

# cancer answers

Cancer Answers is a series of free public lectures, presented by *Cancer Care Nova Scotia*, on a variety of cancer-related topics. The lectures, delivered by cancer experts, are designed to raise awareness and educate participants about issues related to prevention, screening, early diagnosis, treatment, survivorship and palliative care.

Following each lecture, the presentations are posted on the *Cancer Care Nova Scotia* website.





# Brain Fog: Cognitive Changes Associated with Cancer Treatment

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**Cancer Answers  
Cancer Care Nova Scotia  
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# Overview

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- Briefly review what brain fog is
- Identify the common symptoms
- Explore potential causes
- Discuss the importance of neuroplasticity and its role in cognitive rehabilitation
- Review an evidence-based cognitive rehabilitation program designed to help
- Learn some tools and strategies to maximize individual cognitive capacity

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# What is Cancer Related Brain Fog?

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- Commonly referred to as ‘chemo-fog’ and ‘chemo brain’

**But:**

- 1) chemotherapy is not the only cause,
  - 2) cancer is not the only cause of *brain fog*.
- It is a constellation of symptoms marked by changes in cognitive abilities



# What are the common symptoms?

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- Changes in memory
- Difficulties with verbal skills
- Compromised attention and concentration
- Changes in executive functions
- Less coordinated motor function and altered spatial skills
- Psychological well being is affected

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# What Causes these Changes?

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- The chemotherapy?
- The cancer?
- Cancer-related treatments?
- A genetic predisposition?
- Psychosocial constructs?

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# What Do We Know?

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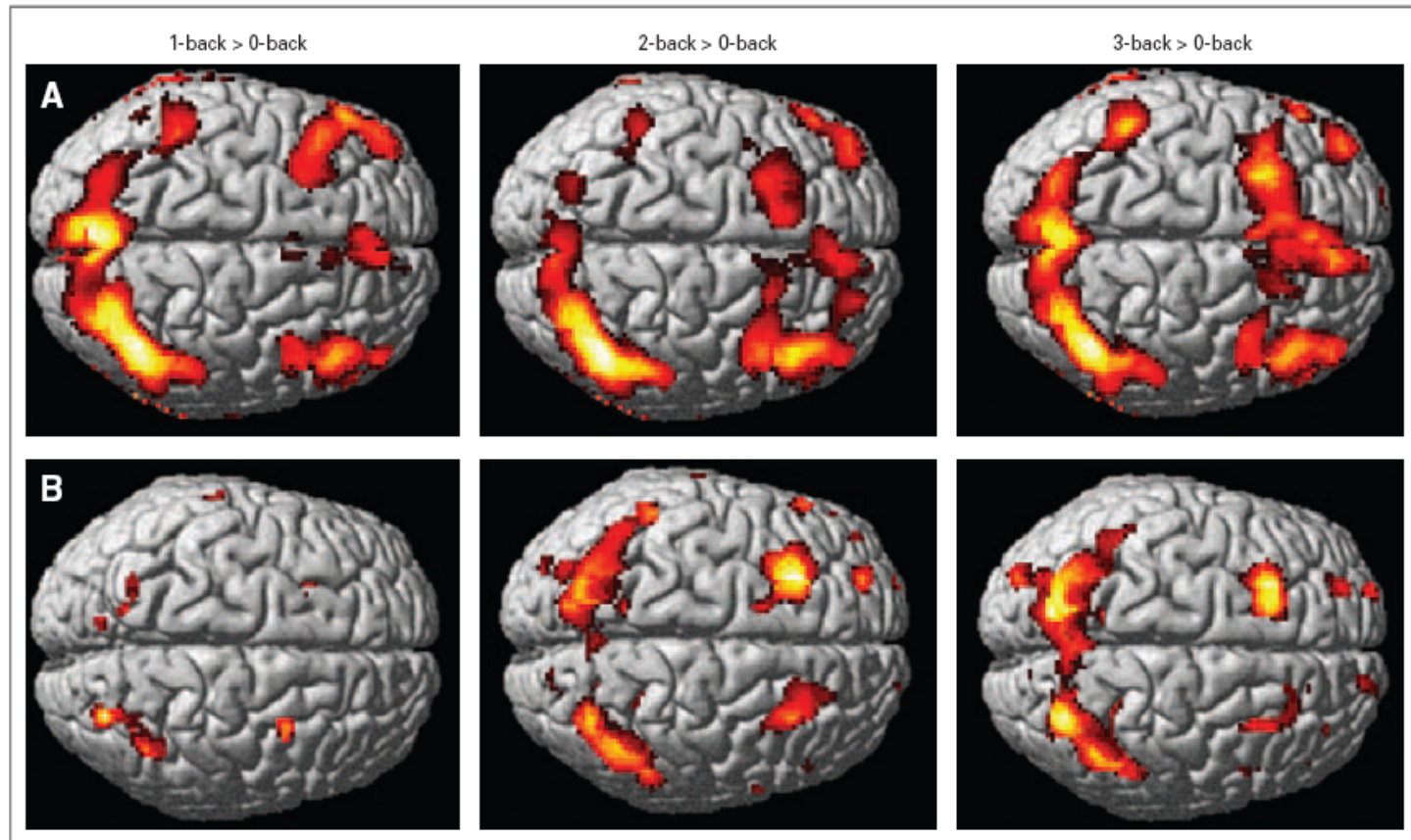
- Symptoms vary from person to person
- Symptoms usually appear during treatment, but become more problematic following treatment
- The condition gradually improves over time, but this can take a few years.
- Imaging data suggests brain related changes do occur

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# fMRI Twin Study

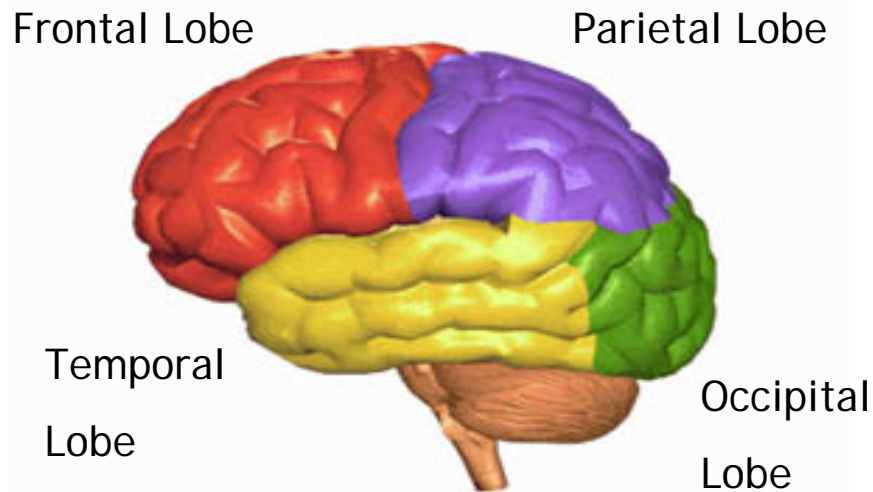
(Ferguson et al 2007)



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# Cognitive Rehabilitation, Neuroplasticity and the Brain



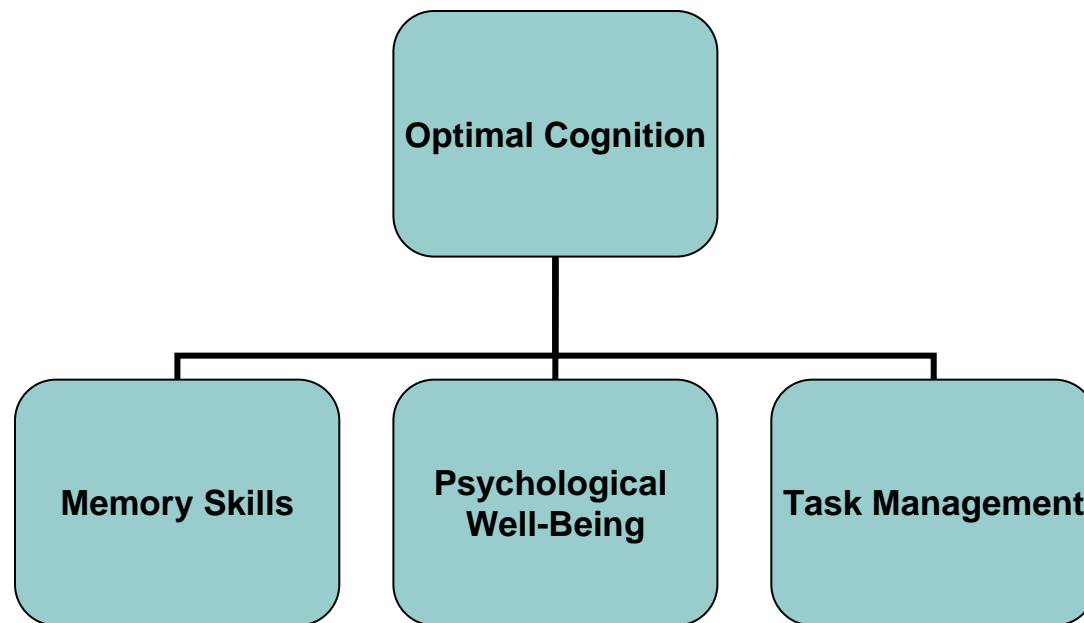
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# The Maximum Capacity Approach to Cognitive Rehabilitation

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- Evidence-based
- Ecological Validity
- Multi-purpose and multi-dimensional

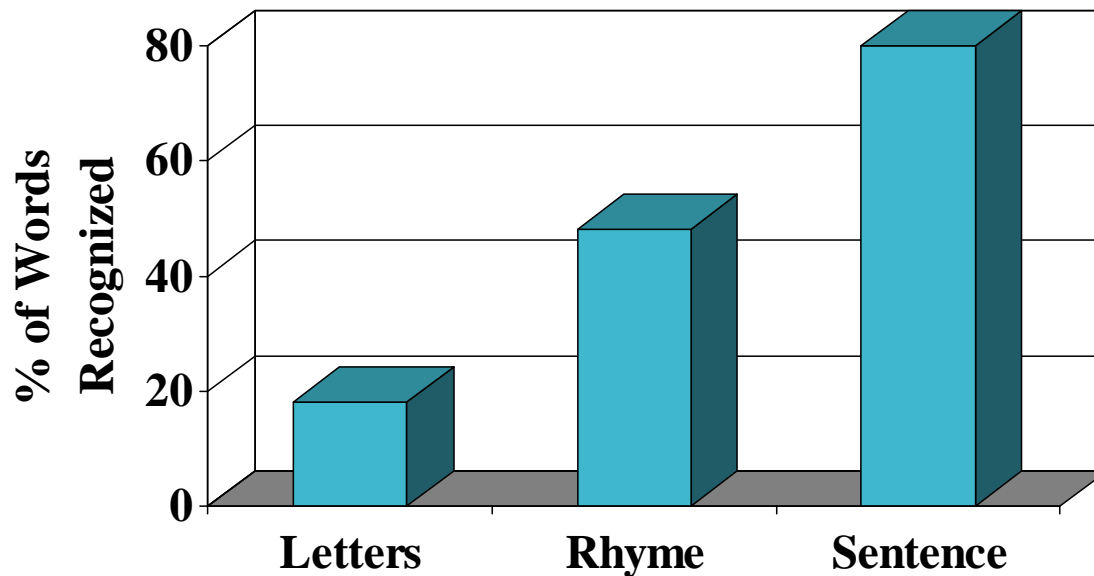


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# Memory

- The goal is to teach individuals how to encode information in deeper and more meaningful ways.



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# How do we process information more deeply?

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## External Strategies

Lists

Notes

Calendars

Timers

Routines and Habits

External Self Talk

## Internal Strategies

Categorization

Story Making

Visual Imagery

Association

Motor Movement

Spaced Retrieval



# Successful Memory Training Requires:

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- Increased reliance on external mechanisms
- Thorough evaluation of current strategies and strengths
- Awareness of slips
- Willingness to trying 'new' ways
- Effort, time, patience and practice



# Task Management

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The goal of task management is to:

1. Reduce feelings of overwhelm
2. Improve management of small and large daily tasks
3. Promote a 'present-minded' state as opposed to an 'absent-minded' one.
4. Reduce susceptibility to distractions and interference



# Task Management: Four Simple Steps

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**STOP**



**CLARIFY**



**SIMPLIFY**



**MONITOR**

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# Successful Task Management Requires:

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- Present mindedness!
- Regularly cycling through the four steps
- Taking the time to ‘stop and clarify’ especially when you are in a hurry
- Constantly breaking down tasks into a series of simple, easy to manage, components



# Psychological Well-Being

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- Psychological well-being refers to the way an individual feels about themselves, others and their environment.
- It includes constructs such as happiness, self efficacy, coping, optimism and feelings of control.



# One Example of a Self Fulfilling Prophecy

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Misattributing memory problems often leads to feelings of loss of control



When people feel they don't have control over their lives they tend to feel they are incapable of carrying out the things they want



This usually results in a reduction in activities and independence



People then start to avoid various mental and physical challenges with justifications such as "I can't do that" or "It won't work".



This tends to lead to a pessimistic outlook on life



This can lead to depression, anxiety and increased cognitive complaints.



# The Positive Approach: Reversing the Trend

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I have control over my life



There are techniques and strategies that I can and should use to help improve remembering



Because of these techniques and feelings of control I am independent and do not have to rely on other people



So, whenever I encounter new, complex or difficult situations, instead of giving up I pause and think “How can I make this situation easier?”.



This gives me a positive outlook on life and makes me feel optimistic about tackling just about anything



## How Does One Reverse the Trend?

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- Prepare a “To Do List” of long standing goals
- Pick one
- Break it down into a series of simple steps
- Work through the steps within a reasonable time-frame
- Celebrate accomplishments along the way.
- Tackle the next challenge.

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# Maximum Capacity: Summary Tips

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## **Memory**

- Encode information more deeply
- Use external strategies whenever possible
- Practice internal strategies often
- Put in the effort

## **Task Management**

- Promote a 'present minded' state
- Stop! and Clarify!
- Break items down into simple, manageable steps
- Reduce multi-tasking

## **Psychological Well Being**

- Be positive and proactive
- Set goals and stick to them

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# Cancer Related Brain Fog Summary

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- While the symptoms may vary from person to person, the most common domains affected are memory and executive function skills.
- Currently there are no medications available that are designed to treat it.
- However, the brain does have the capacity to grow, recover and develop new connections between brain regions to compensate for areas of weakness or damage.
- Neurocognitive rehabilitation programs can help.

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# Couldn't We All Use a Mental Jump Start?

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## THANK YOU!



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