Cognitive Rehabilitation 101
Anne-Marie Kimbell, PhD, MSEd.
May 18, 2017

Agenda

What is Cognitive Rehabilitation?

Who Gets Cognitive Rehabilitation?

Where Does Cognitive Rehabilitation Take Place and Who are the Providers?

Cognitive Rehabilitation Strategies
What is Cognitive Rehabilitation?

Cognitive Rehabilitation
Basics of Cognition

Cognition:
“The mental action or process of acquiring knowledge and understanding through thought, experience, and the senses”

Encompasses:
• Knowledge
• Attention
• Memory
• Judgment
• Reasoning
• Comprehension
• Language

Human Cognition is:
• Conscious
• Unconscious
• Concrete
• Abstract
• Intuitive

Cognitive processes use existing knowledge and generate new knowledge
Cognitive Rehabilitation Basics of Cognition

Mechanism of Cognition
- Formation of Connections between Neurons in the Brain
- Sending and Receiving of Signals between Connected Neurons

Any factor that interferes with these processes creates a Barrier to Cognition = “Cognitive Deficit”

Cognitive Rehabilitation: Brain Injury Interdisciplinary Special Interest Group (BI-ISIG)

“...a systematic, functionally oriented service of therapeutic cognitive activities, based on an assessment and understanding of the person’s brain-behavior deficits. Services are directed to achieve functional changes by (1) reinforcing, strengthening, or reestablishing previously learned patterns of behavior, or (2) establishing new patterns of cognitive activity or compensatory mechanisms for impaired neurological systems.”

(Harley, et al. 1992)
Cognitive Rehabilitation
(according to one large insurance company)

An adjunctive treatment of cognitive deficits (e.g., attention, language, memory, reasoning, executive functions, problem solving, and visual processing) medically necessary when performed by a licensed health care professional acting within their scope of practice and all of the following are met:

1. Neuropsychological testing has been performed and neuropsychological results will be used in treatment-planning and directing rehabilitation strategies, and
2. The cognitive deficits have been acquired as a result of neurologic impairment due to moderate to severe traumatic brain injury, brain surgery, stroke, or encephalopathy, and
3. The member has been seen and evaluated by a neuropsychiatrist or neuropsychologist, and
4. The member is able to actively participate in a cognitive rehabilitation program (e.g., is not comatose or in a vegetative state); and
5. The member is expected to make significant cognitive improvement.

History of Cognitive Rehabilitation

**WWI** – advocates for solders with head injuries recommended both remediation and direct vocational training. Schools for German soldiers utilized psychological testing and measurement of concrete skills.

Functional skill building

**WWII** – increased interest in cognitive rehabilitation; including skill specific training and ability training in some instances. Focused on treatment of soldiers with brain injuries.

Alexander Luria – Theory of Functional Systems
- Strengthen skills and teach compensatory skills

Today – TBI patients and increased research
Theoretical Considerations

Physical Rehabilitation models

Deficit Driven theories

Cognitive Psychology

Research conundrums

Durable Causes
- Brain Injury (stroke, TBI)*
- Neurological Disorders*
- Congenital Defects
- Psychiatric Disorders

Temporary Causes:
- Prescription Drugs
- Recreational Drugs
- Alcohol
- Nutritional Deficiency
- Dehydration

Cognitive Deficit:
“Any factor that acts as a barrier to the cognition process”
### Cognitive Rehabilitation

**Cognitive Deficits from Brain Trauma**

<table>
<thead>
<tr>
<th>Attention</th>
<th>Memory</th>
<th>Executive Function</th>
<th>VisuoSpatial</th>
<th>Visual Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alertness</td>
<td>Working Memory</td>
<td>Reasoning</td>
<td>Size, Shape</td>
<td>Hemianopia</td>
</tr>
<tr>
<td>Sustained Attention</td>
<td>Phonological Loop</td>
<td>Planning</td>
<td>Position</td>
<td>Quadrantanopia</td>
</tr>
<tr>
<td>Selective Attention</td>
<td>Viso-Spat Sketchpad</td>
<td>Judgment</td>
<td>Orientation</td>
<td>Scotoma</td>
</tr>
<tr>
<td>Divided Attention</td>
<td>Long-term</td>
<td>Inhibition</td>
<td>Angles, Volumes</td>
<td>Midline Shift</td>
</tr>
<tr>
<td>Change of Focus</td>
<td>Declarative</td>
<td>Motivation</td>
<td>Depth Perception</td>
<td>Hemianopic Alexia</td>
</tr>
<tr>
<td>Hemi-Neglect</td>
<td>(“Knowing That”)</td>
<td>Mood</td>
<td>2D / 3D Rotation</td>
<td></td>
</tr>
<tr>
<td>~80%</td>
<td>LT non-Declarative</td>
<td>Empathy</td>
<td>Mental Imagery</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(“Knowing How”)</td>
<td></td>
<td>Background Separation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>~65%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>~75%</td>
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</tbody>
</table>

### Functional Areas of the Brain

- **Frontal Lobe**
  - Thinking, planning, problem solving, emotions, behavioral control, decision making

- **Temporal Lobe**
  - Memory, understanding language, facial recognition, hearing, vision, speech, emotion

- **Parietal Lobe**
  - Perception, object identification, spelling, knowledge of numbers, visuospatial processing

- **Occipital Lobe**
  - Vision, visual processing, color identification

- **Cerebellum**
  - Gross and fine motor skills, balance, coordination, balance

- **Brain Stem**
  - Regulate body temperature, heart rate, respiration, breathing
Cognitive Rehabilitation

Functional Areas of the Brain

Ischemic Stroke
- Blood Clot or Other Blockage
- Can be “Focused” or “Global” (Depending on Location)
- ~ 88% of Strokes

Hemorrhagic Stroke
- Ruptured Artery
- Usually “Global”
- ~ 12% of Strokes

Stroke:
“The sudden damage or death of brain cells due to lack of oxygen, caused by blockage of blood flow or rupture of an artery to the brain”

Leading Cause of Disability in the US; Fourth-Leading Cause of Death
Cognitive Rehabilitation
Causes of Cognitive Deficits

Duration Determines Severity
- > 2 min. => Cell Death (Irreversible)
- < 2 min. => Cell Damage (Reversible?)

Pressure on Neighboring Areas => Damage (Reversible?)

Long-term Effect of Stroke - Follow-up after 90 Days

57.2% died
14.7% heavy impairments
18.6% moderate impairments
9.4% mild impairments

Cognitive Rehabilitation
Causes of Cognitive Deficits

Damage to the Brain from:
- Bruising
- Hemorrhage
- Stretching

Usually “Global”
“Contre-Coup” Injury
Opposite the Area of Impact

Traumatic Brain Injury:
“The sudden damage or death of brain cells due to a violent blow or jolt to the head OR by an object penetrating the skull”

Leading Cause of Death in Adults < 45 yrs, and in Children 1 – 15 yrs
Causes of Cognitive Deficits

- Traumatic Brain Injury (TBI) Follow-up
- Dementia - 5,000,000+ Cases
- Multiple Sclerosis - ~400,000 Cases
- Dementia - 5,000,000+ Cases
- Most Common Cause of Dementia = Alzheimer's

Slow Decline in Cognitive Function

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Cognitive Rehabilitation
Restoring Cognitive Function

Neuroplasticity:
“Changes in Neural Pathways and Synapses due to changes in behavior, environment, thinking or emotions.

Cognitive Rehabilitation
Basics of Cognitive Rehabilitation

Cognitive Rehabilitation
“A therapy program to help cognitively impaired individuals restore normal functioning, OR to compensate for cognitive deficits”

Attention
Memory
Executive Function
VisuoSpatial Processing
Visual Field
Cognitive Rehabilitation
Restoring Cognitive Function

**Restitution**
Re-establishing / Strengthening Damaged Neural Pathways

**Reorganization**
Developing / Strengthening NEW Neural Pathways

**Compensation**
New Strategies / External Aids

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**Attention**

**Intensity**
Providing attention

- activation of attention (alertness)
- selective or focused attention
- sustained attention & vigilance
- visual/spatial attention, change of the attention focus
- divided attention

**Selectivity**
Filtering processes
Attention

- Alertness
- Selective Attention
- 2D / 3D Spatial Processing
- Change of Focus
- Working Memory
- Sustained Attention
- Visual Scanning

Memory

- Necessary for Learning
- Necessary for **ALL** ADL’s
- Affects other cognitive functions
- Affects Cognitive Rehabilitation
- 3rd Most Common Deficit after a Stroke / TBI (~ 65% of Patients)

Memory:

“The ability to encode, store, retain and subsequently recall information and past experiences in the brain”
Memory

- Problem Solving
- Reasoning
- Calculating
- Verbal Comprehension

Executive Function:

- Necessary for “Purposeful” Behavior
- Necessary for ALL ADL’s
- Directs All other Cognitive Functions
- Affects Cognitive Rehabilitation
- 2nd Most Common Deficit after a Stroke / TBI (~ 75% of Patients)

Executive Function:

“The coordination of multiple cognitive functions to produce a coherent, goal-directed result”
Executive Function

Planning & Follow Thru

Cognitive Flexibility

Risky Behavior

Emotional Outbursts

Executive Function
VisuoSpatial Processing

- Predominant Method for Processing Information
- Subconsciously Driven (difficult to Explain, Teach or Initiate)
- Affects Cognitive Rehabilitation
- Affects ALL Areas of ADL's
- Common Deficit after Stroke or TBI: after LH Trauma 30 - 50% after RH Trauma 50 - 70%

VisuoSpatial Processing: “The analysis of complex visual stimuli which allow us to perceive “whole” objects and the spatial relationships among them.”
VisuoSpatial Processing

“Visuo-Constructive Skills”

Assembling 2-Dimensional Objects

Assembling 3-Dimensional Objects

Copying a Drawing

Visual Field

- Predominant Pathway for Receiving Information
- Common Deficit Immediately after Stroke (45% - 65% of Ischemic Patients)
- Less Common as Long-term Deficit after Stroke (8% - 25% of Ischemic Patients)
- Relatively Uncommon Deficit after TBI (5% - 10% of Patients)… however Vision Problems very Common after TBI
- Affects Cognitive Rehab, ALL Areas of ADL’s

Visual Field:

“The entire expanse of space visible at a given instant without moving the eyes”
Visual Field Deficits

*Patients Often Unaware of Visual Field Deficits*

Patients often unaware of visual field deficits. They may notice consequences (e.g., bumping into things) but often blame problems on other causes (e.g., poor lighting). They recognize visual field loss but think it is a vision problem.


Visual Field Deficits
HemiSpatial Neglect: “The inattention to, or lack of awareness of one side of space”

- Attention Deficit (NOT a Visual Field Deficit)
- Common Immediately after Stroke (43% of Patients w/ Right Brain Lesion) (20% of Patients w/ Left Brain Lesion)
- Less Common at 3 months (17% after Right Brain Lesion)* (5% after Left Brain Lesion)
- Usually Contralateral to Brain Lesion
- Often Affects Multiple Senses (Visual, Auditory, Tactile)
- Often Confused with Hemianopia
- Often Co-Occurs with Hemianopia
- Often Misdiagnosed as Hemianopia
- Impact on ADL’s Similar to Hemianopia

* Ringman et. al. - Frequency, risk factors, anatomy, and course of unilateral neglect in an acute stroke cohort - J. Neurology, 2004

<table>
<thead>
<tr>
<th></th>
<th>Neglect</th>
<th>Hemianopia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deficit</td>
<td>Attention</td>
<td>Visual Field</td>
</tr>
<tr>
<td>Modes Affected</td>
<td>Visual, Auditory, Tactile</td>
<td>Visual</td>
</tr>
<tr>
<td>Damaged Area</td>
<td>Temporal, Parietal</td>
<td>Occipital</td>
</tr>
<tr>
<td>Awareness of Hemi-Space</td>
<td>None</td>
<td>Normal</td>
</tr>
<tr>
<td>Exploration of Hemi-Space</td>
<td>None</td>
<td>Normal</td>
</tr>
<tr>
<td>Compensation</td>
<td>Difficult</td>
<td>Easy</td>
</tr>
<tr>
<td>ADL Impact</td>
<td>High</td>
<td>Moderate</td>
</tr>
<tr>
<td>Safety Impact</td>
<td>High</td>
<td>Moderate</td>
</tr>
<tr>
<td>Awareness of Deficit</td>
<td>None</td>
<td>Moderate</td>
</tr>
<tr>
<td>Psychosocial Impact</td>
<td>High</td>
<td>Mild</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>Line Bisect, Letter Cancel</td>
<td>Confrontation, Perimetry</td>
</tr>
<tr>
<td>Extinction</td>
<td>Common</td>
<td>None</td>
</tr>
</tbody>
</table>
Who Gets Cognitive Rehabilitation?

Common Patient Symptoms

• Decrease in intellectual functioning
• Slowed processing speed
• Memory loss/Forgetfulness
• Difficulty with language (e.g., word retrieval, comprehension)
• Speech
• Emotional changes (e.g., frustration, depression, impulsivity)
• Changes in insight
• Attention and Concentration changes (e.g., Easily distracted)
• Difficulty with planning and/or multitasking
Characteristics of Brain Injury: Physical

- Paralysis (quadriplegia) or weakness (quadriparesis) in both the arms and legs
- Paralysis (hemiplegia) or weakness (hemiparesis) on one side of the body
- Impaired fine motor skills, sometimes with tremors
- Poor overall body coordination (ataxia)
- Double vision (diplopia)
- Visual field cuts
- Motor speech disorders like dysarthria and difficulties in oral speech planning (oral apraxia)
- Inability to carry out learned movements (apraxia)

Characteristics of Brain Injury: Cognitive

- Impaired attention and concentration
- Memory impairment for learning and recall of new information
- Impaired problem-solving and decision-making skills
- Slowed information processing speed
- Impulsive thinking without regard for consequences
- Poor organization, planning, and sequencing abilities
- Impaired concept formation and abstract thinking
- Inflexible thinking and mental rigidity
- Poor judgment, especially in social situations
Characteristics of Brain Injury: Behavioral

- Inability to engage in purposeful activity
- Disinhibition
- Inability to respond appropriately to environmental cues
- Socially inappropriate behavior
- Social skills deficits
- Impulsivity
- Poor initiation and apathy
- Lack of insight into behavior and its consequences
- Inability to profit from experience
- Denial of deficits
- Poor self-esteem

(Neuroskills.com)
Where does Cognitive Rehabilitation Take Place?

Acute Care Hospital
Acute Inpatient Rehabilitation Hospitals
Skilled Nursing Facilities
Outpatient Rehabilitation Services
Home Health Services

Key Components of Cognitive Rehabilitation

• Part of a multi-disciplinary approach
• Standard battery of assessments
• Patient education about cognitive strengths and weaknesses
• Clear goal setting and treatment planning
• Intervention involving the practice of functional tasks, and the use of internal and external compensatory strategies
• Continued evaluation
Multidisciplinary, Collaborative Care

Collaboration between disciplines is essential, in order to:

- Meet the needs of a diverse population with individual needs
- Meet the complexity of any patient’s needs in a comprehensive way
- Promote continuity of care
- Match a diverse set of interventions to functional needs
- Communicate about goals and treatment planning
- Reduce costs
- Improve patient outcomes

Who are the Providers?

Occupational therapist
Physical therapist
Speech/language pathologist
Neuropsychologist, or other psychologist
Neuropsychiatrist, psychiatrist, other physician
Other allied health providers
Occupational Therapist

• Helps patients regain functioning within home, work or school, or community settings

• Determines impact of impairments on everyday activities, incorporating knowledge of neurology and neuro-anatomy

• Measures functional loss and design an intervention plan, from acute care to community reintegration

Physical Therapist

• Evaluate and diagnose movement dysfunction and use interventions to treat patient/clients

• May provide therapeutic exercise, functional training, manual therapy techniques, assistive and adaptive devices and equipment, and physical agents and electrotherapeutic modalities

• Often consults and practices with a variety of other professionals
Speech-Language Pathologist

- Assesses, diagnoses, and treats communication disorders associated with cognitive, language and speech impairments.
- Understands communication behavior and the underlying neurology, cognitive, sensory, and motor processes that are required to communicate.
- Addresses the impact of cognitive and communication disorders in activities and participation in society.

Neuropsychologist, or other psychologist

- Assesses, diagnoses, treats, and prevents mental disorders.
- Uses a variety of approaches.
- Designs and implements behavior modification programs.
MD, (including Neurologist and Physiatrist)

Neurologist
- Examines patients with neurologic disorders or impaired function of the brain, spinal cord, peripheral nerves, muscles, autonomic nervous system, and related blood vessels
- Generally sees patients referred by other physicians
- Investigates, diagnoses, and treats neurological disorders

Physiatrist
- Treats impairments and disabilities resulting from variety of conditions
- Designs and coordinates a treatment plan with goal of maximizing functional capacity and restoring quality of life as much as possible.

Other providers

Nurses
Social Workers
Recreational Therapists
Audiologists
Kinesiotherapist
Neuro-Ophthalmologist
Rehabilitation Counselor
The Role of Families

The family/support system of the patient plays an important role in intervention and should be actively involved throughout treatment.
Goals of Cognitive Rehabilitation

- Enhance capacity to process and interpret information
- Improve ability to function in all aspects of family and community life

Components of Cognitive Rehabilitation

- **Retraining** or **restoring** cognitive processes that have been impaired by injury/illness.
- Functional improvements are made over many months, or even years.
- AKA process training
- Development of new **compensatory** skills to enhance daily performance.
- Retained skills and functional reorganization are used to learn new strategies.
Cognitive Rehabilitation Therapy Strategies

Restitution
Re-establishing / Strengthening Damaged Neural Pathways

Compensation
Using New Strategies / External Aids

Reorganization
Developing / Strengthening New Neural Pathways

Cognitive Rehabilitation Intervention Characteristics

Structured
Systematic
Goal-Directed
Individualized
Involves learning, practice, social contact, and relevant context.

Repetitive
Figure 1. A provisional model of cognitive rehabilitation.

Hierarchical Cognitive Model

- Community Integration
- Metacognition (Awareness & Regulation)
- Executive
- Language, Memory, Visual Processing, Information Processing
- Attention & Orientation
- Arousal
- Psychosocial Functions
Cognitive Skill Areas

- Executive Functions
- Memory
- Information Processing
- Visual Processing
- Attention

Cognitive Rehab Strategies

- Process Training
- Strategy Training
- Functional Activities Training
- Computer-Assisted Strategies
- Compensatory Strategies
- Stimulation Therapy
- Attention-Concentration Training
- Domain-Specific Training
- Indirect Training
Computer-assisted Cognitive Rehabilitation

Computer- Assisted Cognitive Rehab:
• Mild Deficits
• Moderate Deficits
• Severe Deficits

Memory Therapy

Memory Strategies
• Mnemonic Devices
• PQRST
• Vanishing Cues
• Errorless Learning
• Spaced Retrieval
Visual Field Therapy

Visual Restoration Training

Visual Field Therapy

Saccadic Eye Movement

Adaptor & Test Locations

Saccadic Training
Examples

Drill and Practice
Recall Strategies:
- Mnemonics
- Cueing
- Chunking
- Spaced Retrieval
- Method of Loci

Specific Interventions:
- Face-name Recall
- Number Recall
- Story Recall
- List/Object Recall
- Procedural Memory
- Fluency Training
- Semantic Impairments

Evidence for Cognitive Rehabilitation

REVIEW ARTICLE (META-ANALYSIS)
Evidence-Based Cognitive Rehabilitation: Updated Review of the Literature From 2003 Through 2008

Keith D. Cicerone, PhD, Donna M. Longstreth, PhD, Carolin Braden, MA, CCC-SLP, James F. Malles, PhD, Kathleen Kaliner, PhD, Michael From, PhD, Thomas Falletti, PhD, Linda Lantich, PhD, J. Pavel M. Marjay, PhD, Thomas Bergman, PhD, Joanne Amsley, PhD, Joshua Crato, PhD

Abstract: Cognitive rehabilitation is a complex process that includes a range of interventions designed to improve cognitive function in individuals with traumatic brain injury (TBI) and stroke. This review aimed to summarize the evidence for cognitive rehabilitation interventions for TBI and stroke from 2003 to 2008. The authors conducted a systematic review of the literature from 2003 to 2008 to identify relevant studies.

Objectives: To update clinical recommendations for cognitive rehabilitation of people with traumatic brain injury (TBI) and stroke, based on a systematic review of the literature from 2003 through 2008.

Data Sources: PubMed and Embase were searched for terms related to cognitive rehabilitation for TBI and stroke. The search was limited to studies published between 2003 and 2008.

Conclusions: There is substantial evidence to support interventions for attention, memory, social communication skills, executive functions, and for comprehensive rehabilitation. The evidence for interventions is strong, with studies showing improvements in cognitive function in individuals with TBI and stroke. The authors found that interventions focused on cognitive training and rehabilitation were effective in improving cognitive function. Key Words: Brain injuries; Practice guidelines as topic; Rehabilitation; Stroke

Evidence-Based Cognitive Rehabilitation:
Updated Review of the Literature From 2003 Through 2008

### Evidence-Based Recommendations for Cognitive Rehabilitation: Practice Standards

**Table 1: Evidence-Based Recommendations for Cognitive Rehabilitation: Practice Standards**

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visuospatial rehabilitation</td>
<td>Recommended for persons with visuospatial deficits associated with visual neglect after right hemisphere stroke</td>
</tr>
<tr>
<td>Cognitive-linguistic therapies</td>
<td>Recommended during acute and postacute rehabilitation for persons with language deficits secondary to left hemisphere stroke</td>
</tr>
<tr>
<td>Specific interventions for functional communication deficits, including pragmatic communication skills</td>
<td>Recommended for persons with TBI</td>
</tr>
<tr>
<td>Specific postural or strategy training for spatial rehabilitation</td>
<td>Recommended for persons with apraxia after left hemisphere stroke during acute rehabilitation</td>
</tr>
<tr>
<td>Memory strategy training</td>
<td>Recommended for persons with mild memory impairments from TBI, including the use of internalized strategies (e.g., visual imagery) and external memory compensations (e.g., use of objects)</td>
</tr>
<tr>
<td>Strategy training for attention deficits</td>
<td>Recommended during postacute rehabilitation for persons with TBI; insufficient evidence exists to distinguish the effects of specific attention training during acute recovery and rehabilitation from spontaneous recovery or from more general cognitive interventions.</td>
</tr>
</tbody>
</table>

*Arch Phys Med Rehabil* Vol 86, August 2005

### Evidence-Based Recommendations for Cognitive Rehabilitation: Practice Guidelines

**Table 2: Evidence-Based Recommendations for Cognitive Rehabilitation: Practice Guidelines**

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scanning training</td>
<td>Recommended as an important, even critical element for persons with severe visuospatial impairment that includes visual neglect after right hemisphere stroke</td>
</tr>
<tr>
<td>Cognitive interventions for specific language impairments such as reading comprehension and language formulation</td>
<td>Recommended after left hemisphere stroke or TBI</td>
</tr>
<tr>
<td>Treatment intensity</td>
<td>Should be considered as a key factor in the rehabilitation of language skills after left hemisphere stroke</td>
</tr>
<tr>
<td>Use of external compensations with direct application to functional activities</td>
<td>Recommended for persons with severe memory impairment after TBI or stroke</td>
</tr>
<tr>
<td>Training in formal problem-solving strategies and their application to everyday situations and functional activities</td>
<td>Recommended during postacute rehabilitation for persons with stroke or TBI</td>
</tr>
<tr>
<td>Comprehensive/holistic neuropsychologic rehabilitation</td>
<td>Recommended during postacute rehabilitation to reduce cognitive and functional disability for persons with moderate to severe TBI or stroke</td>
</tr>
<tr>
<td>Isolated microcomputer exercises to treat unilateral neglect</td>
<td><strong>NOT</strong> recommended; does not appear effective</td>
</tr>
</tbody>
</table>
Cognitive Rehab Should Be…

Context specific – intervention and supports within the routines of the person’s everyday life.
Collaborative – between providers and patient’s natural supports in everyday life
Collaborative – with patient who has the injury, offering choices and decision-making opportunities
Emphasize strategy training to compensate for residual deficits
Reduce disability and restore social role functioning
Establish relevant, functional outcomes
Should not focus on eliminating the underlying cognitive impairment

Directed toward improving everyday functioning
Include attempts to promote generalization or directly apply compensatory strategies in functional contexts.
Concentrate on long-term maintenance of improved functional outcomes
Include continued support and intervention for patient and family