

Addressing Cognitive Challenges after Transplant and CAR T-cell Therapy

Celebrating a Second Chance at Life Survivorship Symposium

April 27 – May 3, 2024

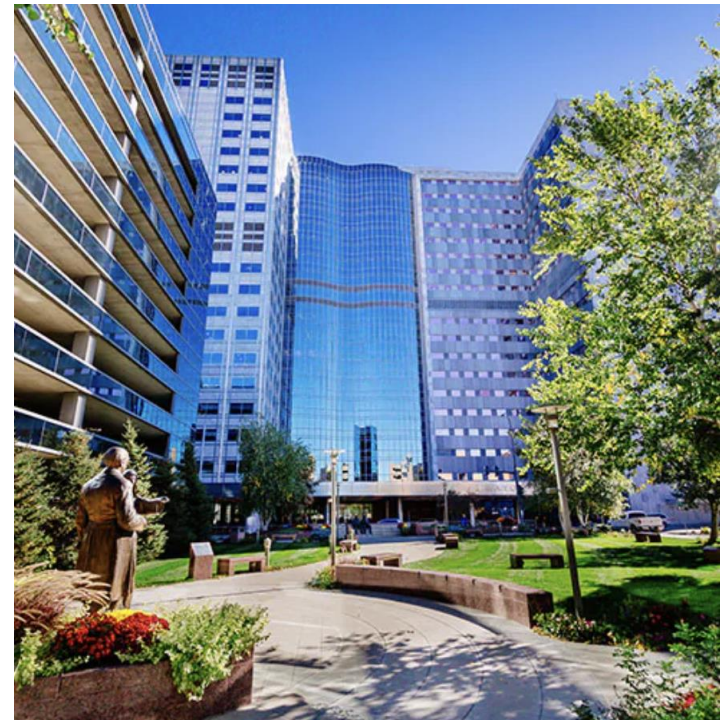
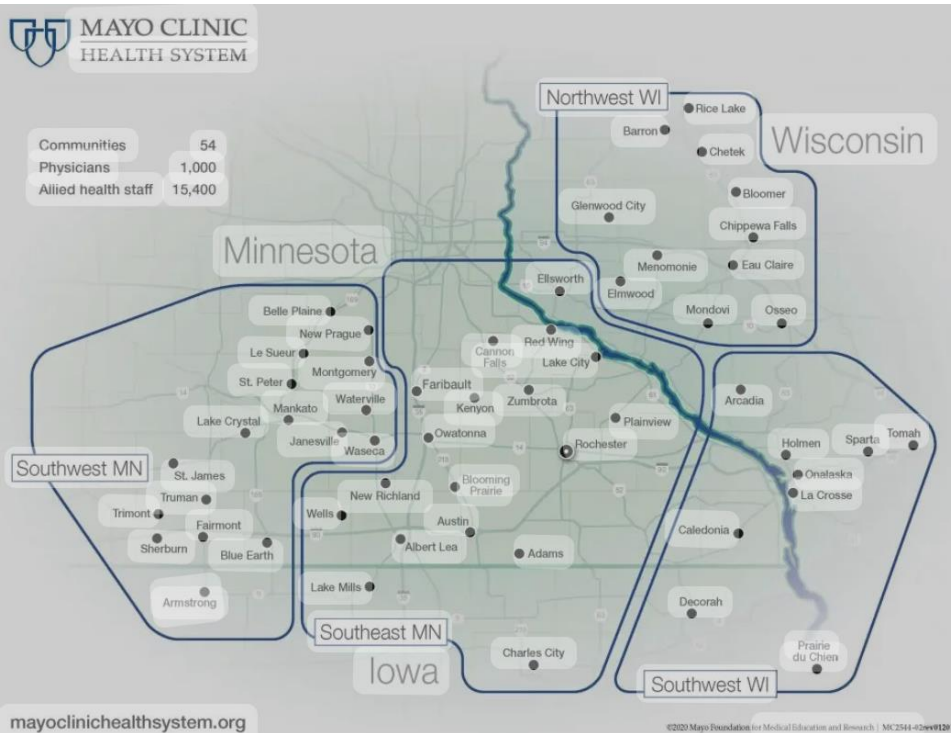


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Managing Cognitive Challenges after Transplant

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What we **WILL** discuss today...

1. Types of cognitive strategies that can help me address my cognitive problems.
2. How does using these strategies help me enhance my day-to-day performance?
3. What are some benefits of managing my cognitive problems?
4. What to do if I am having trouble making the changes needed to manage my cognitive problems?

What we **WILL NOT** discuss today...

1. Evidence on impact of chemotherapy on cognitive function
(at least not very much!)
2. Effects of various medications on cognitive function.
3. Pharmacologic interventions to enhance cognitive functioning.

Chemotherapy Can Change Cognitive Functioning



- Multiple brain areas affected.
- Fibers that connect brain areas are vulnerable.
- Certain brain areas (e.g. hippocampus) are at increased risk
- Widespread effects suggest that there is toxicity throughout the brain, with particular areas that may be more vulnerable than others

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Cognitive Rehabilitation Provides a Way to Improve Impaired Cognitive Functioning



Cognitive Rehabilitation is a type of therapy based upon an assessment and informed understanding of the person’s cognitive (thinking) changes.

Cognitive rehabilitation can help improve thinking skills by:

1. Strengthening old ways of doing things.
2. Establishing new ways of doing things to “work around” or **compensate** for thinking skills which are impaired.

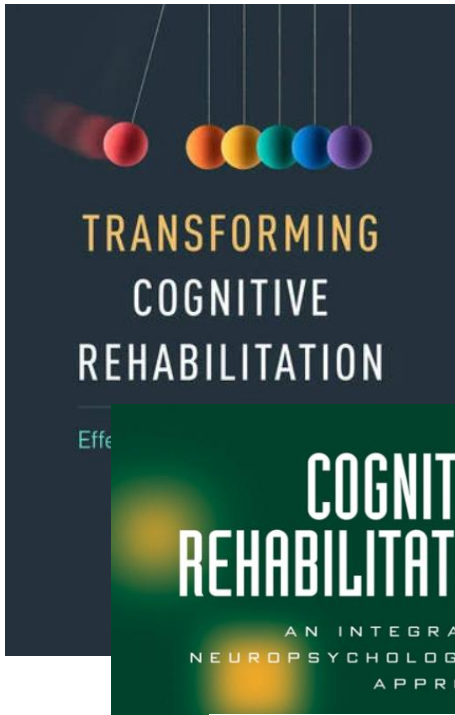
Harley, J. P., Allen, C., Braciszewski, T. L., Cicerone, K. D., Dahlberg, C., Evans, S., Foto, M., Gordon, W. A., Harrington, D., Levin, W., Malec, J. F., Millis, S., Morris, J., Muir, C., Richert, J., Salazar, E., Schiavone, D. A., & Smigelski, J. S. (1992). Guidelines for cognitive rehabilitation. NeuroRehabilitation, 2(3), 62–67

Question:

Is there Evidence Supporting Cognitive Rehabilitation?

Answer:

Yes, A LOT of it!



COGNITIVE REHABILITATION AN INTEGRATIVE NEUROPSYCHOLOGICAL APPROACH

THE ACRM COGNITIVE REHABILITATION MANUAL & TEXTBOOK SECOND EDITION

TRANSLATING EVIDENCE-BASED RECOMMENDATIONS INTO PRACTICE

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OPEN

INCOG 2.0 Guidelines for Cognitive Rehabilitation Following Traumatic Brain Injury, Part IV: Cognitive-Communication and Social Cognition Disorders

Leanne Tugher, PhD, RANMSc(Speech Path); Lucinda Bourlas, PhD, MSc(Psych); Lynn S. Turkstra; Shannon Jan; Ailene Kaur, M; Jennie Ponsio; Mark Theodorou



Evidence-Based Cognitive Rehabilitation: Systematic Review of the Literature From 2009 Through 2014

Keith D. Cicerone, PhD, AB, Yelena Goldfin, PhD, AB, Keith Ganci, PhD, Amy Rosenbaum, PhD, Jennifer V. Wiethe, PhD, Donna M. Langenbahn, PhD, James F. Malec, PhD, Thomas F. Bergquist, PhD, Kristine Kingsley, PsyD, Drew Nagele, PsyD, Lance Traxler, PhD, Michael Fraas, PhD, Yelena Bogdanova, PhD

Abstract: Objectives: To conduct an updated, meta-analytic, evidence-based clinical practice guideline for cognitive rehabilitation in individuals with traumatic brain injury (TBI) and post-traumatic stress disorder (PTSD). Study Selection: Selected for inclusion in evidence-based practice guidelines for individuals with TBI and PTSD. Data Extraction: Abstracts were screened by two reviewers for relevance to the topic. Data Synthesis: Of 121 studies, 41 were included in the final synthesis. Conclusions: This review has identified 41 studies of cognitive rehabilitation in TBI and PTSD. The synthesis of the literature indicates that cognitive rehabilitation is effective for improving cognitive and functional outcomes in individuals with TBI and PTSD.



Clinical Practice Guidelines American Speech-Language-Hearing Association Clinical Practice Guideline: Cognitive Rehabilitation for the Management of Cognitive Dysfunction Associated With Acquired Brain Injury

Guideline Development Panel: Jessica Brown, Darryl Keelin, Erin Mettleny, Catherine Melis, E. Sam Miller, Gina Mitchell, Linda M. Piroon, Bridget Washburn-Peterson, Timothy J. Wolf, Tobj Frymark, and Rebecca Bower

Background: Cognitive-communication impairments following acquired brain injury (ABI) can have devastating effects on a person's ability to participate in community, social, vocational, and academic settings. Guidelines for evidence-based practice are needed to assist speech-language pathologists (SLPs) and other rehabilitation specialists in the delivery of targeted rehabilitation for the adult population. Purpose: The American Speech-Language-Hearing Association, in conjunction with a multidisciplinary panel of subject matter experts, developed this guideline to identify best practice recommendations for the delivery of cognitive rehabilitation to adults with cognitive dysfunction associated with ABI. Method: A multidisciplinary panel identified 13 critical questions to be addressed in the guideline. Literature published between 1980 and 2020 was identified based on a set of a priori inclusion/exclusion criteria, and main findings were pooled and organized into summary of findings tables. Following the principles of the Grading of Recommendations Assessment, Development and Evaluation Evidence to Decision Framework, the panel drafted recommendations, when appropriate, based on the findings, overall quality of the evidence, balance of benefits and harms, patient preferences, resource implications, and the feasibility and acceptability of cognitive rehabilitation. Recommendations: This guideline includes one overarching evidence-based recommendation that addresses the management of cognitive dysfunction following ABI and 11 subsequent recommendations focusing on cognitive rehabilitation treatment approaches, methods, and manner of delivery. In addition, the guideline includes an overarching consensus-based recommendation and seven additional consensus recommendations highlighting the role of the SLP in the screening, assessment, and treatment of adults with cognitive dysfunction associated with ABI. Future research considerations are also discussed.

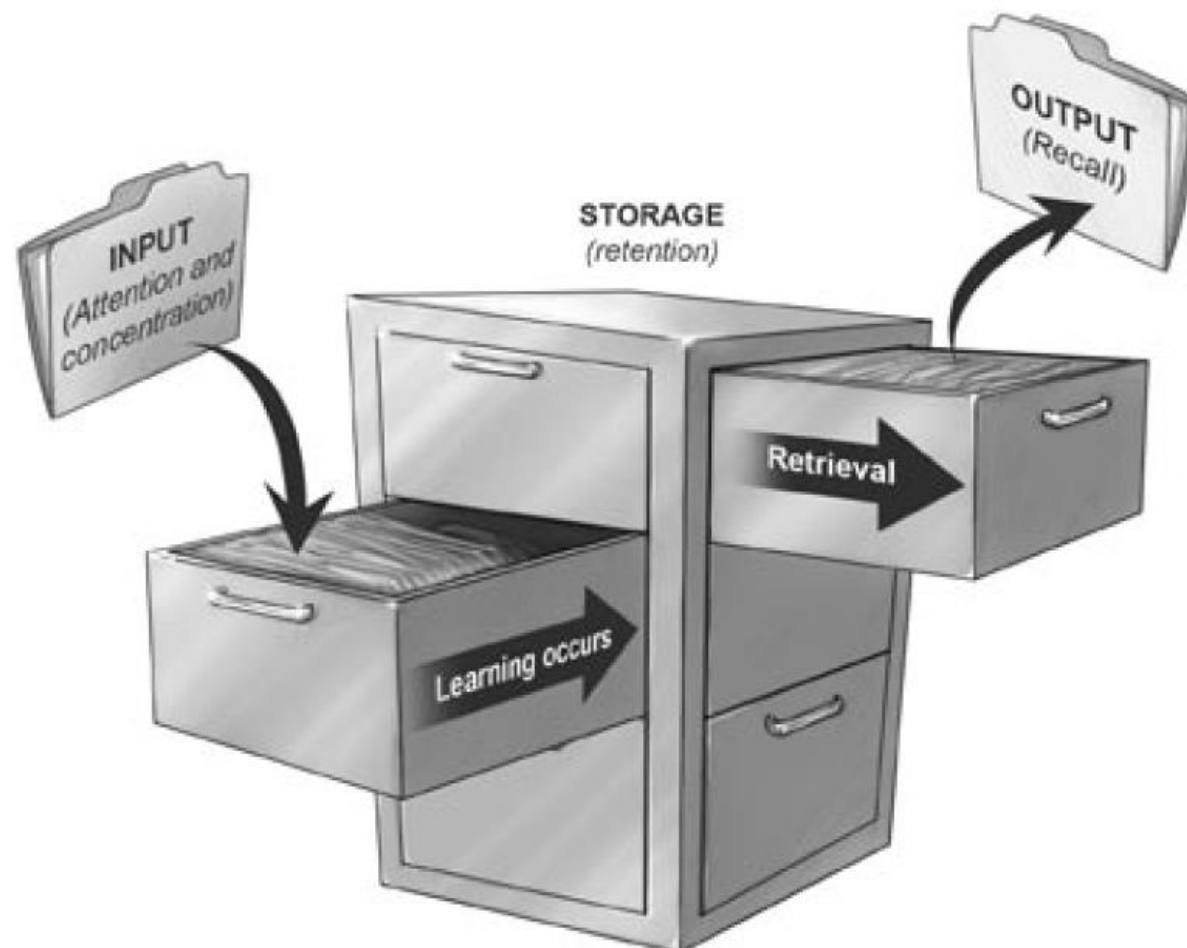
Correspondence to: Tobj Frymark: tfrymark@asha.org. Disclosure: Jessica Brown is a consultant on a grant from the Department of Health and Human Services (DHHS) and received payment as a panel member for Evidence-Based Practice Conference 2020. Theodorou J. and V. Goldfin received payment for the development of the guideline. Theodorou J. and V. Goldfin received payment for the development of the guideline. Theodorou J. and V. Goldfin received payment for the development of the guideline. Theodorou J. and V. Goldfin received payment for the development of the guideline.

Common Cognitive Changes Due to Chemotherapy

- Attention
- **Memory**
- Processing speed
- Executive functioning

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How Does Memory Work?



Approaches to Improving Memory

APPROACHES	TECHNIQUES
External Compensation (outside of your head)	*Electronic Devices *Memory Notebook
Internal Compensation (inside your head)	*Association Techniques *Organization & Elaboration Techniques

Examples of External Compensation

- External compensation involves using a device to help you learn, retain and recall information which you would otherwise forget.
- It can be helpful even in persons having significant memory problems.
- Sometimes persons refer to this device as their “external brain.”

External Devices

- Notebooks
- Other written planning systems
- iPads and laptops
- Smart phones
- Computerized systems
- Auditory or visual systems
- Task-specific aids



To Choose the Right Device, You Need to Ask the Following Questions:

- What do you need to remember to do?
- What are your goals and preferences?
- Features and limitations of available technology
- Where are you going to use it?
- Your familiarity with the device you plan to use.

Memory Notebook

- This is your main tool to help you remember information.
- Possible information to include:
 - To do list
 - Memory log
 - Daily schedule
 - Homework
 - History and background
 - Handouts
 - Contacts



Things that Can be Done with Help of External Devices

- Remember to perform a future action:
 - Bring a book which you want to share to a family gathering
 - Tell a family member what you did today
- Store/retrieve sets of information:
 - Dates of upcoming medical appointments
 - Names and types of medicine you use
- Report information from events/activities:
 - Report activities from a family gathering during the past weekend
 - Report information from a work meeting

Examples of Internal Compensation

- Internal compensation associates something new, which you want to remember, with something familiar to you.
- Helps you learn the new information and recall it later when you need it.

How Do Internal Compensation Strategies Work?

- Uses Mnemonics (i.e. technique that aids with learning, storage and recall of information) to promote learning
- Remembers information without the use of external compensations
- Can be used with verbal information (e.g. someone's name)
- Can be used with non-verbal information (e.g. where parked car)
- Can be used together with external strategies

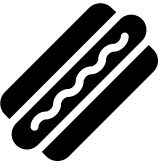

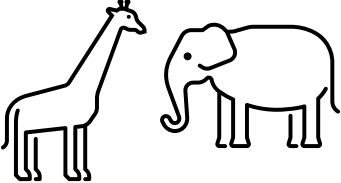
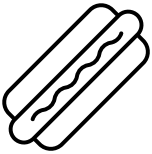


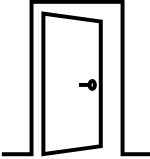
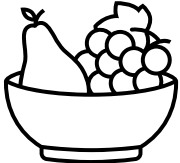
Types of Internal Strategies



Association Techniques

Technique	Description
Visual Peg Method	Items to be remembered are linked with a standard set of peg words which are already learned together.
Method of Loci	Linking information to specific (external) visual reference
Visual Imagery	Linking information to specific (internal) visual reference
Absurdity	Humor and high levels of even silliness make associations stronger

Visual Peg Method Example

Peg Words	Linked Word	Key Image	
1 - Bun	Bread		
2 - Zoo	Hotdog Buns		
3 - Tree	Soda		
4 - Door	Kiwis		

Method of Loci

Definition:

- Strategy that uses visualizations of familiar spatial environments to enhance the recall of information.
- The method of loci is also known as the memory journey.

Method of Loci

Steps:

1. Decide what you want to remember.
2. Pick a place that you are familiar with and can easily visualize.
3. Associate each piece of information that you want to memorize with a specific features of the location.
4. To remember this information, imagine walking through the location that you have picked and recalling the information on your list.



Examples of Using Imagery and Absurdity



GUSTAVUS 
GUSTAVUS ADOLPHUS COLLEGE

Thomas F. Bergquist
Class of 1983
Student Number: 122

Elaboration Technique

The 5 Ws:

1. Who?
2. What?
3. When?
4. Where?
5. Why?

Organizational Techniques

Technique	Description
First Letter Mnemonics	Use the first letter of each of a series of words to form a single word or pseudo-word HOMES = H uron O ntario M ichigan E rie S uperior
Semantic Clustering	Grouping items in a list into smaller categories
PQRST	Self-instructional technique to learn and recall complex written information Preview – Preview the information to be recalled Question – Ask key questions about the text Read – Read carefully to answer questions State – State answers and if need be, read again Test – Test regularly for retention of information



So why would I want to make these changes and use these techniques?

Reason #1

Research has shown that:

- If your measure of success, when you are experiencing memory problems, is returning to the way you did things before, **then you might be in trouble.**
- If your measure of success, when you are experiencing memory problems, is being open to doing things differently, including using strategies which have been shown to enhance your memory, **then you are on your way!**

*Bergquist, T., Gehl, C., Mandrekar, J., Lepore, S., Hanna, S., Osten, A., & Beaulieu, W. (2009).
The effect of internet-based cognitive rehabilitation in persons with memory impairments
after severe traumatic brain injury. Brain Injury, 23(10), 790-799.*

Reason #2

Research has shown that:

- Memory problems on formal testing, **do not determine** how well you will remember things in day-to-day life.
- How well you are managing your memory problems **does determine** how well you will remember things in day-to-day life.

Yutsis, M., Bergquist, T., Micklewright, J., Gehl, C., Smigielski, J., & Brown, A. W. (2012). Pre-treatment compensation use is a stronger correlate of measures of activity limitations than

Reason #3

Research has shown that:

- If you work to manage your memory problems, you will be **more independent** in your day-to-day life and be in a **better mood**.

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This is a Team Sport! Having Your Friends and Family Involved Can Really Help.

Provides emotional support

Improves my social life

Promotes using skills in day-to-day life

Reinforces use of thinking aids at home

Improves my ability to manage my health



Example of How a Friend or Family Member Can Help

Type of Cue	Example
Direct cue	Family member tell me: “You need to write that down or you will forget it.”
Indirect cue	Family member tells me: “Is there something you can do to help you remember it later?”
Self-cue	I tell myself that: “Whenever I need to remember something, I record it so that I can remember it later.”

Are there other things I can do to enhance cognitive functioning?

- Practice good sleep hygiene
- Practice good pain management
- Practice good stress management
- Interact with the world around you
- Regular exercise, being mindful of any medical restrictions that you might have.
- Be well informed about your current medications and any possible side effects.



Are there things about me which may get in the way of doing the very things that will help?

Helpful:

- Be open to changes in routine and new ways of doing things.
- Be open to receiving assistance from others if it helps you to be more independent.

Not helpful:

- Focus on maintaining long-standing routines with minimal changes as the main indication of “normalcy” in day-to-day life.
- View receiving help from others as a sign of weakness, sickness and lack of independence.

The Importance of Identifying Potential Resistance to Making Positive Changes

- Making changes in how I conduct my day-to-day life is hard, even if those changes will help me to do things better.
- It can be helpful for me to identify any resistance I have to change and doing things differently.
- If I do find that I am being resistant to change, I need to ask myself if this resistance is getting in the way of me making progress.
- If I am not able to make changes in my day-to-day life that will help me, then I should consider getting professional help with this issue.

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Am I asking Myself the “Right” Questions about Making Positive Changes in My Life?

Examples of wrong questions	Examples of right questions
Do I want to do this?	Is doing this ultimately in my best interest?
Is this going to be hard?	What will be the consequences of me doing/not doing this?
What will other people think of me if I do this?	Will doing this help me to meet my goals?

Quiz Time!

What is my Last Name?
What was my Student Number in College?



Thomas F. ???

Class of 1983

Student Number: ???

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Summary

- There is ample evidence of the value of cognitive rehabilitation to help enhance performance for persons experiencing problems with cognitive functioning due to a medical condition.
- The strategies can be external or internal.
- The strategies which you use should be chosen based upon your situation and tailored to meet your individual needs.
- Putting these strategies into practice may best be done by working with an experienced therapist (OT, SLP).
- These strategies often involve making lifestyle changes. This can be difficult and even distressing. If you find that is the case, a counselor skilled in working with persons living with chronic medical conditions can be helpful.



Questions?



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