

Cultivating Resilience During
Bladder Cancer Care and
Survivorship:
(P)Rehabilitation

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2024 Spring Bladder Cancer Summit

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Roadmap for our Discussion Today

- The Problem: How Bladder Cancer Impacts Quality of Care
- Resilience
 - What is it?
 - Why its important
- Strategies to Cultivate Resilience with (P)REHABILITATION
 - Physical
 - Cognitive



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Impact of Bladder Cancer *and Treatment* on Patients (and their Caregivers):

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Long-term Side Effects of Therapy for NMIBC



Blood in the Urine
Urine may be red- or pink-tinted, but not always


Difficulty Urinating
Urgency, frequency, pain





Fatigue

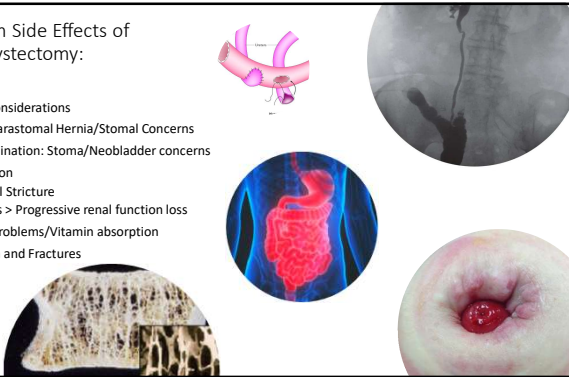
Pain
Pain in the lower back or pelvis



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Long-Term Side Effects of Radical Cystectomy:

- Cosmetic Considerations
- Incisional/Parastomal Hernia/Stomal Concerns
- Urinary Elimination: Stoma/Neobladder concerns
- Renal function
 - Ureteral Stricture
 - Acidosis > Progressive renal function loss
- Metabolic Problems/Vitamin absorption
- Bone Health and Fractures



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Sexual Function/Fertility/Endocrine Changes after Bladder Cancer Surgery

 <p>Prostate, SVS</p> <ul style="list-style-type: none"> • Erectile dysfunction • Penile shortening • Testicular swelling/hydrocele/lymphedema • Low Testosterone 	 <p>Uterus Fallopian tubes Ovaries Anterior Vagina</p> <ul style="list-style-type: none"> • Vaginal shortening/stenosis • Inability to achieve orgasm • Pain with sexual intercourse • Fistulae/Prolapse • Iatrogenic Menopause
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Change in body image, libido, psychological distress

Smetzer W et al. DOI: 10.1200/JCO.2018.36.6.supp.470 Journal of Clinical Oncology 36, no. 6, suppl (February 20, 2018): 470-470. Klotz RA et al. Nat Rev Urol 2014; 11(8):445-453.

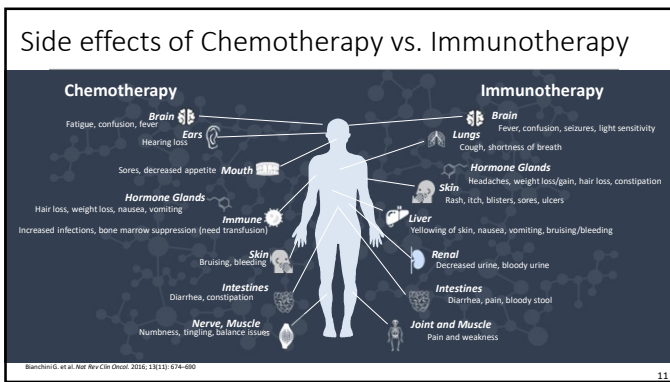
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Sexual Dysfunction beyond Erectile Dysfunction after Bladder Cancer Surgery in Men and Women

- Contributing factors:
 - Relationship Status/Sexual intimacy
 - Depression
 - Anxiety
 - Grief
 - Mourning
 - Partner Sexual Dysfunction
 - Comorbidities



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Anxiety, Depression, Trauma, and Distress


Distress "a multifactorial unpleasant emotional experience of a psychological (ie, cognitive, behavioral, emotional), social, spiritual, and/or physical nature that may interfere with the ability to cope effectively with cancer, its physical symptoms, and its treatment."

- Survivors of cancer have increased risk for mental health concerns:
 - Fear of recurrence
 - Distress
 - Anxiety
 - Depression
 - Suicidality

— Can persist for years, after diagnosis & treatment

Lu D, et al. JAMA Oncol 2016;1188-1196.

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How Anxiety and Distress Manifest during Survivorship

Fear of recurrence

- ☑ Increased symptoms at surveillance appointments
- ☑ Increased anxiety with physical symptoms

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Risk Adapted, Guideline-Driven Surveillance

- NMIBC – every 3 months – 1 year, indefinitely...
- MIBC – every 3 months – 1 year, indefinitely...
- Metastatic disease – every 2-6 weeks – 3 months, indefinitely...

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Impact on Physical Function and Independence

- NEW need for assistive device
- Upgrade assistive device (ie- formerly had a walking stick, now needs a walker, starts presenting in hospital wheelchair)
- Increased Fall Risk
- Need for caregiver or additional care
- Impairments prohibit returning to work or leisure activity
- Increased pain medication
- Impaired cognition

April 17, 2024 15


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Key points



Bladder cancer and treatments can affect all areas of life

Everyone experiences this impact differently



So, the question is, how can we help our patients be more ready to face and handle these challenges?

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Fortune favors the prepared.

Howard Hawks

#BladderCancer

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Key Point:
Survivorship Care starts BEFORE TREATMENT BEGINS

- Many topic covered in survivorship should be initially addressed during treatment planning
 - Education, Preparation
 - Goal of preventing or reducing the risk of complications of the disease and treatments

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Taking Stock: Personalized Risks vs. Resources

 Resilience Capital Fitness Physical Cognitive Psycho-social	 Risks Treatment-associated Toxicity Competing Comorbidities Frailty Individual Vulnerabilities
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Key Concept #1: RISK

E.g. Frailty: A Global, Multidimensional Measure of **Vulnerability** to Stressors

→ **Independently predictive of adverse outcomes** across cancers, stages, and treatments

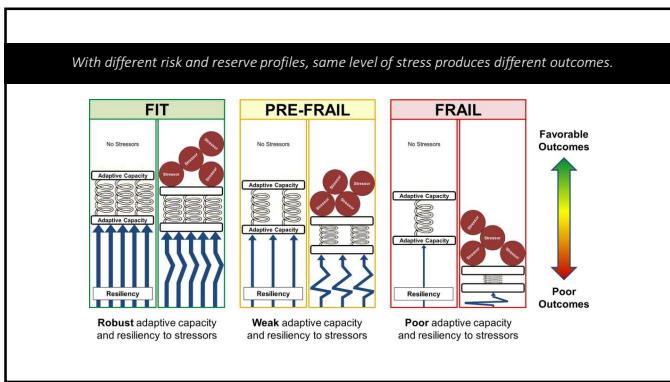
Chung A et al., J Am Coll Surg 2007; 225 (6): 658-665; Rockwood K et al., CMAJ 2005; 173 (5): 489-495; Richards DG et al., Int J Colorectal Dis 2018; 33(12):1603-1610; Bugarsic C et al., Arch Gerontol Geriatr 2015; 61(3):309-21; Walker RW et al., PLoS One 2019; 14(4):e0212516; Johns N et al., Int J Biochem and Cell Biol. 2013;4(5): 2215; Andrews J et al., Clinical Nutrition 2017; 36: 1187.

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Implications of Frailty for Patients with Bladder Cancer

- Decreased ability to tolerate chemotherapy, immunotherapy, surgery, anesthesia
- Decreased Life Expectancy
- Poor Functional Status
- Increased Symptom Burden
- Decreased Quality of Life
- Loss of Independence
- Decreased sense of Dignity/Well-being

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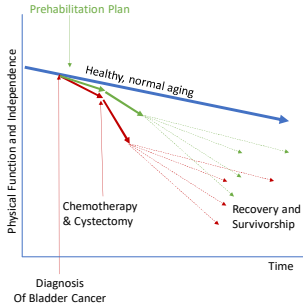


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Resilience



...an individual's ability to **maintain psychological and physical functioning in the face of stressors**




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Evidence that Resilience Impacts Recovery after Surgery


High resilience is correlated with:

- Less pain, lower analgesic use, and better pain control, 1 year after gynecologic surgery
- Patient-reported quality of life 6-12 weeks after surgery (highest correlation in surgical oncology cohorts)
- Improved pain control, reduced anxiety after cardiovascular surgery



Bakamita et al., BMC Women's Health 2022
Zunsteg D, BJU 2016 <https://open.bjui.edu/ds2/stream/79/documents/108119/page/2>
Corcio NE, UTSW et al. 2022 https://utswmed.utsw.utd.edu/secerv/doi/cvscv/bjstream/41680042_0b0a-4bce-4f41-47b47c1e7e58/content

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UW Uro-Oncology Resilience Assessment Tool (43 items, self-reported)

- Psychometric Capital
 - Hope, Efficacy, Optimism
- Resilience
- Efficacy
- Thriving
- Self-Compassion

RESILIENCE CAN BE MEASURED:

Characterizing Psychological Resources in 67 patients with Bladder Cancer

BCAN YIA 2019
Petersen and Psutka

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Pilot Data:
Characterizing
Psychological
Resources in 67
patients with
Bladder Cancer

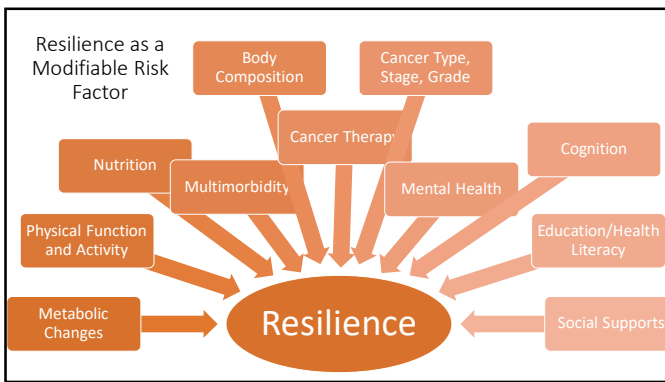
BCANYIA 2019
Petersen and Psutka

Domain	Assessments	Psychological Resources			
		Psychological Capital	Resilience	Self-Compassion	
Human	Sex	0.06	-0.01	0.04	-0.01
	Age	0.01	0.11	0.02	0.04
Psychological Resources	Psychological Capital	0.77	0.77	0.72	0.52
	Resilience	0.72	0.81	0.81	0.68
	Self-Compassion	0.52	0.68	0.64	0.64
Functional Frailty Assessment	Clinical Frailty Scale	-0.12	-0.14	-0.11	-0.21
	Grip (R)	-0.14	-0.1	0.13	-0.05
	Grip (L)	0.13	0.06	0.12	-0.22
	Timed Up and Go	-0.07	-0.17	-0.17	-0.37
	Rate ADLs	0.08	0.17	0.16	0.04
Multimorbidity	CHRS-G	-0.04	0.13	0.03	0.08
	CCI	-0.08	-0.12	-0.06	-0.01
Mental Health/Cognition	Geriatric Depression Scale	-0.5	-0.65	-0.49	-0.56
	Mini-Mental	-0.09	-0.16	-0.11	0.01
Nutrition	Mini-Nutritional	-0.1	-0.04	0.01	0.02
	Albumin	-0.01	-0.02	0.06	-0.07
	Sarcopenia	0.24	0.18	0.19	0.05

Summary of correlations between psychological resources and frailty domains
Blue: positive associations, Red: negative associations, Bold: indicates significant associations

Associations between Resilience, Mental Health, and Measures of Strength and Physical Performance

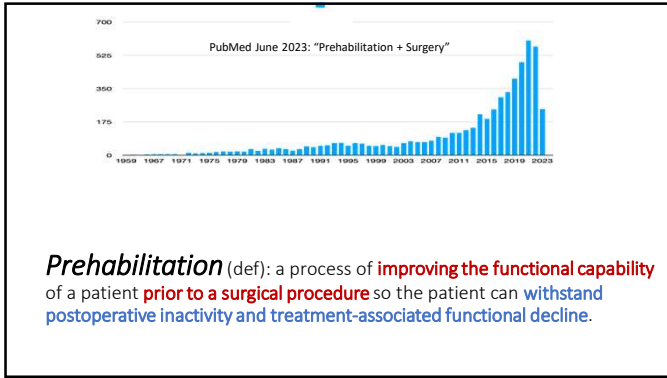
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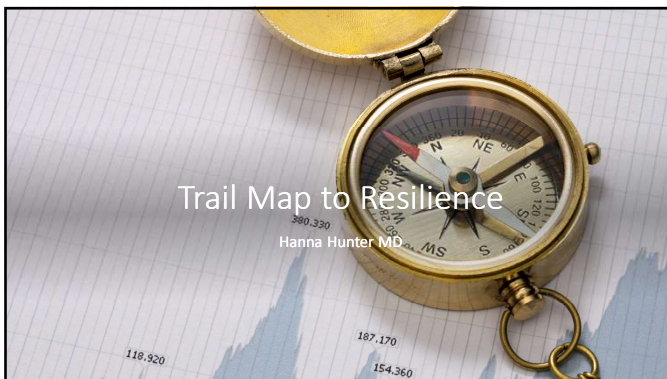
Prehabilitation focuses on **modifiable risk factors** to improve the status of the patient to improve:

1. **Candidacy** for treatment
2. Post-treatment **Outcomes**

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graph TD
    A[Core Prehab Domains] --- B[Physical]
    A --- C[Mental]
    A --- D[Nutritional]
  
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Resilience:

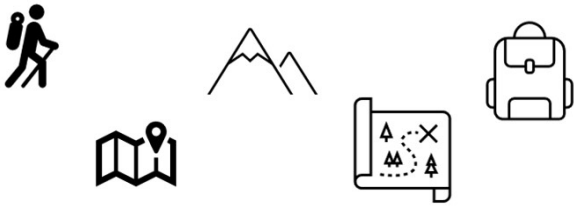
The ability of an elastic material (such as rubber) to absorb energy (such as from a blow) and release that energy as it springs back to its original shape



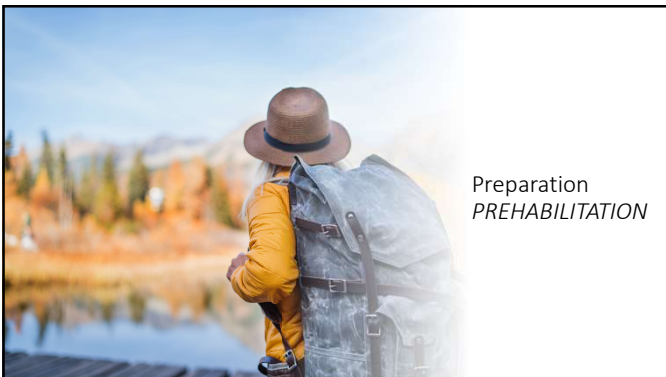
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Preparation (prehab), Pacing, Perspective

Personalized and Pragmatic



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Preparation
PREHABILITATION

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Psychological

- Your lived experiences
 - Prior challenges
- Coping skills
- Determination
- Mindset

Physical

- Strength
- Flexibility
- Aerobic fitness
- Stamina

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2022 Exercise, Diet, and Weight Management During Cancer Treatment: ASCO Guideline

- Oncology providers should recommend aerobic and resistance exercise during active treatment to mitigate side effects of cancer treatment

DOI: 10.1200/JCO.2020.38.15.2567 Journal of Clinical Oncology 40, no. 22 (August 01, 2022): 2491-2507.

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FOR PEOPLE DURING & FOLLOWING CANCER TREATMENT

Research shows lower amounts of exercise can still help with the following cancer treatment-related symptoms:

Cancer-related fatigue	Health-related quality of life	Physical function	Anxiety
Depression	Sleep	Lymphedema ¹	Bone health ¹

To improve these symptoms, choose an exercise plan below:

Aerobic Exercise 3x per week 30-60 mins	OR	Resistance Exercise 2x per week 2 sets/8-15 reps	OR	Aerobic Exercise 2,3x per week 20-40 mins	+	Resistance Exercise 2x per week 2 sets/8-15 reps
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Helps to manage the following symptoms: (Color-coded icons for each symptom)

<https://www.exercisemedicine.org/kim-in-action/moving-through-cancer/>

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Prevention

Exercise is medicine

- o Lowers risk of several common cancer types
 - < 5% of adults participate in ~30 mins of physical activity each day
 - >80% of adults do not meet recommended exercise guidelines

How much activity do I need?

Moderate-intensity aerobic activity
Anything that gets your heart beating faster counts.

150 minutes a week

Muscle-strengthening activity
Do activities that make your muscles work harder than usual.

2 days a week

AND

Tight on time this week? Start with just 5 minutes. It all adds up!

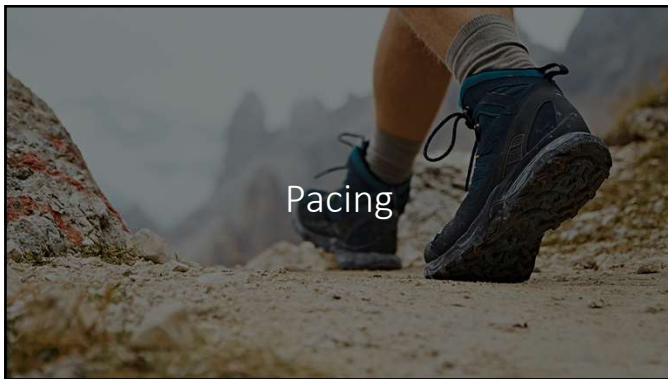
<https://www.cdc.gov/physicalactivity/data/healthypromove/index.html#overal>
McTernan A, Friederich CM, Katzmarzyk PT, et al. Physical activity in cancer prevention and survival: A systematic review. *Medicine and Science in Sports and Exercise* 2019; 51(6):1252-1261.

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“Exercise Prescription” - personalized & pragmatic

What kind?
How often? frequency?
Dose? how much?
Side effects?
Precautions?

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Pacing: Being 'energy-wise'



PRE-PLANNED STRATEGY



CONSERVING ENERGY FOR ACTIVITIES YOU VALUE



LEARN YOUR NEW BASELINE



ROUTINE > INFREQUENT BURSTS OF EXERCISE

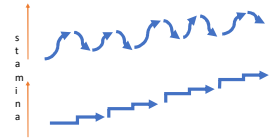


10% INCREASE A WEEK

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Setting a new baseline


- **The 75% rule**
 - If you think that you can carry out an activity for 20 minutes, try reducing your activity time by five minutes to 15 minutes (75% of 20 minutes)
- Conditioning exercise should be manageable for good days and bad days




American Society of Clinical Oncology Educational Book 42 | April 8, 2020 | 932-938.

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Establishing a routine




Enhance enjoyment of the activity Pair exercises with meals
Exercise while listening to music, audiobook



Use activity tracker (self-monitoring) Diary



Social support



Set backs can happen, but sometimes we need to take a step back to move forward!

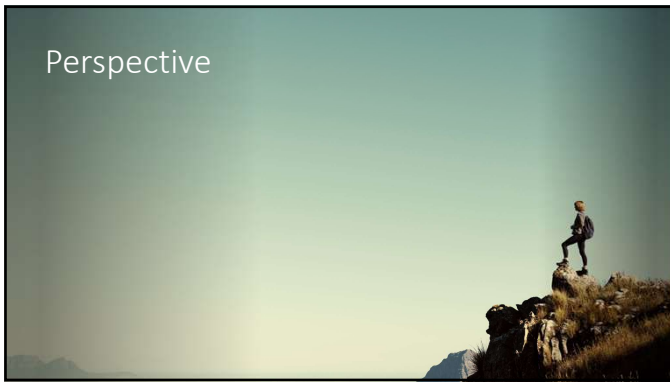
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RPE SCALE	RATE OF PERCEIVED EXERTION
10	MAX EFFORT ACTIVITY Fully exhaust themselves in every effort. Completely out of breath, unable to talk. Cannot continue for more than a very short time.
9	VERY HARD ACTIVITY Very difficult to maintain exercise intensity. Can barely breathe and speak only a few words.
7-8	VIGOROUS ACTIVITY Exertion uncomfortable. Short of breath, can speak a sentence.
4-6	MODERATE ACTIVITY Breathing heavily, can hold a short conversation, still somewhat uncomfortable, but becoming noticeably more challenging.
2-3	LIGHT ACTIVITY Talks to you non-stop for hours. Easy to breathe and easy to converse with.
1	VERY LIGHT ACTIVITY Hardly any exertion, but more than sleeping, watching TV, etc.

Exercise snacks

- Going from 10 activity to 20 minutes of activity is >double the energy expenditure
- Build up endurance by adding in few minutes of activity throughout the day
 - Sit-to-stand
- Moderate intensity: Keep exertion < 6/10
- Progress
 - 1 set of 10 repetitions =>
 - Try 2 sets of 6, then 2 sets of 7

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Perspective

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I can be changed by what happens to me. But I refuse to be reduced by it.
- Maya Angelou

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People


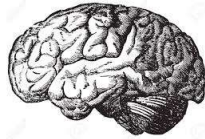
- Community
 - Shared experiences
 - Positive memories
 - Build psychologic reserve and resources
 - Develop connection
 - Acceptance

Growing mental muscle



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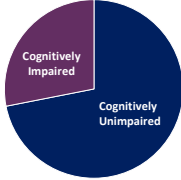
Cognitive Prehabilitation



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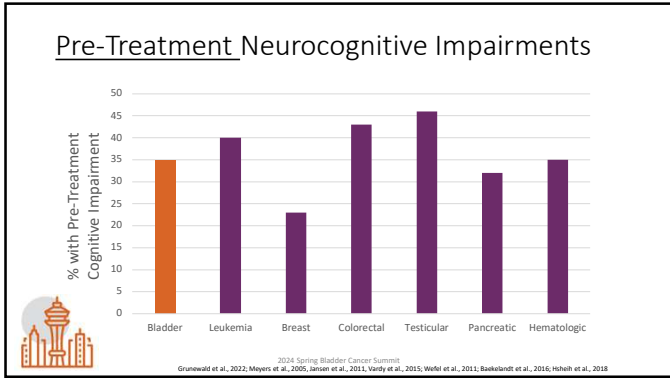
The Prevalence of Cancer Survivors Living with Cognitive Impairment is Increasing



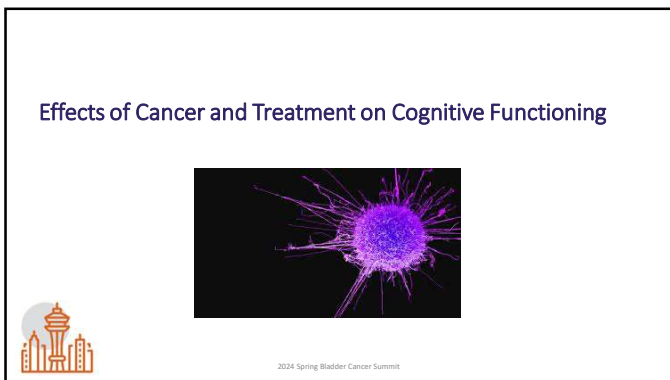
Janelins et al., 2011; Semin. Oncol. American Cancer Society, 2019

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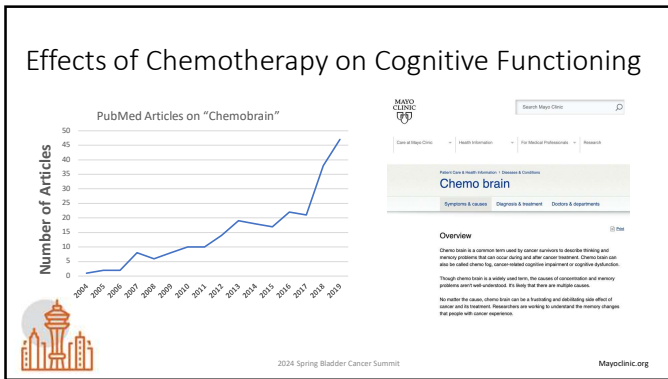
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Possible Cognitive Effects of Bladder Cancer Treatments

- Cystectomy and surgery?
 - No strong evidence for sharp cognitive declines in cognition following cystectomy (Schoenenberger et al., 2016)
- Systemic chemotherapy or radiation effects?
 - Findings are primarily from other cancers (e.g., breast cancer), but findings are relevant to bladder cancer
 - No expected changes for intravesical chemotherapy
- Immunotherapy or immune checkpoint inhibitors?
 - Less is known about cognitive effects of these treatments
- Other factors such as mood, fatigue, pain, lifestyle changes?

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What is "Chemobrain?"

- "Fogginess," "forgetfulness," "going blank"
- "Why am I not doing it the way and as quickly as before?"
- "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!"

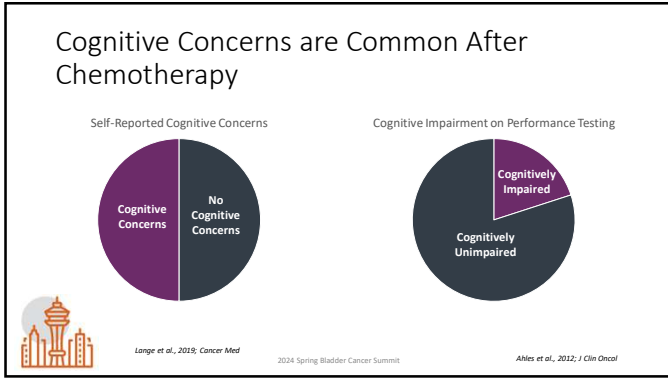
Chemobrain in Underserved African American Breast Cancer Survivors: A Qualitative Study

Conner Kuhl, PhD, MPH, MSW, and Cindy Davis, PhD

Although research has been conducted to address specific medical and psychosocial needs of African American 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 that emerged from the transcribed interview: the concept of chemobrain, variability across individuals, the cause of chemobrain, and methods of coping.

2024 Spring Bladder Cancer Summit | Rust & Davis, 2013; J Oncol Nursing

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Neuroimaging: Chemotherapy Can Impact Both Brain Structure and Function

2024 Spring Bladder Cancer Summit Lange et al., 2019; Annals of Oncology

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Cognitive Dysfunction After Chemotherapy?

Twin A = Cancer + Chemotherapy		<u>Cognitive Concerns?</u>	<u>Performance on Cognitive Testing</u>	
		YES	"Normal"	
Twin B = No Cancer		<u>Cognitive Concerns?</u>	<u>Performance on Cognitive Testing</u>	
		NO	"Normal"	

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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)

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What about radiation effects on cognition? 




- No observed effects on cognitive functioning in the 1-1.5 years after radiation (outside the brain)
- However, there are some mild worsening of cognitive symptoms reported by patients, although not to the level of chemotherapy

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Jenkins et al., 2006
Donovan et al., 2005

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Neurocognitive Areas Commonly Affected in Cancer and Associated Treatments

<p>Learning & Memory Retrieval</p> <p><i>Remembering items on a shopping list</i></p>	<p>Speed of Mental Processing</p> <p><i>Keeping up with conversations</i></p>	<p>Attention / Concentration</p> <p><i>Maintaining attention</i></p>	<p>Executive Functions</p> <p><i>Switching between cooking and managing medical appointments</i></p> <p><i>Problem Solving</i></p> <p><i>Organization and Planning</i></p>
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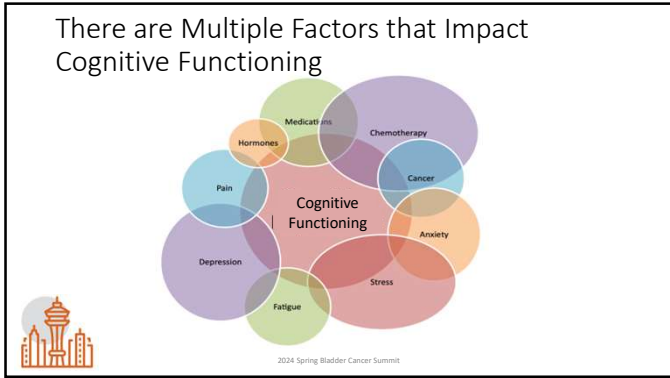
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Lindner et al., 2014; Neuropsychology
Hodgson et al., 2013; Cancer Treat Review
Vardy et al., 2015; J Clin Oncol

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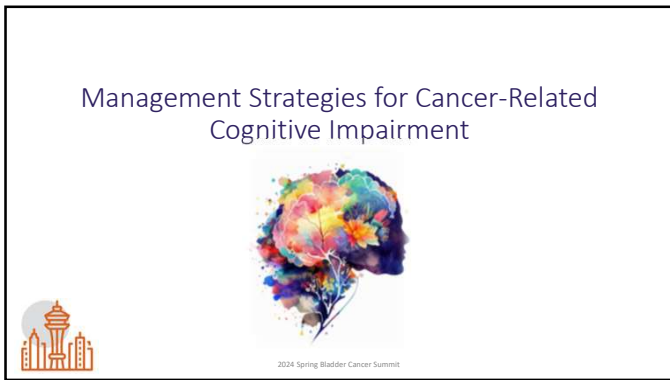
Cognitive functioning in cancer:
Is it all just cancer and treatment effects?

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Strategies to Manage Cognitive Dysfunction



- 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.)

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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.
 - 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


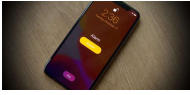



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External Compensatory Strategies

- Use alarms or electronic calendar to cue memory
- Central hub / memory station for essential items (keys, phone)
- Pillbox for organizing medications

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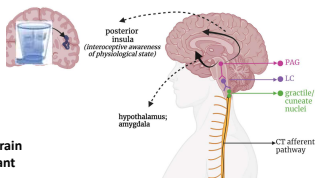
Managing Factors that Impact Cognitive Functioning

Your brain is like a cup

Water = information your brain is managing daily

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

Ice cube distractors take up cognitive energy (or "brain bucks") that our brain cannot use for more important tasks that affect daily functioning.



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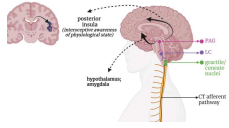
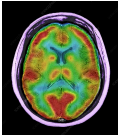

Credit: Brett Parmenter, PhD & Kati Pagulayan, PhD

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Behavioral Management of Mood and Stress

Behavioral stress management

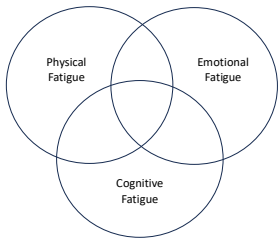

- Diaphragmatic breathing, paced breathing, etc.
- Meditation
- Mindfulness
- Yoga, chair yoga
- Physical activity
- Additional treatment of mood (example: psychotherapy)

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Cancer-Related Fatigue






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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, even for physical activity, is helpful for cognitive fatigue**





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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.




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Healthy Cognitive Aging

- **Regular physical activity**
 - Aerobic activity has been shown to have benefits for memory and executive functions
- **Healthy diet**
 - Fruits, vegetables, whole grains, fish
 - Minimize saturated fats and trans fats
- **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**

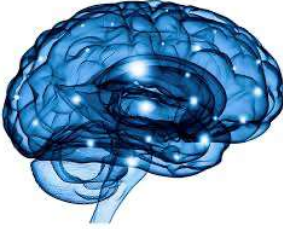


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Cognitive Prehabilitation: Where to Start?




- Start a to-do list notebook, and set an alarm to review this each morning or afternoon
- Set an alarm to take a regular break each day to give your brain a rest and minimize fatigue
- Practice diaphragmatic breathing once daily for 5-minutes
- Schedule a walk or time for chair yoga each day

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Sneak Peak:
Next Steps
re: Prehab
@FHCC



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Summer 2022...we heard you

Why can't prehab be available for everyone????



From Prehab to Rehab and Beyond
How Can we Improve Surgical Outcomes for Patients Undergoing Cystectomy?

Sarah P. Pruska MD MS (co-chair)
Sia Daneshmand MD (co-chair)
Hanna Oh MD

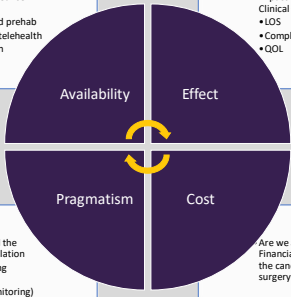
August 2022



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Prehab – Key Issues at Present with Adoption and Success

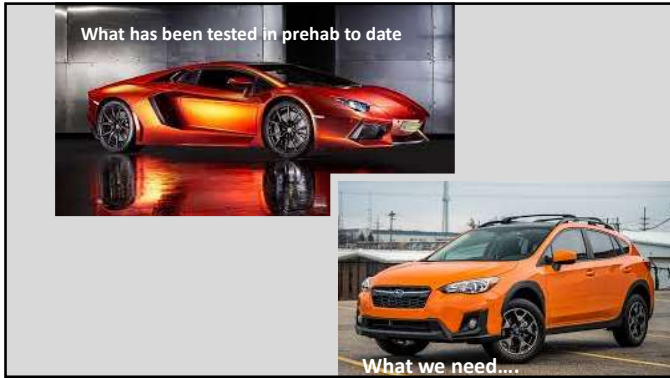


- Resources (Cancer Rehab)
- Home based prehab
- Leveraging telehealth
- Rural/Urban
- Impact on Salient Clinical Outcomes
- LOS
- Complications
- QOL
- Understand the target population
- Personalizing programs
- Safety (Monitoring)
- Are we adding to the Financial Toxicity of the cancer care and surgery?

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Exercise as Medicine:
The GetMoving Trial

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Dr. Hanna Hunter Dr. Cindy Lin

- **Home-based** personalized exercise prescription
- **Digital health solution:** Integration of smart device-based activity trackers with the EHR

What kind?
How often? (freq)
How much (dose)
Side effects to look for

EXRX
Prescription for a healthful life

Patient app

EHR integrated provider dashboard

Novel Sensing technology for home (p)rehabilitation

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Making home-based exercise accessible with digital health solutions

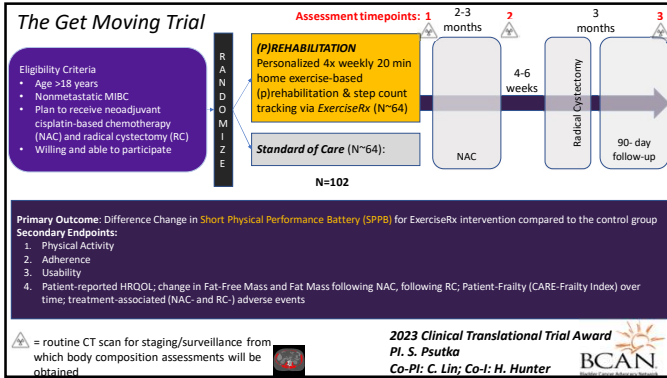
- Smartphone-based sonar sensing technology and proprietary software.
- Leverages the Doppler effect
- iPhone & Android
- Detects, classifies, and counts exercises
- Accessible to diverse and mobility impaired populations for home exercise & rehabilitation

Arm lifts

Marches

Slide courtesy of Dr. Cindy Lin

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Conclusions:
Prehabilitation as a Tool to Cultivate Resilience

- ✓ Requires detailed personalized risk and resilience assessment
 - ✓ Identify the areas that put an individual at risk
- ✓ Offers substantial potential benefits for patients
- ✓ Goals: To Optimize
 - ✓ Physical Function and Independence
 - ✓ Cognitive Function
 - ✓ Manage Anxiety, Stress (Distress), Fatigue

The **P**'s **Prehabilitation**

- Preparation
- Pacing
- Perspective
- Pragmatic
- Personalized

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BUILDING RESILIENCE

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Thank you!



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