

# Rehabilitating the Upper Reaches of Executive Functions

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Clinical Research Consortium  
Matthew Dodson, OTD, OTR/L

## Definition of Executive Functions

- “The ability to integrate various component cognitive abilities to produce meaningful task performance”
  - Involves:
    - Devising novel responses, identification and correction of errors, planning, organizing, and initiating new solutions to challenging tasks.

“Interdisciplinary Rehabilitation of Executive Dysfunction”, CRC, April 6, 2011

## Objectives of Executive Function Rehabilitation for mild Head Injury (mHI)

1. Improving work performance
2. Improving general cognitive performance & capacity
3. Improving confidence in self and abilities
4. Improving satisfaction with ability to participate at a desired functional level

## Prerequisites of Executive Function Rehabilitation for mHI

- Address Confounding Variables (Headache, Sleep, and Vision)
- Identify Compounding Psychological Health concerns
- Ensure effective frustration tolerance
- Be aware of the cost of role expectations and failures

## 2-Component Approach to EF Rehabilitation Programming

- Component 1: Occupation-specific Rehabilitation
- Component 2: General Executive Function Rehabilitation

## Component 1: Occupation-Specific Rehabilitation

- Step 1: Establish essential job functions
- Step 2: Construct occupational simulations to replicate occupational demands (based on those essential job functions)
  - Non-standardized
    - Utilize work-specific materials if possible
  - Standardized
    - PODS, SWAGs

## Component 1: Occupation-Specific Rehabilitation

### Establishing Essential Job Functions for Jobs with High Cognitive Load

Step	Tool Utilized	Rationale
Step 1	Obtain Job Description from Employer	Employer may have official/unofficial job description on file, or may compose one on request
Step 2	O*net database search	Provides detailed knowledge, skills, abilities needed to meet established essential job functions
Step 3	Job Performance Measure	Further informs Steps 1 & 2 by allowing employee to identify what he or she feels are the most pertinent tasks; allows him or her to self rate current performance and satisfaction with job tasks.
Step 4 (optional)	Fleishman Job Analysis Survey (non-standardized)	Useful when dealing with a job that is extremely technical or cognitively involved; quantifies the level of expertise needed in basic cognitive categories to perform job (populated by employee)

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## Component 1 (Occupation-Specific Rehab) directly addresses 3 out of 4 EF rehab objectives

- 1. Improving Work Performance**
- 2. Improving General Cognitive Performance & Capacity*
- 3. Improving Confidence in self and abilities**
- 4. Improving Satisfaction with ability to participate at a desired functional level**

**Bold = Directly Addressed**  
*Italics = Indirectly Addressed*

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## Component 2: General Executive Function Rehabilitation

- When **\*coupled with\*** occupation-specific rehabilitation, adjunctive cognitive rehabilitation for executive functions can be a powerful tool
  - Increases face validity and buy-in
  - Increases confidence
  - Functional carryover to daily performance

**\*"coupled with" is key concept!**

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## Tools to be cautious of when rehabilitating EF from mHI

- Crossword Puzzles
  - Utilize declarative/semantic memory
- Sudoku or Rush Hour
  - Utilize alternating attention and numerical working memory
- Most worksheets traditionally used by OT or SLP
  - Almost all therapy worksheets are aimed at lower-level cognitive deficits (OT) or component cognitive deficits (SLP)

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## General EF Rehabilitation for mild Head Injury: What is it?

- Focused
  - Must have a clear reason *why* you are doing the activity and *what* it is addressing
- Amenable to layering
  - Multitasking component, e.g. pairing taking phone messages over another activity (SWAG 2)
- Dynamic
  - Must be able to change with the client's capacity as they recover or fluctuate (gradable)
- Entertaining
  - There's no reason why EF rehabilitation shouldn't be enjoyable
    - especially useful if there is a concern with frustration tolerance

## MOST IMPORTANTLY!

- Client must FEEL that it is appropriately stressing his or her Executive Function capacity
  - “I'm tired now” or “That was a good workout” should be the norm

## Component 2 directly addresses 2 out of 4 EF rehab objectives

1. *Improving Work Performance*
- 2. Improving General Cognitive Performance & Capacity**
- 3. Improving Confidence in self and abilities**
4. *Improving Satisfaction with ability to participate at a desired functional level*

**Bold = Directly Addressed**  
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## EF Rehab for mHI: What does it look like?

- Mental Flexibility/Critical Thinking Skills
  - LSAT deductive logic problems
  - Proverbs Comparisons
  - Deductive logic games, such as Gridworks
- Working Memory
  - Chess scenario problems, especially checkmate in one or two
- Multitasking
  - Individually structured, site- or occupation-specific activities
    - Use Multiple Errands Test for guidance

## EF Rehab for mHI: What does it look like?

- Most sessions are individual, but group work can be extremely beneficial
  - Sometimes group work is imperative, depending on essential job functions
    - Competition versus cooperation
    - Strategy implementation/adaptability
    - Negotiation
      - Games from companies such as “Rio Grande” (Puerto Rico) and “Mayfair” (Settlers of Catan)
- Can also utilize standardized tests as treatment activities
  - e.g. Watson-Glazer, CPAB/COAB

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## “What does it feel like to think” activities

- Working Memory
  - Checkmate in one, checkmate in two
- Mental Flexibility
  - Got the Blues?
- Critical Thinking Skills
  - Is ET is watching TV?

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## When structuring Executive Function Rehab for mild Head Injury

Keep the four objectives in mind:

1. Improving Work Performance
2. Improving General Cognitive Performance & Capacity
3. Improving Confidence in self and abilities
4. Improving Satisfaction with ability to participate at a desired functional level

Remember to develop *both* components of your program:

Component 1: Occupation-specific Rehabilitation

Component 2: General Executive Function Rehabilitation

## Contact Information

Matthew Dodson, OTD, OTR/L  
Braintrust Performance Services, LLC  
Email: [information@braintrustrehab.com](mailto:information@braintrustrehab.com)  
Phone: 409.739.2607