

Optimizing Cognitive Functioning and Brain Health During the Holidays

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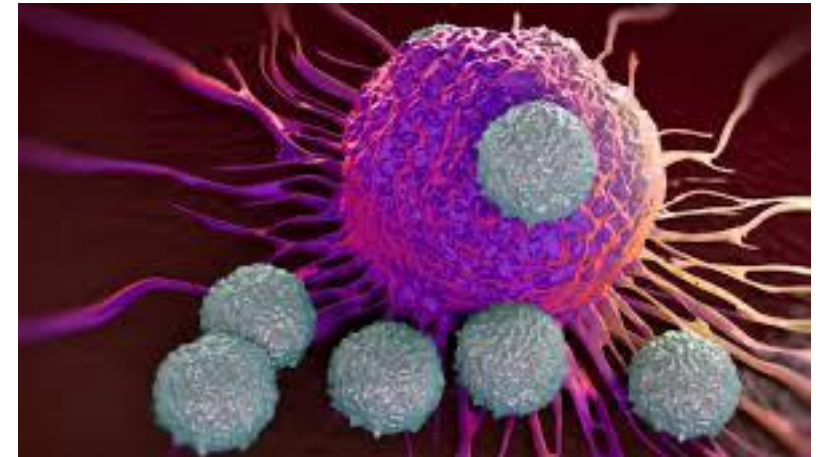
Department of Rehabilitation Medicine

December 9, 2023 – Healthy for the Holidays, Fred Hutch Survivorship Program

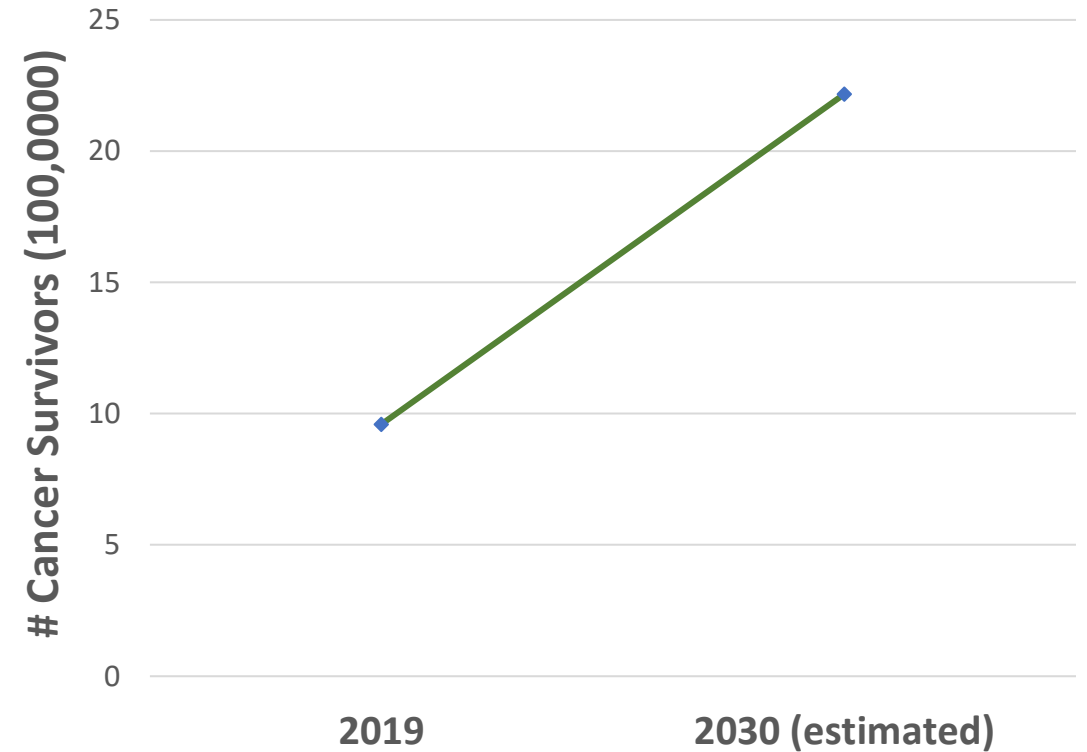
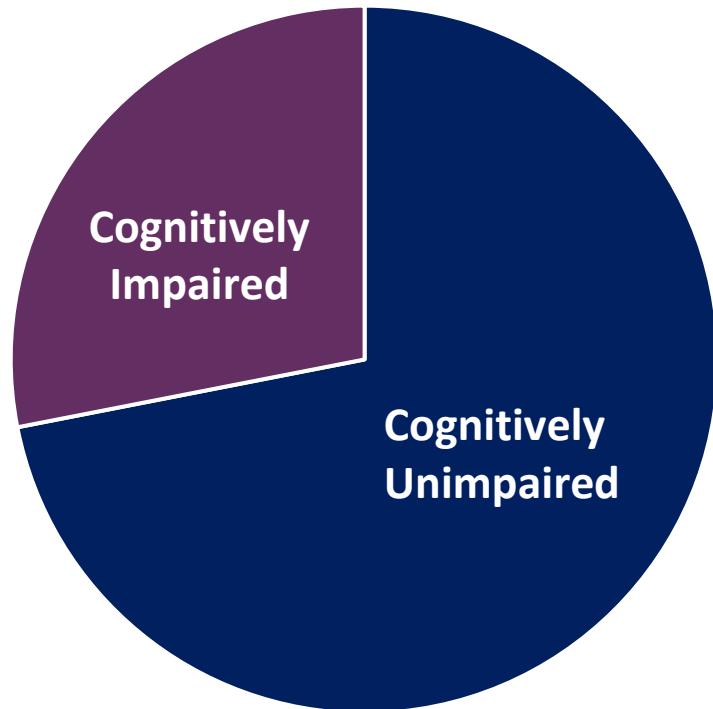
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Treatment Outcomes in Cancer

- Early studies of cancer treatments focused on:
 - Survival time
 - Time to disease progress
 - Remission
 - Cure
- Side effects – treatment toxicities (nausea, pain, etc.)
- More recently: quality of life, satisfaction, neurocognitive functioning (cancer-related cognitive impairment)

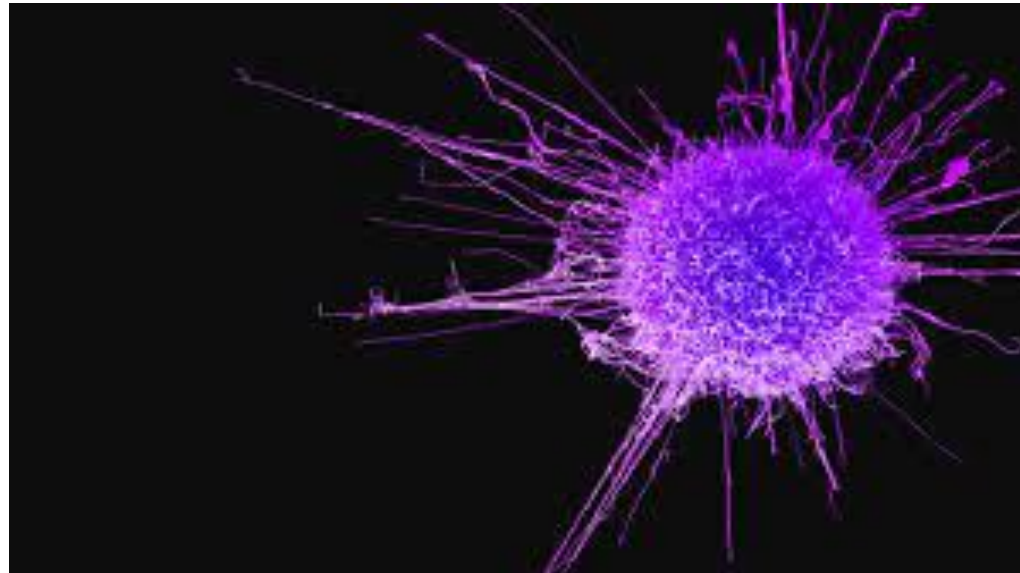


The Prevalence of Cancer Survivors Living with Cognitive Impairment is Increasing

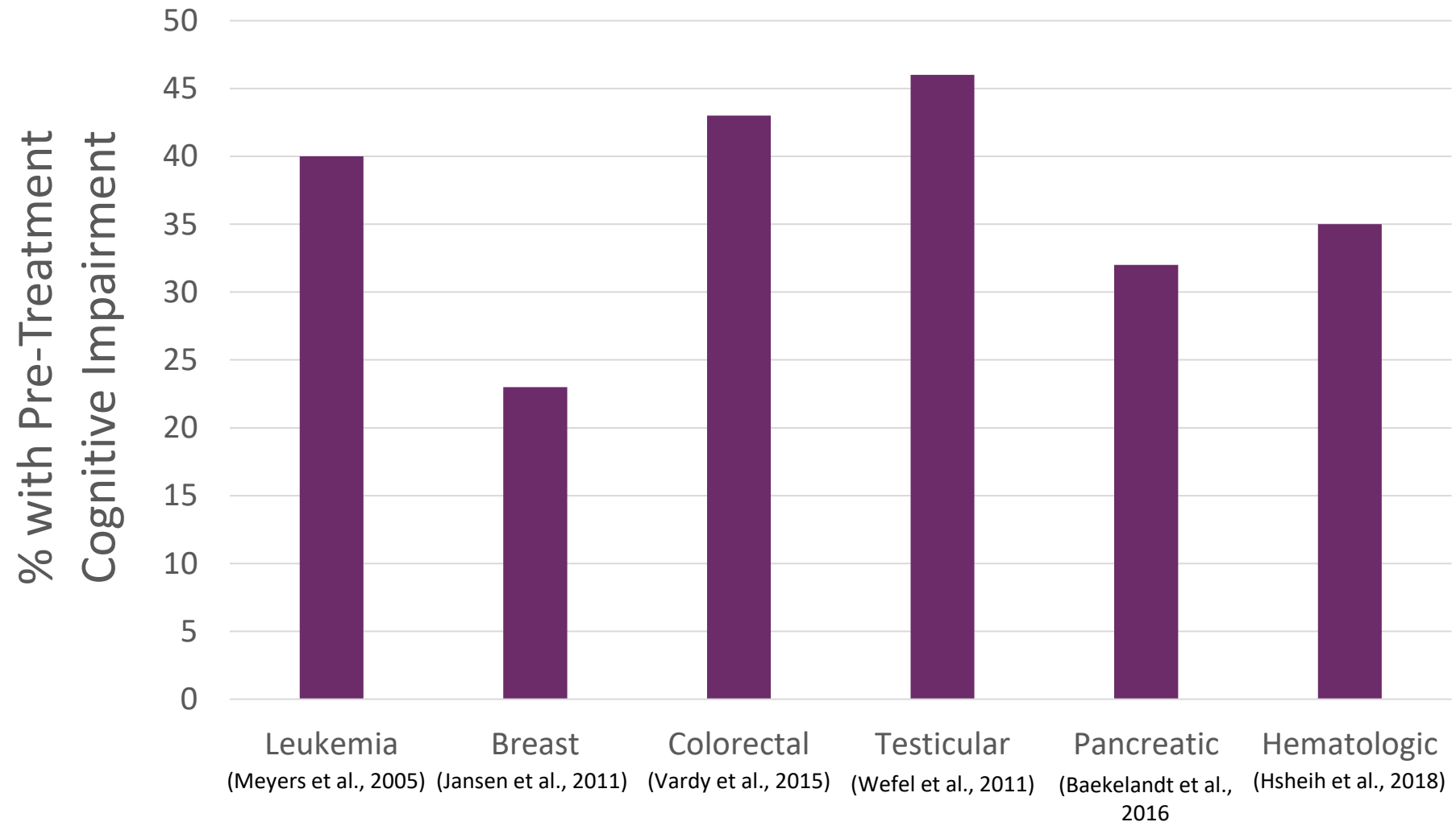


American Cancer Society, 2019

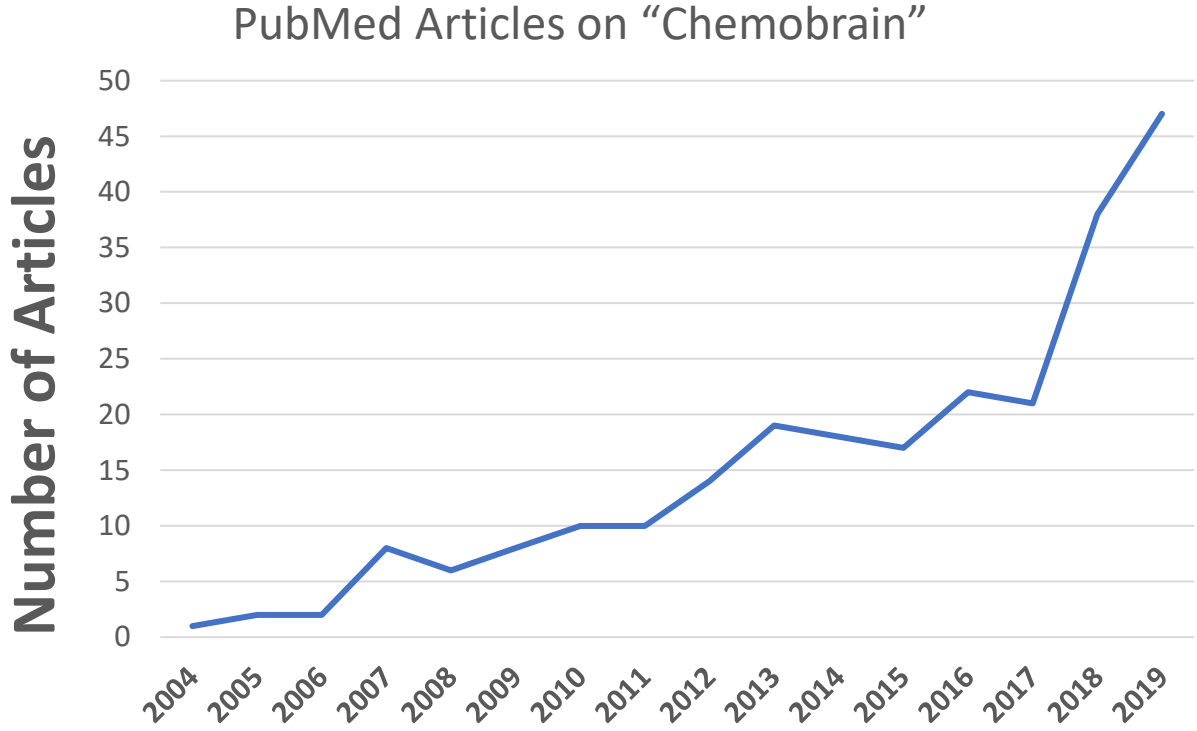
Effects of Cancer and Treatment on Cognitive Functioning



Pre-Treatment Neurocognitive Impairments



Effects of Chemotherapy on Cognitive Functioning



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Overview

Chemo brain is a common term used by cancer survivors to describe thinking and memory problems that can occur during and after cancer treatment. Chemo brain can also be called chemo fog, cancer-related cognitive impairment or cognitive dysfunction.

Though chemo brain is a widely used term, the causes of concentration and memory problems aren't well-understood. It's likely that there are multiple causes.

No matter the cause, chemo brain can be a frustrating and debilitating side effect of cancer and its treatment. Researchers are working to understand the memory changes that people with cancer experience.

Mayoclinic.org

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What is “Chemobrain?”

- *“Fogginess,” “forgetfulness,” “going blank”*
- *“Why am I not doing it the way and as quickly as before?”*
- *“... when driving, I couldn’t remember if I am supposed to turn or not.”*
- *“You backtrack. I forget where I put things.”*
- *“The other day I asked my son, “Where is my telephone?” and I was talking on it!”*

Chemobrain in Underserved African American Breast Cancer Survivors: A Qualitative Study

Connie Rust, PhD, DPh, MSW, and Cindy Davis, PhD



Although research has been conducted to address specific medical and psychosocial needs of breast cancer survivors, little has been done to address needs along the entire trajectory of care. One such need is chemobrain, a phenomenon recognized as an identifiable psychosocial cognitive change in breast cancer survivors. The purpose of this article is to present the findings of a qualitative study conducted with two focus groups of underserved African American breast cancer survivors. Four themes emerged from the transcribed interviews: the concept of chemobrain, variability among individuals, the stigma of chemobrain, and methods of coping.

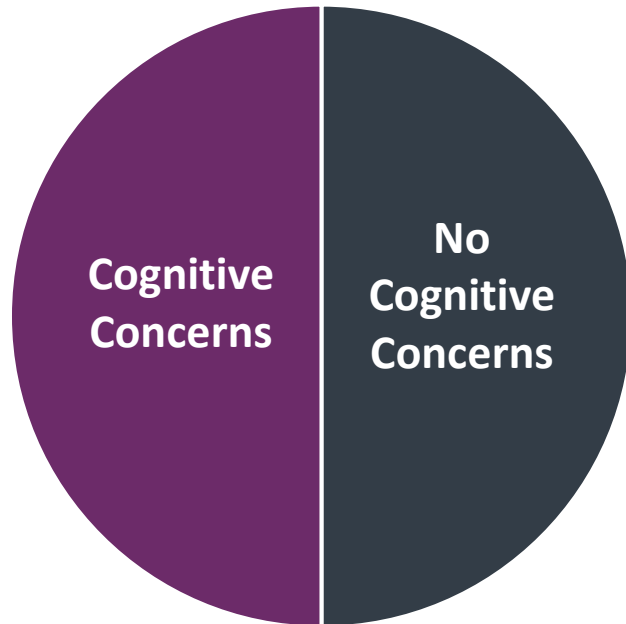
Rust & Davis, 2013; J Oncol Nursing

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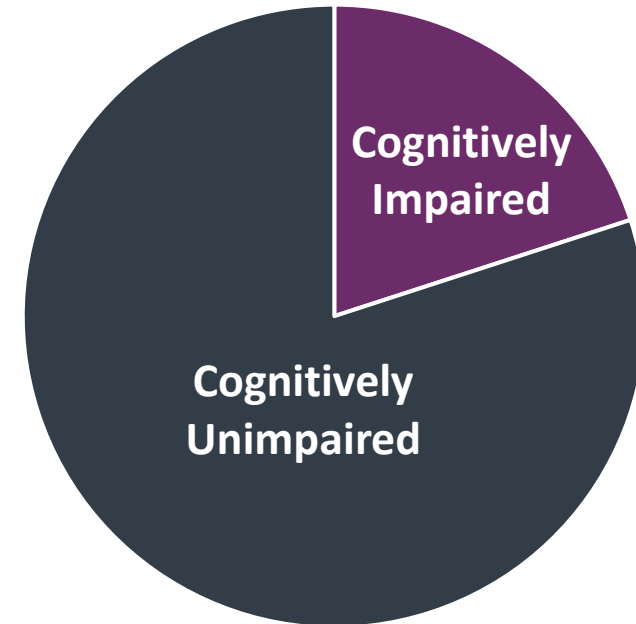
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Cognitive Concerns are Common After Chemotherapy

Self-Reported Cognitive Concerns



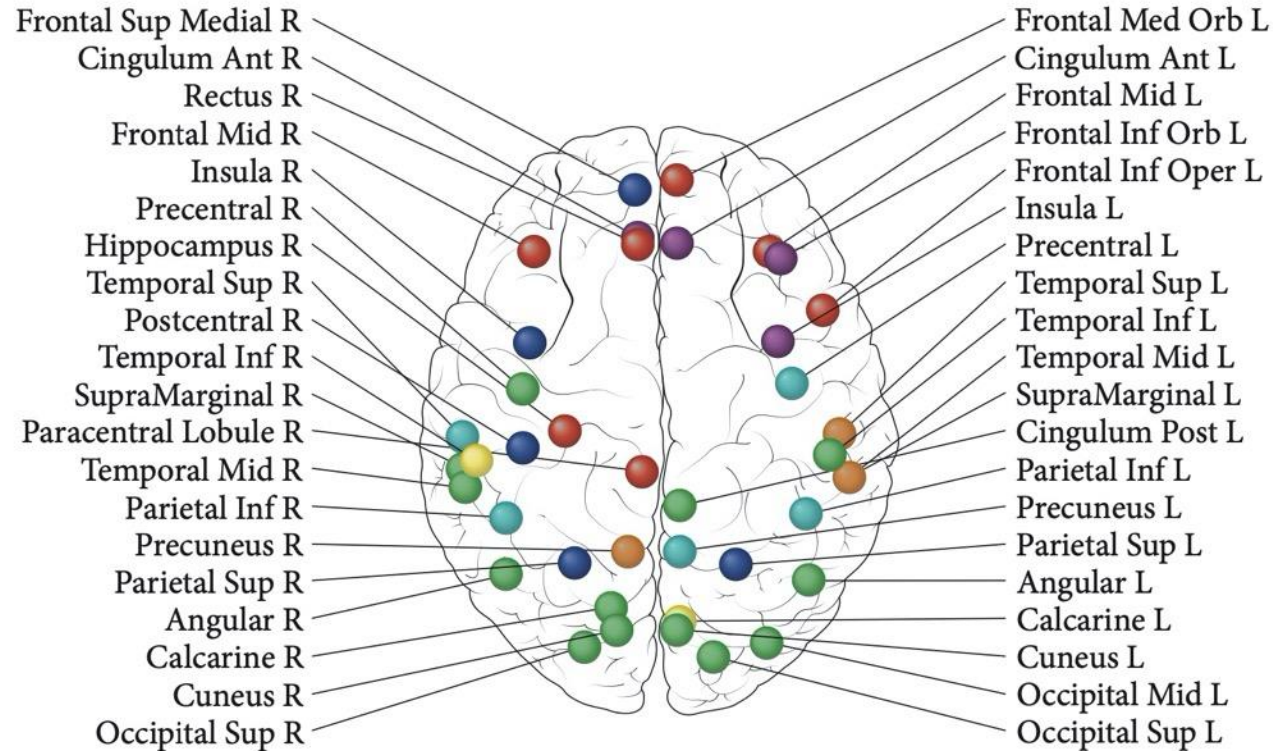
Cognitive Impairment on Performance Testing



Lange et al., 2019; Cancer Med

Ahles et al., 2012; J Clin Oncol

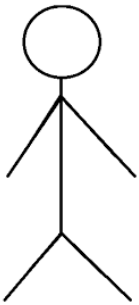
Neuroimaging: Chemotherapy Can Impact Both Brain Structure and Function



Lange et al., 2019; *Annals of Oncology*

Cognitive Dysfunction After Chemotherapy?

Twin A = Cancer + Chemotherapy



Cognitive Concerns?

YES

Performance on Cognitive Testing

“Normal”



Twin B = No Cancer, No Chemotherapy

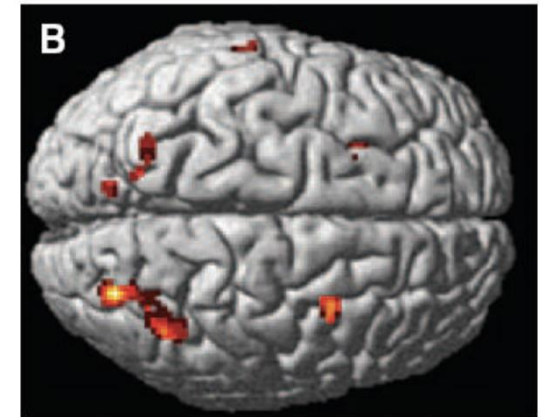


Cognitive Concerns?

NO

Performance on Cognitive Testing

“Normal”



Nature and Course of Chemotherapy-Related Cognitive Impairments

- Generally mild cognitive weaknesses
 - Can affect everyday functioning (work, education, etc.)
- Usually resolve within 1 year
 - For some cancer survivors, mild cognitive changes may persist for years (or possibly decades)



Neurocognitive Areas Commonly Affected in Cancer and Associated Treatments

Learning & Memory Retrieval

Remembering items on a holiday shopping list

Speed of Mental Processing

Keeping up with holiday conversations

Attention / Concentration

Maintaining attention during a social event

Executive Functions

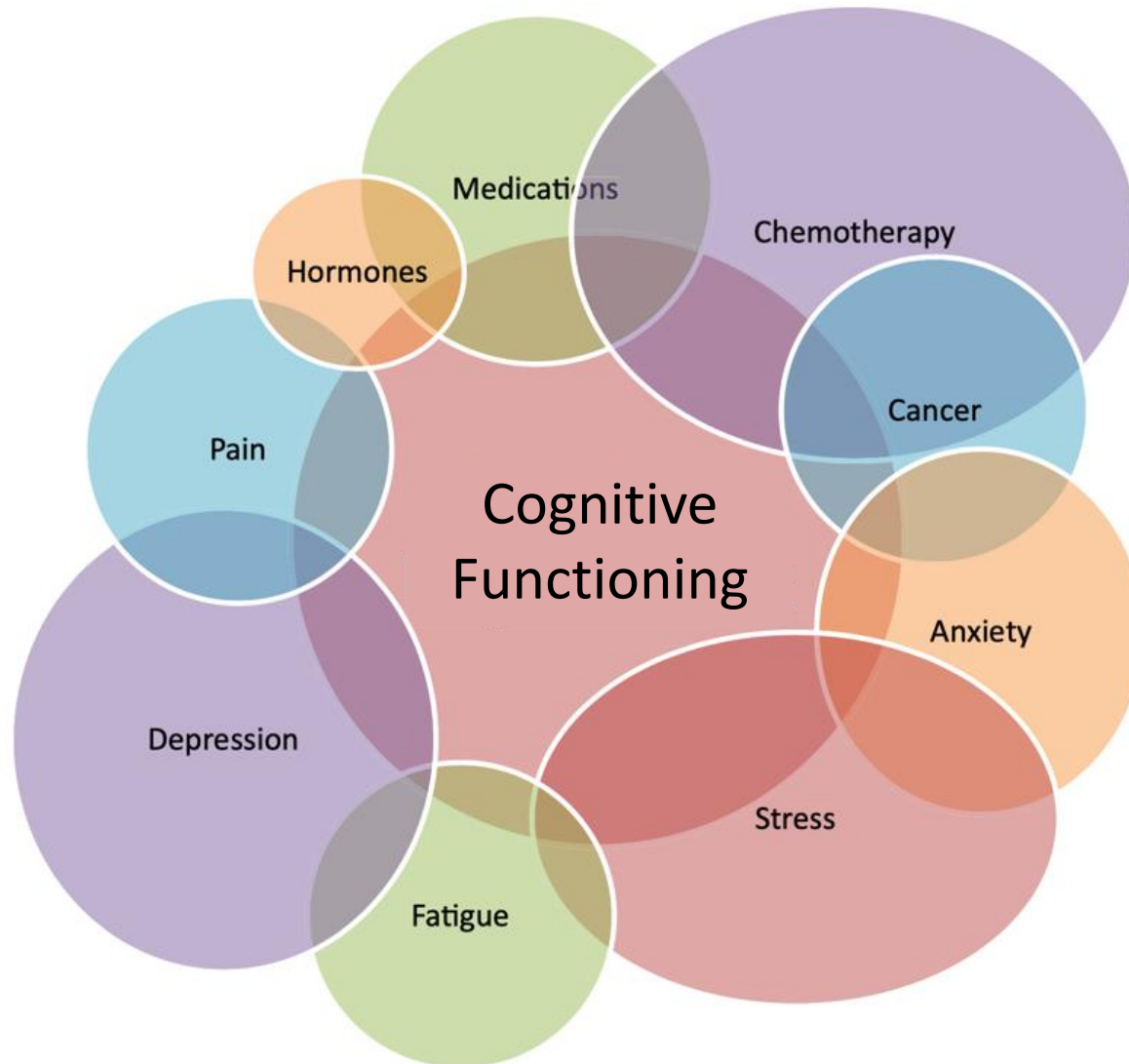
Switching between cooking and managing medical appointments

Problem Solving

Organization and Planning

Cognitive functioning in cancer: Is it all just cancer and treatment effects?

There are Multiple Factors that Impact Cognitive Functioning



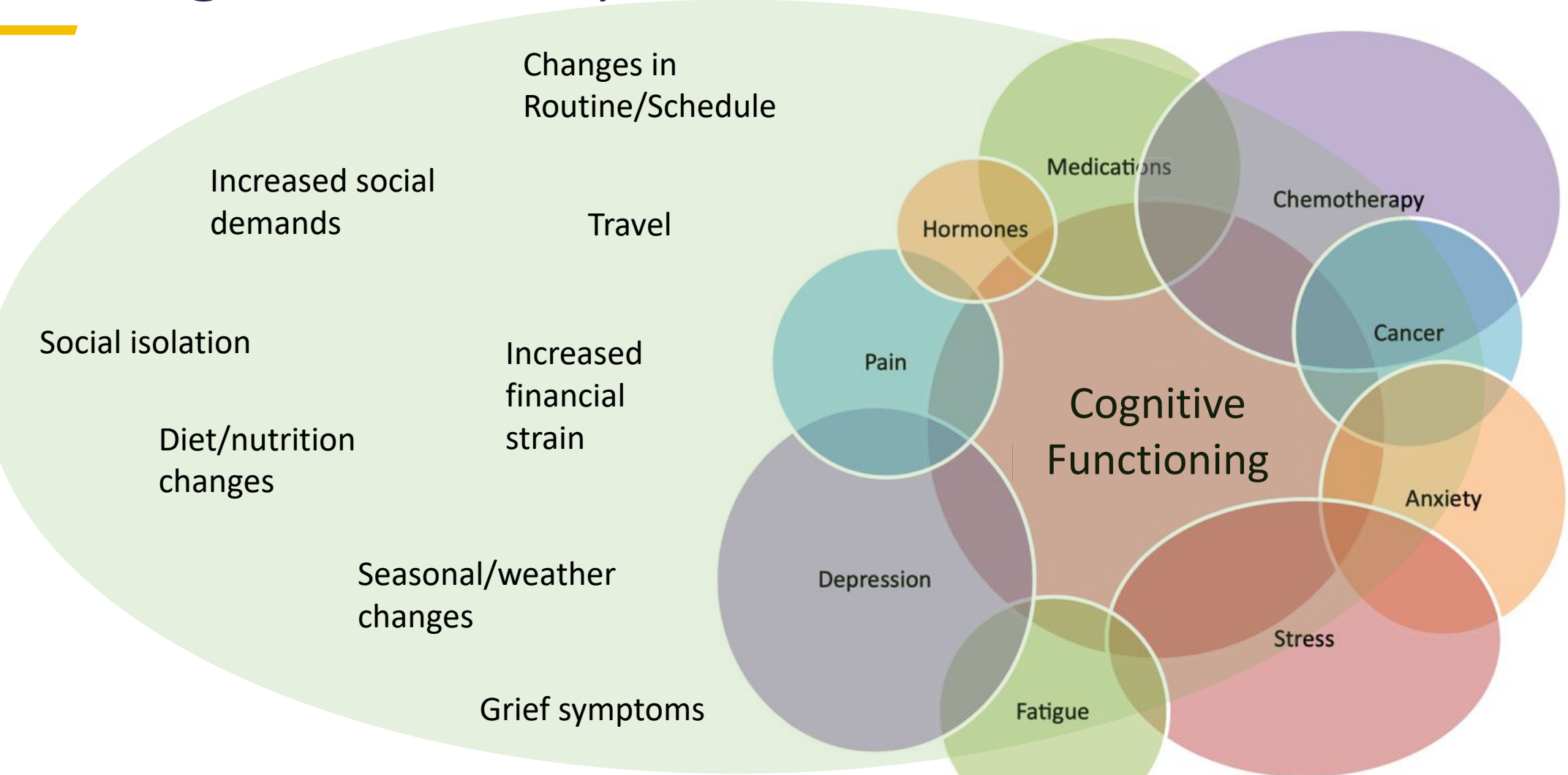
Vannorsdall, 2017; Med Clin North Am

Effects of the Holiday Season

- Holidays can be associated with:
 - Excessive daytime fatigue
 - Increased depression and anxiety
 - Change in schedule/routine
 - Change in diet/nutrition
 - Social isolation, increased social demands, or both
 - Seasonal/weather changes
 - Increased financial strain
 - Grief symptoms



Cognitive Functioning Among Cancer Survivors During the Holidays



Neurocognitive Areas Commonly Affected in Cancer and Associated Treatments

Learning &
Memory
Retrieval

*Remembering
items on a holiday
shopping list*

Speed of
Mental
Processing

*Keeping up with
holiday
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Attention /
Concentration

*Maintaining attention
during a social event*

**Executive
Functions**

***Switching between
cooking and managing
medical appointments***

Problem Solving

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Attention /
Concentration

*Maintaining attention
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~~Executive
Functions~~

The Holidays

***Shifting set between
cooking and managing
medical appointments***

Organization and Planning

Problem Solving

Management Strategies for Cancer-Related Cognitive Impairment



Strategies to Manage Cognitive Dysfunction

- Evaluate cognitive dysfunction risk
 - Look for your own patterns in thinking lapses (journals/diaries can help identify patterns)
 - Consider tracking mood, fatigue, pain, medications, etc.
 - Talk with healthcare provider about possible contributors (medications, pain, mood, etc.)



Some Cognitive Lapses are Normal (Especially During the Holidays)

- Remind yourself that cognitive lapses are common
- Ask yourself if something contributed to a cognitive lapse

Things We Normally Forget

“Symptom”	Percentage
Forgets telephone numbers	58%
Forgets people’s names	48%
Forgets where car was parked	32%
Loses car keys	31%
Forgets groceries	28%
Forgets reason for entering room	27%
Forgets directions	24%
Forgets appointment dates	20%
Forgets store locations in mall	20%
Loses items around the house	17%
Loses wallet or pocketbook	17%
Forgets content of daily conversations	17%

Improving Cognitive Functioning – What Works?

- Restoration? Improving our natural cognitive abilities
 - Brain/mental training exercises



- Compensation? Minimizing interference of cognitive difficulties in daily life
 - External strategies: alarms, calendars, to-do lists
 - Internal strategies: intentional noticing, visualizing, chunking



- Cognitive training/restoration does not strongly transfer to real-world activities. Compensation has better support for improving real-world cognitive functioning.

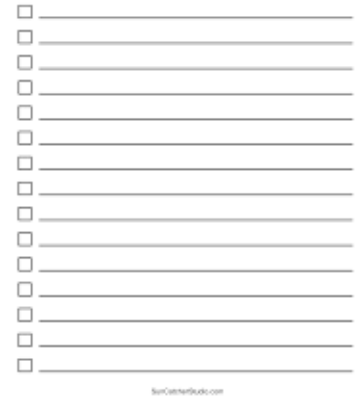
External Compensatory Strategies

- Use a memory notebook, daily planner, to-do list, notepad etc.

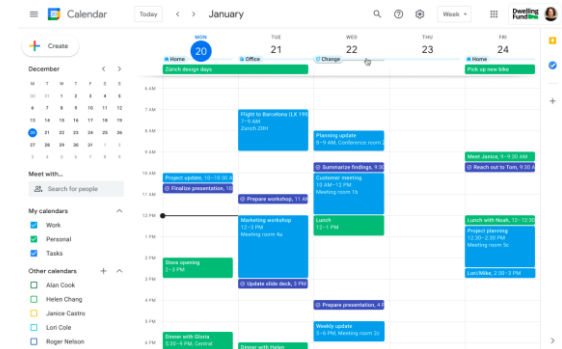
- USE A SINGLE SYSTEM. Do not use sticky notes.
 - Multiple notebooks/planners INCREASE multitasking.



to do list



- Find a time each day to review notebook. Set an alarm/calendar to do this.
 - Prioritize tasks, adjust schedule
- Consider a weekly time to plan out your calendar/week



External Compensatory Strategies

- Use alarms or electronic calendar to cue memory
- Central hub / memory station for essential items (keys, phone)
- Pillbox for organizing medications
- Memory whiteboard in one location
- Purposely putting things out of place as a cue:
 - Put laundry basket on kitchen table to cue laundry task
 - Place wallet on top of keys to remember to take it with you



Internal Compensatory Strategies

- External strategies are always the best memory/attention strategies, however:

- **Intentional noticing:**

- State out loud tasks you are to perform
 - “I’m going into the bedroom to get my phone”
 - “I’m going to pick up my prescription on my way home from work”
- Visualize performing a task
 - Imagine yourself picking up a prescription on the way home today

- **Chunking:**

bananas, asparagus, strawberries, broccoli, peppers, grapes
[bananas, strawberries, grapes] and [asparagus, broccoli, peppers]



Managing Factors that Impact Cognitive Functioning

Your brain is like a cup

Water = information your brain is managing daily

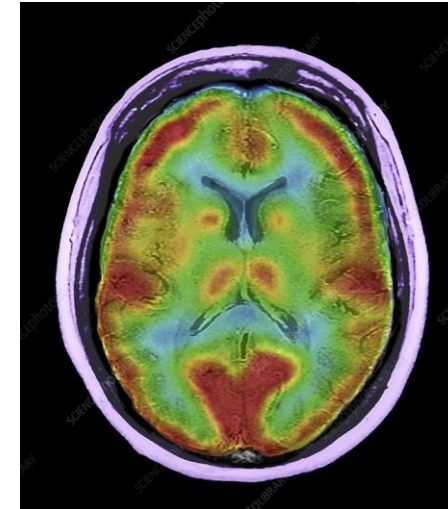
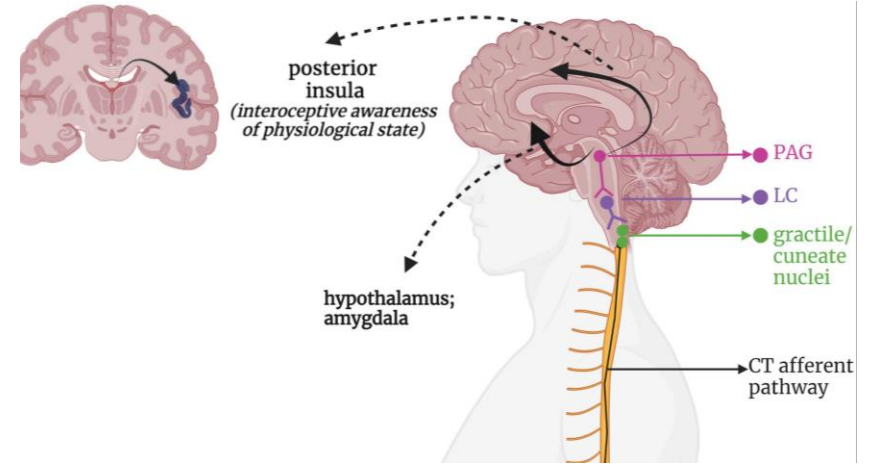
Ice cubes = distractors (e.g., stress, fatigue)



Behavioral Management of Mood and Stress

Behavioral stress management

- Diaphragmatic breathing, paced breathing, etc.
- Meditation
- Mindfulness
- Yoga
- Physical activity
- Additional treatment of mood (example: psychotherapy)



Managing Fatigue

- ***Physical activity (strongest evidence for cancer-related physical and cognitive fatigue)***
 - Regular physical activity, and don't over-exert
- **Pacing and energy conservation**
 - Use frequent breaks, even when you don't need them
 - Frequency and length of breaks depends on individual
 - Do not complete tasks in bursts of activity
 - Delegate tasks, when possible
 - Manage sleep



Sleep Hygiene

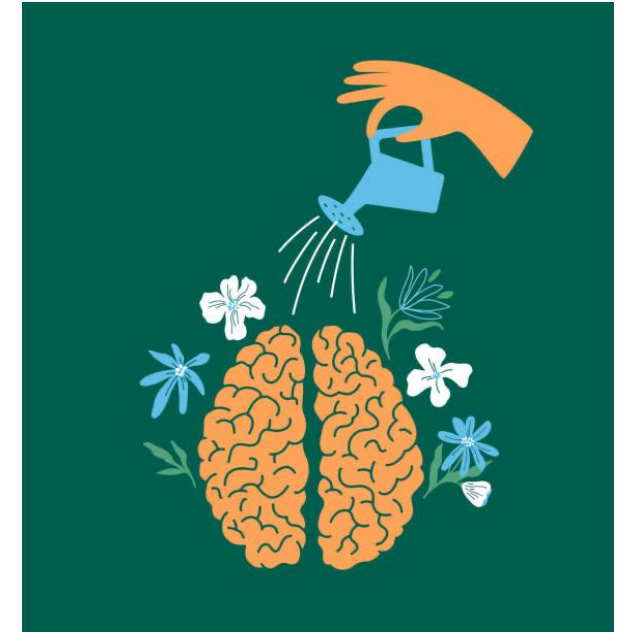
- Nap or not to nap?
 - Sleep is like hunger—eating a snack before a big meal can impact our appetite
- Keep a consistent schedule
- Minimize caffeine use in afternoon/evening, avoid alcohol before bedtime, turn off electronics 30 minutes before bed

If you don't fall asleep within 20 minutes, get out of bed to perform a quiet activity with low lighting. Return to bed when feeling sleepy, and repeat as needed.



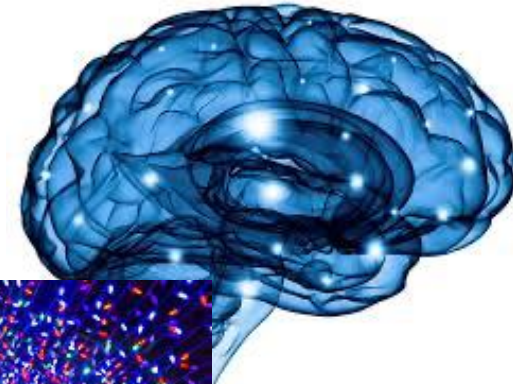
Healthy Cognitive Aging

- Regular physical activity
 - Aerobic activity has been shown to have benefits for memory and executive functions
 - In many studies, aerobic exercise = walking!
- Healthy diet
 - Fruits, vegetables, whole grains, fish
 - Minimize saturated fats and transfats
- Work with medical team to treat conditions that are risk factors for cognitive decline
 - Sleep apnea, high blood pressure, high cholesterol, diabetes
- Brain Health = Heart Health

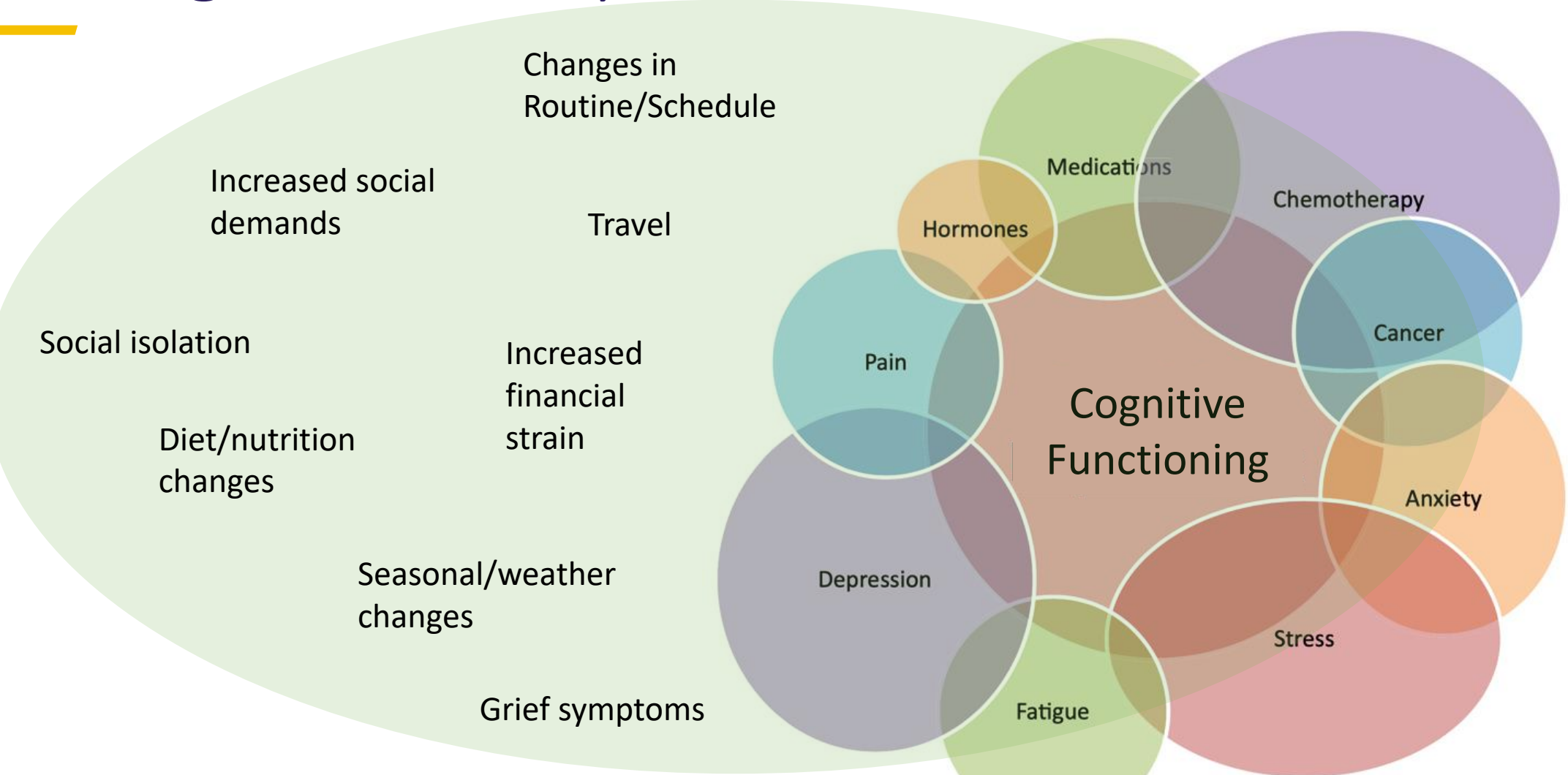


Ideas for Cognitive Rehabilitation During the Holidays

- Start a to-do list notebook, and set an alarm to review this each morning or afternoon
 - Set an alarm/calendar event to plan your week (alone or with family/care partner/friend)
 - Even if you attend to tasks well already, this can help free up cognitive energy!
- Set an alarm to take a regular break each day to give your brain a rest and minimize fatigue
 - Example: 5-minute break each hour
- Practice diaphragmatic breathing once daily for 5-minutes
 - Set an alarm or a to-do list task to remember to complete this daily
- Schedule a 10-minute walk each day as cued by an alarm



Cognitive Functioning Among Cancer Survivors During the Holidays



QUESTIONS?



What happens during a neuropsychological evaluation?

- **Clinical interview** (patient/family), ~60 min.
- **Psychometric evaluation** of cognitive and emotional functioning, 2-4+ hours.
- **Feedback** appointment (review findings/recommendations), ~60 min.
- **Written report** is provided to referring provider and patient



Neuropsychological Evaluation

- Objective measurement of cognitive capacities
 - Attention / Mental Processing Speed / Memory / Communication / Visuospatial Functioning / Executive Functions (Problem Solving, Reasoning, Thinking Flexibility)
- Emotional / Personality / Behavioral Factors
- Takes into account historical/other factors
 - Baseline cognitive capabilities
 - Possible learning deficiencies in past
 - Medications
- Outcome:
 - Gives you a good idea of your cognitive capacities and factors that might interfere with you applying your capacities to their full extent
 - Prescribe treatment options/program to improve functioning
 - What settings are best/worst suited for you
 - Helps determine your ability to return to productive activities, like work
 - Is there need for job accommodations/modifications