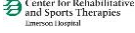



Slide 1



 
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**PROVIDING COGNITIVE RETRAINING
WITH CONCUSSION**

MARY ANN WILLIAMS-BUTLER, MA, CCC-SLP, CBIS

35TH ANNUAL BRAIN INJURY & STROKE 2018 CONFERENCE
BRAIN INJURY ASSOCIATION OF NEW HAMPSHIRE
CONCORD, NEW HAMPSHIRE
MAY 16, 2018

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
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Slide 3

 
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Disclosure Statement

Full-time employee of Emerson Hospital
No other financial associations

Slide 4

Objectives

1. Describe the three critical elements that make up the framework for cognitive retraining with concussion
2. Formulate at least 3 strategies to address symptom management with concussion
3. Discuss appropriate examples of therapeutic tasks to aid in building cognitive endurance in the areas of auditory processing, visual processing, attention/memory, and executive function
4. Formulate at least three possible accommodations when transitioning back to work or academic settings
5. Identify a minimum of 3 mental health co-morbidities that can negatively impact recovery trajectory

Slide 5

What brings us to this discussion?

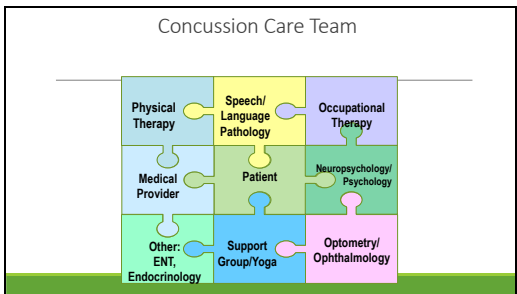
PCS is a complex diagnosis to treat and manage

- Multiple systems are involved
- One approach does not fit all
- Knowledge base is greater in the management of acute concussion

This is an emerging area of practice

An **interdisciplinary** team is essential (Wilkins et al., 2014)

Slide 6



Slide 7

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What is a Concussion?

A concussion is a type of **traumatic brain injury (TBI)** caused by a bump, blow, or jolt to the head that can change the way your brain normally works

The head does not have to be directly hit for the brain to be injured

- Whiplash
- Blast injuries

May or may not have LOC

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Visualizing a Concussion

The brain is the consistency of custard or Jell-O

A concussion can occur due to linear acceleration where the brain slams into the rough interior of the skull

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Visualizing a Concussion

A concussion can be caused by rotational forces, which twist the brain

Most concussions are caused by a combination of both forces

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Concussion Definition

Functional Injury
Ionic shifts
Metabolic changes
Impaired neurotransmission

Microstructural Injury
Physical changes not readily evident on CT scanning
Detectable through advanced imaging (ie, Diffusion Tensor Imaging DTI) for delineating signs of axonal injury

Slide 11

Cognitive Rehabilitation

May help patients complaining of:

- Cognitive fatigue
- Fluctuating attention/memory
- Slow processing
- Mild word-retrieval skills
- Noise sensitivity
- Diminished reading comprehension
- Difficulty organizing/prioritizing/planning
- Difficulty problem solving

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Slide 12

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Emory Hospital **Three Part Approach
to Cognitive Retraining** Robert C. Cantu
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Simultaneously		
Education	Symptom Management	Cognitive Endurance

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Cognitive Evaluation

Verbal Comprehension	Working Memory
Word Retrieval	Short-Term Memory
Cognitive Fluency	New Learning Capacity
Auditory Comprehension	Executive Function
Processing Speed	

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Cognitive Evaluation

MEDICAL RECORD REVIEW

INITIAL INTAKE WITH PATIENT & FAMILY

• Current injury	• Comorbidities
• LOC	• Living situation
• Medical intervention	• Leisure activities
• Current symptoms	• Educational/Vocational status
• Previous brain injuries	• Goals/expectations for therapy

Slide 15

Challenges

Differential Diagnosis

- Concussion vs. PCS vs. PTSD vs. Anxiety vs. TBI vs. Depression vs. Other neurological diagnoses vs. Hypopituitarism vs. Secondary Gains
- No objective data for confirming diagnosis
- Lack of labs / imaging



Co-Morbidities

- ADHD
- Learning Disability
- Migraines
- Depression
- Anxiety

Slide 16

Assessment Tools



POTENTIAL DX BATTERIES	SCREENS
<ul style="list-style-type: none">•Woodcock-Johnson Test of Cognitive Abilities IV•Woodcock-Johnson Test of Oral Language IV•Functional Assessment of Verbal Reasoning and Executive Strategies (FAVRES) Adult/Student versions•Test of Memory Malingering (TOMM)•Test of Memory and Language (TOMAL)•Test of Everyday Attention (TEA)	<ul style="list-style-type: none">Cognitive Linguistic Quick Test (CLQT)Immediate Post-Concussion Assessment and Cognitive Testing (IMPACT)Montreal Cognitive Assessment (MOCA)Standardized Touchscreen Assessment of Cognition (STAC) <p>Language Dx Batteries</p> <ul style="list-style-type: none">• Boston Diagnostic Aphasia Examination (BDAE)• Boston Naming Test (BNT)

Slide 17

Three Part Approach to Cognitive Retraining

Simultaneously		
Education	Symptom Management	Cognitive Endurance



Slide 18

Education

Neurophysiological Education

Explain what is happening neurophysiologically and how it relates to presenting symptoms

Emphasize not working with a healthy brain so should not expect it to respond as such until healed





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Education

Symptom Categories

Somatic	Cognitive	Affect	Sleep
			

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Somatic

Headaches (85%)	Double or Blurred Vision
Dizziness (70-80%)	Sensitivity to Light
Neck Pain	Sensitivity to Sound
Balance Disturbance	Tinnitus
Nausea/Vomiting	

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Cognitive Symptoms

Confusion	Executive Dysfunction
Difficulty with Memory	Limited Cognitive Endurance
Difficulty with Attention	Slowed Processing Speed
Word-Retrieval Deficit	Slowed Critical Thinking

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Affect

Irritability	Emotional Lability
Restlessness	Reduced Tolerance for Stress
Anxiety	Aggression
Depression	Mood Swings

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Sleep Disturbance

Excessive Fatigue

Insomnia

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Education

PROGRESS IS NOT LINEAR



EXPECT MINOR DIPS THROUGHOUT RECOVERY



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Education

Attention Types

Divided
Alternating
Selective
Sustained
Focused

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Education

Family Involvement

- Educate family as to what they are observing
- Validate symptoms
- Teach family ways to be supportive in the home, community, work/academic settings
- Advocate

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Three Part Approach to Cognitive Retraining

Simultaneously

Education Symptom Management Cognitive Endurance

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Symptom Management

Stay within symptom threshold

No benefit to pushing through symptoms – pushes finish line out



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Symptom Management

Goal = Limit Over Stimulation

- Manipulate the Environment to Own Advantage
- Self Advocacy
- Time Management

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Symptom Management

Build Survival Kit:



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Symptom Management

Time Management

Establish a daily schedule and awake at the same time
Sit with calendar every morning to review appts/"To Do" list
Before starting an activity, set an external timer
When timer goes off, check in with your body
Build in breaks

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Three Part Approach to Cognitive Retraining

Simultaneously		
Education	Symptom Management	Cognitive Endurance

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Cognitive Endurance

Systematic and gradual stimulation on hierarchy

Processing Speed	Executive Function
Auditory	Word – Retrieval
Visual	Physical Activity
Attention/Memory	Social Activity

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Cognitive Endurance

Auditory & Visual

Pace

- slow
- medium
- fast

A slide titled 'Cognitive Endurance' with a sub-header 'Auditory & Visual'. A vertical green bar labeled 'Pace' is connected to three horizontal green boxes containing the words 'slow', 'medium', and 'fast'.

Slide 35

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Cognitive Endurance

Information

- simple
- lengthy
- complex

A slide titled 'Cognitive Endurance' with a sub-header 'Information'. A vertical green bar labeled 'Information' is connected to three horizontal green boxes containing the words 'simple', 'lengthy', and 'complex'.

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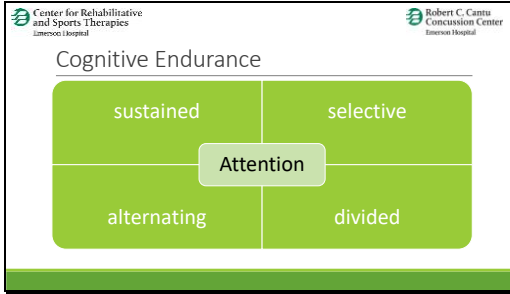
Cognitive Endurance

Setting

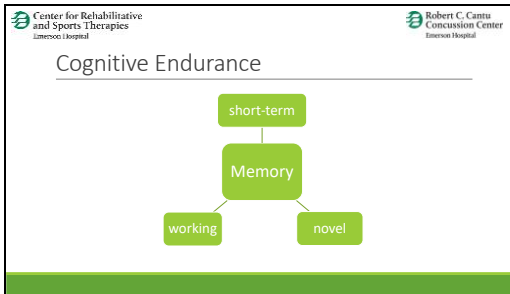
- quiet
- environmental
- news/cafeteria

A slide titled 'Cognitive Endurance' with a sub-header 'Setting'. A vertical green bar labeled 'Setting' is connected to three horizontal green boxes containing the words 'quiet', 'environmental', and 'news/cafeteria'.

Slide 37



Slide 38



Slide 39

- ### Cognitive Endurance
- Executive Function**
- Preplan/Organize/Prioritize
 - Manipulate multiple bits of information at one time
 - Self-regulation
 - Complex critical thinking/Mental flexibility
 - Metacognitive skills
 - "It's all in the approach"

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Cognitive Endurance

Word-Retrieval

Compensatory strategies to improve fluency

- Chunking
- Categorizing
- Visualization
- Pre-planning

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Cognitive Endurance

Activity has to be graduated Activity involvement not 'all or none'

Social Activity	Physical Activity
Short home visit 1-1	MD/PT directives
└─ Brief coffee shop visit	Establish walking program
└─ Restaurant	Increase distance and pace
└─ Event/Gathering	Light aerobic=>moderate ex
	=>noncontact ex

"Cannot go 0-60"

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Focus of Cognitive Retraining

- Retraining previously learned skills
- Reinforcing strengths
- Teaching compensatory strategies (Top Down)
- Building cognitive endurance (Bottom Up)
- Developing functional skills
- Modifying the environment
- Increasing self-awareness
- Expanding patient/family knowledge

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Assisting with Return to Learn

Academic stress on symptoms & recovery

- Falling behind academically despite working harder
- Attitudes of teachers/peers thinking they are not injured or struggling "look normal"
- Feeling "stupid" because of cognitive problems
- Needing help but not wanting to stand out or be perceived as getting special treatment
- Lower than usual grades
- Social isolation due to decreased participation in after-school activities

Baker J, et al 2014

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Assisting with Return to Learn

Academic Accommodations

- Return is gradual and controlled
- Shortened school day initially with systematic increase
- Scheduled breaks as needed in a quiet place (10-15 min)
- Tutoring support for the more challenging classes
- Modify accommodations for the elementary, middle, high school, or college levels
- Study skills are introduced within the therapy session with carry over into the academic setting

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Assisting with Return to Learn

Academic Accommodations

- Excuse nonessential work
- Do not double the workload - make-up work and new work simultaneously
- Break large projects into single steps
- Preprinted class notes
- Extra test taking time (including college boards)
- Extended time for assignments/projects
- One test/quiz per day
- Excuse physical education class per MD recommendations
- Limit cafeteria exposure (noise, commotion, light)

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Assisting with Return to Work

Start waking at typical work-day time


Visit work environment to chat with co-workers and meet with supervisor beforehand


Set up work schedule into phases

- Start with abbreviated work schedule (3-4 hours daily vs MWF)
- Increase schedule one hour per day as tolerated
- Increase work responsibilities as tolerated

Work from home vs office during best time of day

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Assisting with Return to Work


Set alarms


- to take pre-planned breaks consistently
- keep appts/meetings

Negotiate doing familiar tasks first and gradually adding new tasks

Desk lamp instead of fluorescent lighting

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Assisting with Return to Work

Limit interruptions: ear buds, voice mail, closed door, quiet room

One task at a time when possible

Recording staff meetings to facilitate recall

Allow extended time to complete tasks

Follow pre-planned daily "To Do" list

Slide 49

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