

# Navigating the New Normal: A Neuropsychological Perspective

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CCS Survivorship Conference

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# The worst is behind us...

## Now what?



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# Objectives

- 1) Better awareness of the possible cognitive changes that can occur secondary to cancer and its treatment.
- 2) Better awareness of why changes might occur and why these might be more apparent later in your child's life.
- 3) Shared community resources that are available for you and your child.

Dr. Thomas is employed by Banner Medical Group. She has no relevant financial or nonfinancial relationships to disclose.



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# School Re-entry

- Shorter school day
- Psychoeducation for school staff
- Academic accommodations



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# Typical Late-Term Neuropsychological Deficits

The 3 most commonly affected areas are:

Attention

Working Memory

Processing Speed



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# Processing Speed



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# Slowed Processing Speed

- Most common finding of all deficits among cancer survivors



# Creates a problem with:

- Keeping up with busy conversations
  - Keeping up with the classroom pace
  - Completing the normal volume of class material
  - Can be subtle/overlooked
- Finding adequate energy
  - Finding adequate time
  - Finding adequate resources/support
- To get 'er done!



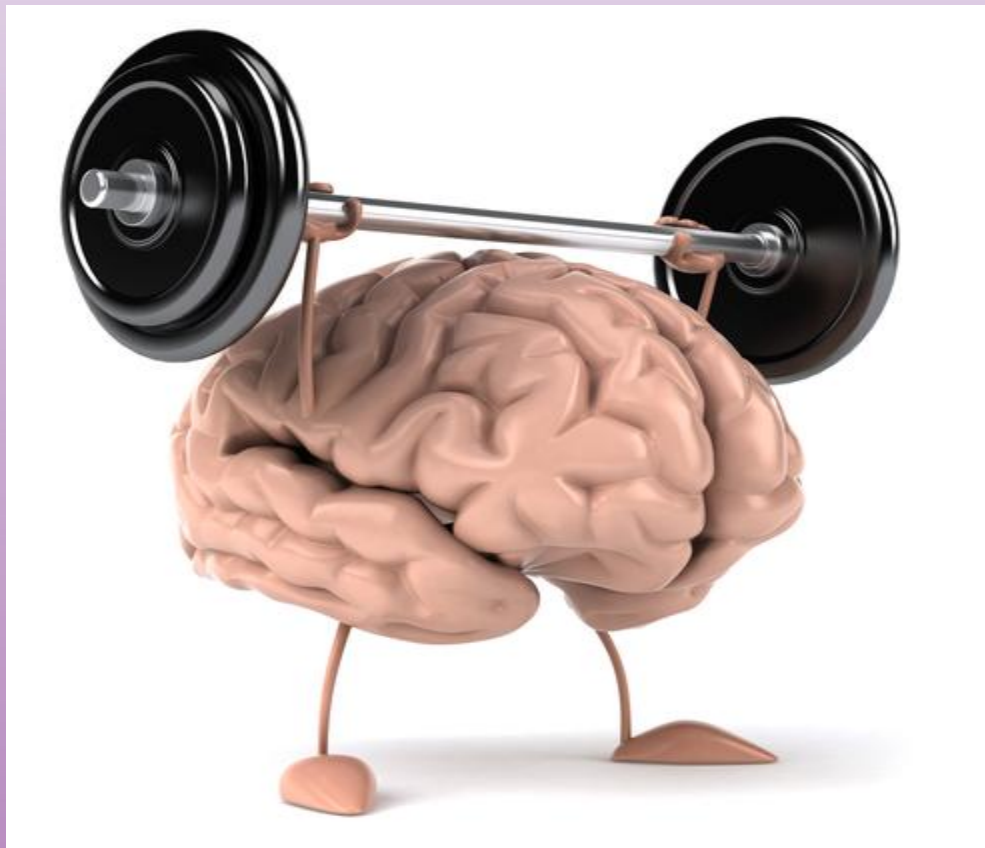


# Interventions

- Interventions are not as helpful as accommodations that should include:
  - Extra time to complete work
  - Reward accuracy over speed
  - Avoid timed tests
  - Reduce workload
  - Allow breaks



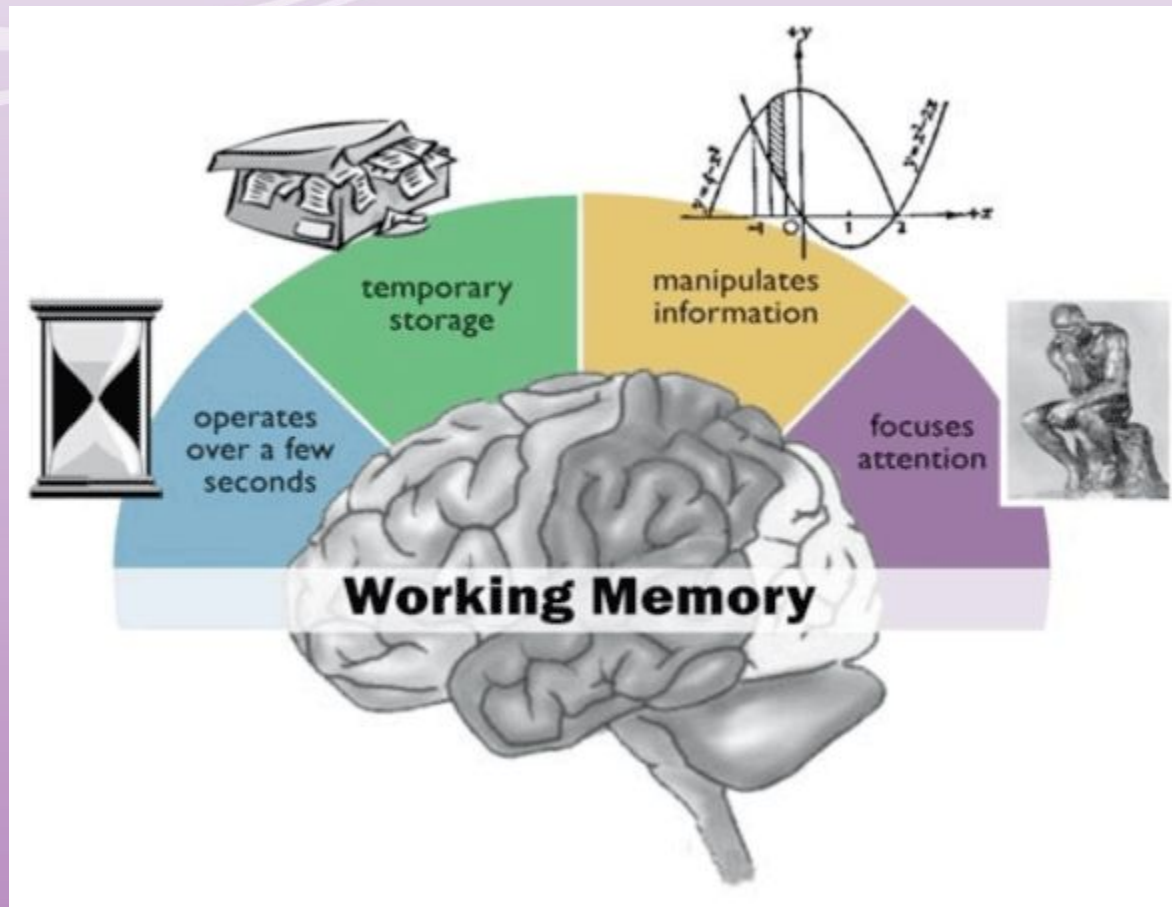
# Working Memory



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# What is Working Memory?





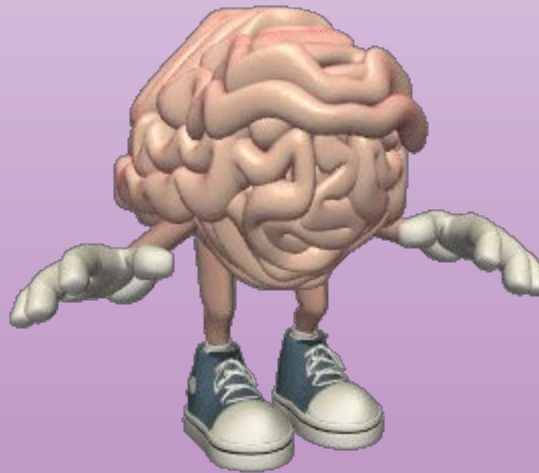
**It's the whiteboard of your mind. It allows you to focus on (temporarily) what comes next without forgetting what you are doing now.**



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# Lets give it a try!



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# Interventions

- Interventions have produced short term gains but not long-lasting results
  - Ex: Cogmed
- Interventions are again not as helpful as accommodations
  - Limit amount of information given at one time; Provide written notes of lectures; Repetition and review





# Attention



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# Poor Attention

Inattention, Distractibility &  
Short Attention Span



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# Attention problems are...

Fairly common side  
effect of radiation  
and/or chemotherapy

Not progressive but  
chronic in nature

Can masquerade as poor  
motivation or effort

Not apparent during  
screen time or when  
a child is highly  
motivated

Medications for ADHD  
are often needlessly  
prescribed and can  
be harmful



# Attention is complex

- The neurobiology is complex
- Front driven and rear driven systems are involved
- Working memory deficits
- Executive function deficits (due to underactivation of prefrontal systems)
- Can be acquired  
Toxins, injury
- Fairly consistent over time and across environments
- Fairly resistant to feedback/ learning



# Classic Pretenders are:

- Sleep deprivation
- Fatigue
- Sensory sensitivity, auditory or language delay
- Some medications
- Stress or PTSD
- Learning Disability
- Depression/Anxiety
- Opposition/willful choice





# Interventions

## (Evidence based)

- Physical activities and sports
  - improved self-esteem
  - Improved social relationships
  - improved focus
- Parent training/ school modifications to reduce symptom effects
- Behavioral intervention strategies
  - Somewhat helpful
- Medication





# Interventions (cont.)

- Preferential seating
- Availability of one on one assistance
- Frequent breaks
- Present information in smaller units
- Provide feedback
- Distraction-free workplace
- Encourage using a bookmark, highlighter or guide when reading
- Use a planner or organizer
- Encourage checking over work for mistakes



# Other affected domains can include:

- Overall IQ
- Learning speed
- Word retrieval
- Visual Spatial  
(constructive)
- Memory
- Motor coordination
- Executive Function
  - Initiation
    - Asking for help
  - Self-monitoring
    - Noticing mistakes
  - Organization
    - Materials
    - Information



# School problems can be caused by:



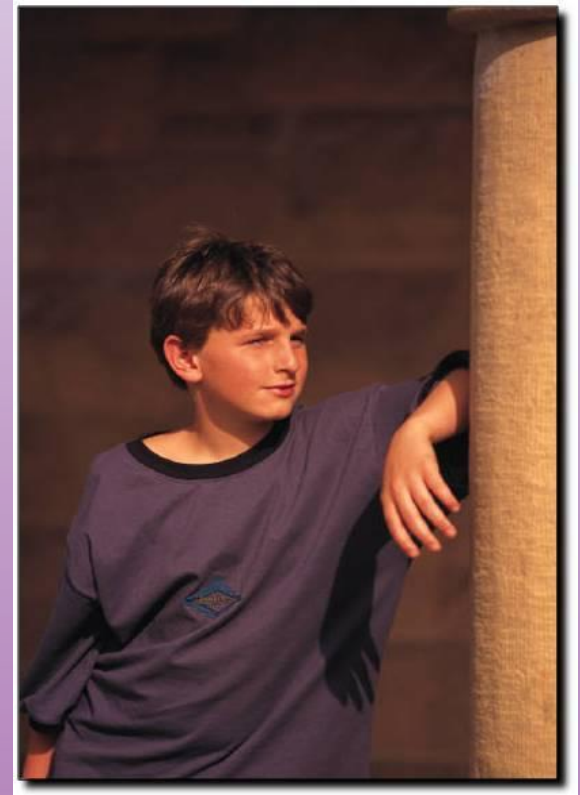
- Math disability
  - Brain tumors
  - Leukemia
  - Neurofibromatosis
- Language/Reading disability
  - Chemo/radiation at young age
- Math/reading fluency
  - Processing speed
- Everyday skills
  - Planning, organization, processing speed, working memory, attention, executive function deficits



# Changes in Mood

Depression or Anxiety may surface, due to:

- Increased dependency
- Loss of physical functionality
- Fatigue
- Social adjustment
- Acquired realism
- Life



# It is possible that....

Some difficulties may show up much later

- Complex reasoning
- Social deficits
- Academic Achievement

Some difficulties may worsen over time

- Working memory



# Keep a hopeful outlook

- Your child is not a statistic;
- Shared risk is not the same as shared destiny
- Resilience can be learned



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# Help your child to:

- Make connections
- Maintain a daily routine
- Nurture their own positive self-view
- Accept that change is a part of living
- Engage in healthy self-care
- Focus/celebrate their accomplishments
- Look for opportunities to help others



# Transitioning to Adulthood

## **Prepare early**

- Should involve all disciplines
- Neuropsychology is uniquely suited to assist
- Gradual transition
- Individualized plan

## **Guardianship/Supervision**

- Young adults may benefit from remaining in school until age 22
- They may need help with making decisions
- Parents may need additional guidance and support as well



# Community/Web Resources

- Arizona Center for Disability Law [www.acdl.com](http://www.acdl.com)  
602-274-6287
- Raising Special Kids 1-800-237-3007
- Banner Children's Specialists Division of Pediatric Neuropsychology 480-412-7486
- Phoenix Children's Neuropsychology 602-933-0414
- Arizona Neuropsychological Society [www.az-ns.org](http://www.az-ns.org)





**Questions?**



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