mild Cognitive Impairment (MCI)</td>
<td>34-46</td>
<td>Generally functionally normal, but early specific functional declines (IADL); subjective and objective memory deficits. Individuals at lower range more likely to have more significant cognitive deficits. Lower scores more suggestive of residential support needs.</td>
</tr>
<tr>
<td>Mild Dementia</td>
<td>26-34</td>
<td>IADL deficits; typically requires residential support services; clear objective evidence of memory and other cognitive declines.</td>
</tr>
<tr>
<td>Moderate to Severe Dementia</td>
<td>0-25</td>
<td><strong>Moderate</strong> (upper end of the range) - Pervasive functional deficits (IADLs), but ADLs generally intact; marked deficits in memory and executive functions; behavioral and psychological symptoms are common; requires significant residential support. <strong>Severe</strong> (lower end of the range) - Needs assistance in ADLs/IADLs; pervasive cognitive deficits; requires complex care.</td>
</tr>
</tbody>
</table>


*Note:* The score ranges reported above are general guidelines based on descriptive statistics from the normative study. They should not be interpreted as absolutes. The cognitive stages, test score ranges, and cognitive/functional descriptions are not always distinct, but can overlap. The cognitive stages are determined by plus/minus one standard deviation (SD) from the mean in each category. Modest adjustments were then made based on the entire neuropsychological batteries administered. The primary purpose of presenting cognitive stages is to use them as a tool for managing function.
<table>
<thead>
<tr>
<th>Cognitive Stage</th>
<th>BCAT Range</th>
<th>MMSE</th>
<th>GDS</th>
<th>Cognitive &amp; Functional Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>46-50</td>
<td>28-30</td>
<td>1-2</td>
<td>No functional deficit; independent living; may be subjective memory complaints but little to no objective evidence.</td>
</tr>
<tr>
<td>Mild Cognitive Impairment (MCI)</td>
<td>34-46</td>
<td>24-27</td>
<td>3</td>
<td>Generally functionally normal, but early specific functional declines (IADL); subjective and objective memory deficits. Individuals at lower range more likely to have more significant cognitive deficits. Lower scores more suggestive of residential support needs.</td>
</tr>
<tr>
<td>Mild Dementia</td>
<td>26-34</td>
<td>19-23</td>
<td>4</td>
<td>IADL deficits; typically requires residential support services; clear objective evidence of memory and other cognitive declines.</td>
</tr>
<tr>
<td>Moderate to Severe Dementia</td>
<td>0-25</td>
<td>0-18</td>
<td>5-6-7</td>
<td>Moderate (upper end of the range) - Pervasive functional deficits (IADLs), but ADLs generally intact; marked deficits in memory and executive functions; behavioral and psychological symptoms are common; requires significant residential support. Severe (lower end of the range) - Needs assistance in ADLs/IADLs; pervasive cognitive deficits; requires complex care.</td>
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It’s all about *function*

- Practical recommendations
- Rehab focus
- Value of cognitive exercises as determined by BCAT scores
- Brain fitness
For more information about the BCAT Test System, visit www.TheBCAT.com.
It’s FREE to Register

✧ Utilize the automated online BCAT test.

✧ Access the most current clinical research, news, and treatments about memory loss.

✧ Take advantage of continuing education courses for healthcare professionals.

✧ Receive weekly emails with links to the Mind & Memory Blog and the latest articles for healthcare professionals.

Go to www.thebcat.com/register.php and register today!
BCAT Training Program

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