

# Evidenced-Based Cognitive Rehabilitation for Impairment of Executive Function

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# Learning Objectives

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**At the conclusion of this activity, the participant will be able to:**

- 1. State the BI-ISIG recommendations for the treatment impairments of executive functions.**
- 2. Provide examples of how metacognitive strategy training for impairments in EF can be applied as a component of interventions for attention and memory.**
- 3. Explain how the general framework for rehabilitation of EF can be applied to a variety of complex functional tasks.**

## Case Example: Jon – need to redo case slides – too much and redundant

Jon was involved in a motor vehicle accident about 6 months ago. He received occupational therapy services following his accident that appeared to focus on his physical impairments and attendant care needs. He was advised by his hospital rehabilitation team to slowly return to work, beginning with three days per week.

During the initial interview, he relayed that he is presently unable to participate in these activities because of his current physical impairments and disabilities. To elaborate, he is unable to complete household chores; he cannot interact with his children as he finds it too overwhelming. He stated that following the hospital rehabilitation team's recommendation he tried to attend meetings associated with work, but found it too tiring.

## Medical Information and Crash History

Jon reports having no recollection of the car crash. He reportedly was stopped at a traffic light and was hit head-on by a car making a left turn in front of him. He described having his air bag explode and hitting his head on the dashboard. He does not remember how he received breaks and fractures. He reportedly lost consciousness but is unsure of how long this lasted.

Jon was placed on a backboard and in a neck collar by paramedics and was taken to an Emergency Department. He was told he sustained a ligament injury to his (L) shoulder, a broken left femur, and fractured ribs and mild brain trauma. He was admitted to inpatient acute care where he was assessed by the neuro-rehabilitation team. The neuro team did not assess any impairments related to a possible brain injury. For his orthopaedic injuries he was prescribed Tylenol 3 and an anti-inflammatory and was sent home with a prescription for physical therapy, follow-up with family physician, and referral to a hospital-based mild acquired brain injury (ABI) clinic.

Joe was assessed at the hospital-based mild ABI clinic and was diagnosed with the following:

- Mild Traumatic Brain Injury
- Ligament injury to his (L) shoulder
- Broken left femur
- Severe pain

Assessed disabilities at the ABI clinic included:

- Pain
- Limitations in mobility
- Limitations in ability to sit
- Functional Problems with concentration, working memory, executive functions, and word-finding

Other assessments / interventions to date:

- Neuropsychological – testing not available to date
- Home and Safety - grab bars in the shower and shower seat recommended
- Attendant Care – recommended related to physical disability

Current Medications: Tylenol 3, Anaprox

## **Intake Interview:**

### ***Activities of Daily Living (Basic & Instrumental)***

Presently, Jon describes difficulties with:

A variety of physical activities including: sitting and standing for long periods of time, walking the dog (a dog-walker has been hired), participating in cleaning the house due to pain and fatigue (he currently receives six hours of homemaking support twice / week);

Attending to self-care tasks – he reports wearing the same clothes day after day, not showering as regularly as he did pre-injury; not shaving as regularly and precisely as pre-injury;

Problems managing household tasks including cooking (described as inability to sequence tasks or work in the presence of background noise), laundry (described as inability to remember to transfer clothes out of washer/dryer), and grocery shopping (has not been since the accident, describes fear in going to the store, as well as difficulty remembering needed grocery items);

General care of his children (prepare their meals, supervise homework sessions, or organize after school activities, due to his physical, cognitive and psychosocial impairments);

## *Cognitive Issues*

Jon describes his cognitive difficulties as follows:

Impaired concentration skills (described as difficulty paying attention, only being able to concentrate for short periods of time, and sensitivity to noise);

Impaired memory skills (described as word-finding difficulties; forgetting appointments, misplacing/losing keys and cell phone, difficulty remembering content of his staff meetings and documents; problems retaining information from newspapers, forms, documents);

Impaired organization and decision making skills (described as inability to sequence steps to complete cooking tasks, inability to choose what he wants to wear, problems composing emails);

Reduced initiative (even though he knows what things should be done, he can't get started – e.g., making a shopping list).

# ATP Questionnaire

I. RATING SCALE: Please answer the following questions about your ( or \_\_\_\_\_'s) attention as it applies to daily functioning by ticking the box which offers the best description.

DESCRIPTION	Not a problem or no change from before	Only gets in the way on occasion ( less than once a week)	Sometimes gets in the way (about 1-3 times per week)	Frequently gets in the way (is a problem most days)	Is a problem all the time (affects most activities)
1. Seem to lack mental energy to do activities	✓				
2. Am slow to respond when asked a question or when participating in conversations	✓				
3. Can't keep mind on activity or thought because mind keeps wandering		✓			
4. Can't keep mind on activity or thought because mind feels "spacy" or "blank"	✓				
5. Can only concentrate for very short periods of time		✓			
6. Miss details or make mistakes because level of concentration decreased		✓			
7. Easily get off track if other people milling about nearby				✓	
8. Easily distracted by surrounding noise				✓	
9. Trouble paying attention to conversation, if more than one other person				✓	
10. Easily lose place if task or thinking interrupted			✓		
11. Easily overwhelmed if task has several components				✓	
12. Difficult to pay attention to more than one thing at a time					✓



# ATP Questionnaire

**II. INDIVIDUALIZED ATTENTIONAL PROBLEM LIST:** In the space provided below describe the five most frequent and frustrating breakdowns in your attention ability. The first line has been filled out with an example description.

Describe Attention Breakdown (include setting and approx. frequ.)	What do you do when it occurs?
<p>Example: I cannot concentrate when I am preparing dinner because the noise from the children playing around my feet and even in the next room distracts me. I forget ingredients or parts of the meal and usually feel totally frustrated during this time. This happens for every dinner.</p>	<p>I often yell or blow up at the children or cry while I am cooking. Sometimes I just give up and make something simple like sandwiches.</p>
<p>1. In the kitchen, it's hard for me to do more than one thing at a time.</p>	<p>Give up -wouldn't do it</p>
<p>2. I find it hard to read or do anything when there is a lot of background noise.</p>	<p>Leave room</p>
<p>3.</p>	

# Rivermead Behavioural Memory Test

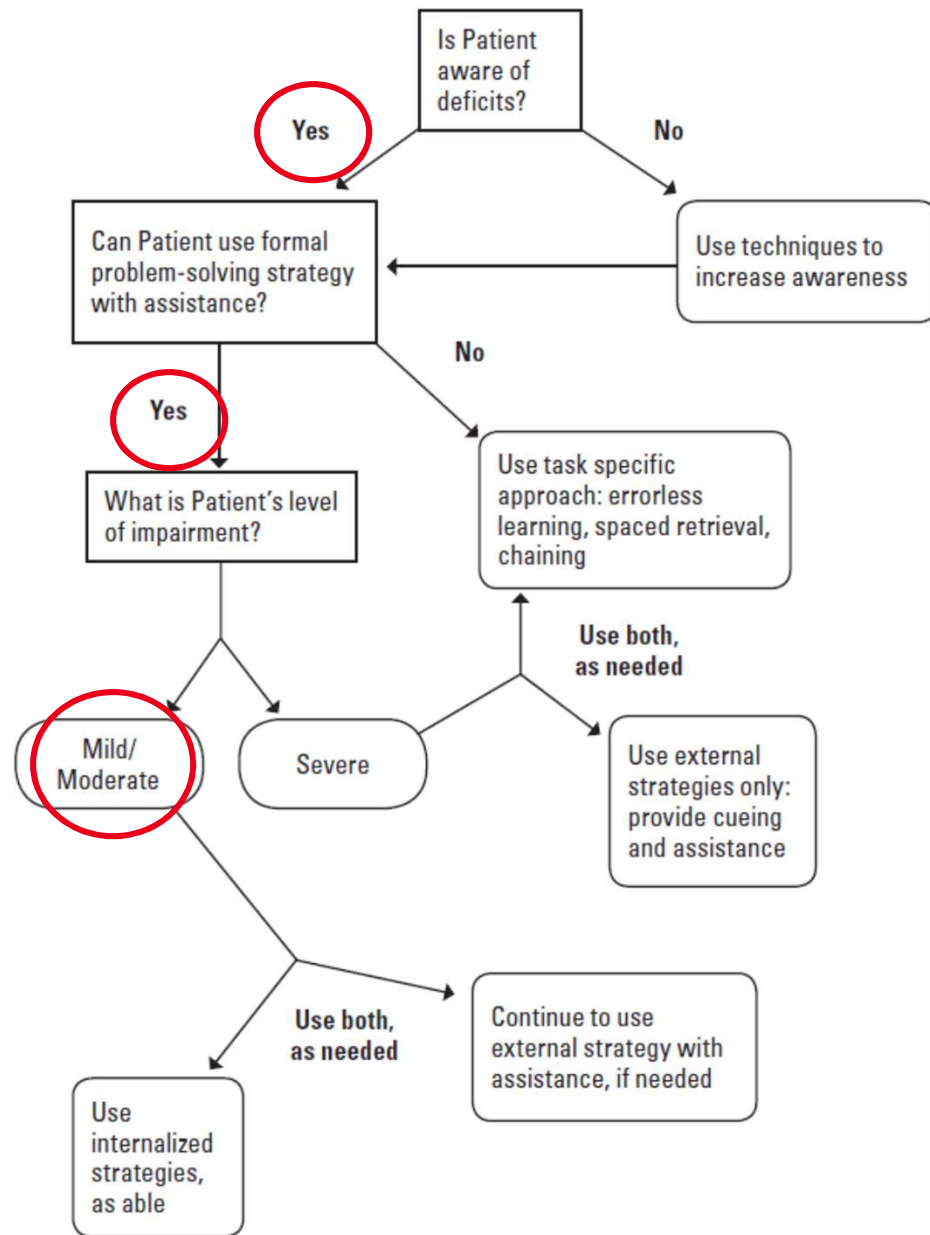
## Errors

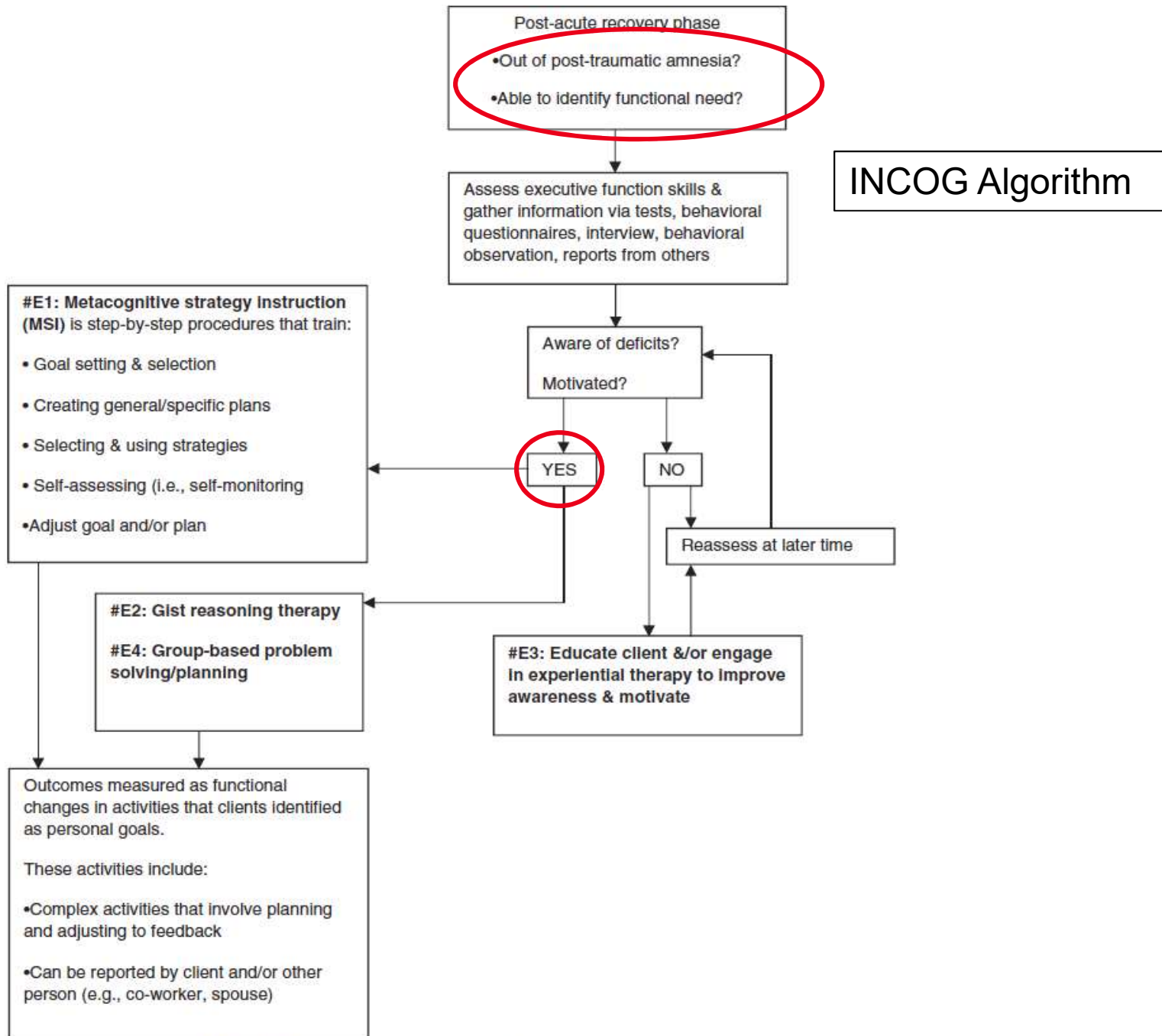
- Needed prompt to recall appointment
- Free recall of story was impoverished
- Needed prompt to pick-up message envelope
- Need prompt for location of belonging



What do you do? (and why)

Figure 2-1 A Decision Tree For Treatment Planning For Executive Dysfunction





**INCOG Algorithm**

Figure 1. Executive function and self-awareness algorithm

# Where is Jon now?

- Started anti-depressant;
- Goal setting with COPM, CO-OP used as overall guide for treatment;
- Returned to work full-time – initially with co-worker job coach;
- Some accommodations at work continue;
- Using smart phone to manage appointments, lists etc. (built on pre-injury strategies)
- Some changes made at home – more pre-prepared meals; kids walking dog;
- Continued physiotherapy.



*Thank You!*