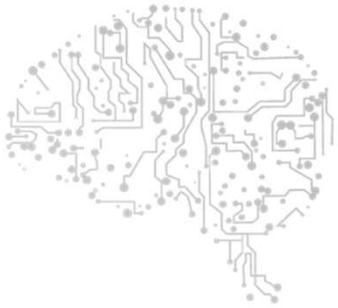


"Chemo Brain"

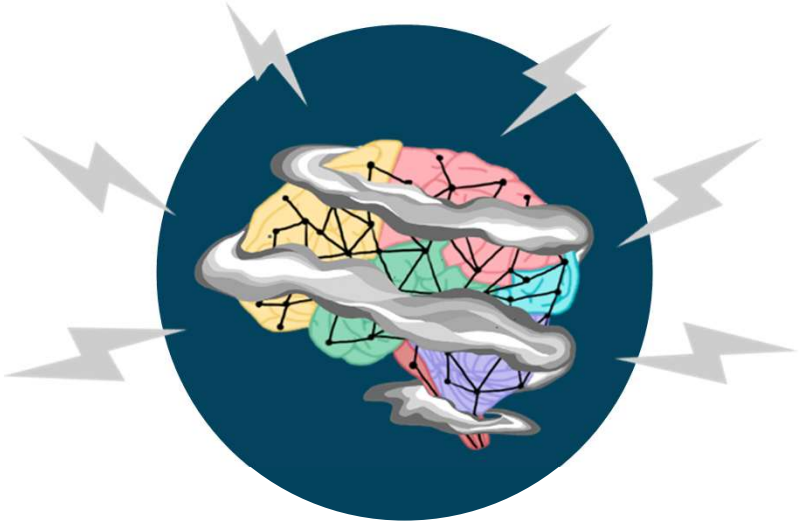
Understanding it in Light of Current Research

Jennifer Brunet (PhD) & Sitara Sharma (PhD Candidate)
School of Human Kinetics, University of Ottawa
April 1, 2025

Physical Activity and Health Promotion Laboratory
Laboratoire d'activité physique et de promotion de la santé
uOttawa

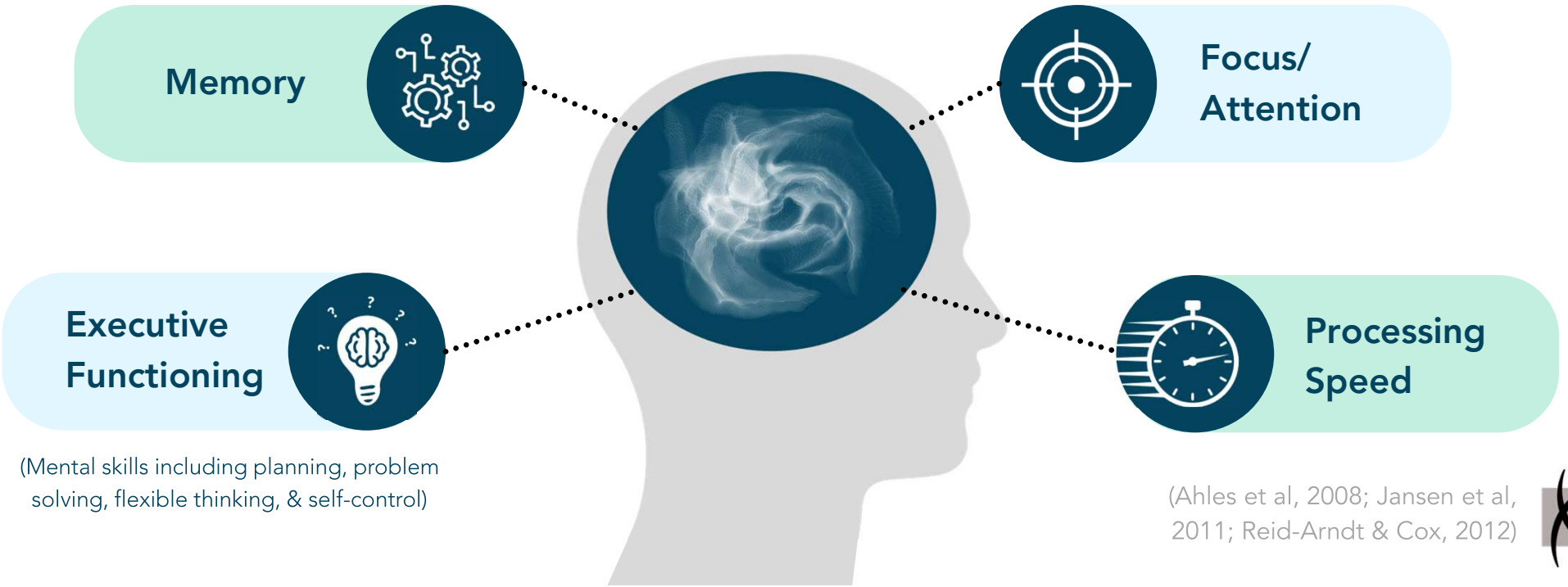
Introduction

Cognitive problems are among the most **frequently reported** symptoms/side effects during *and* after treatment for cancer — especially (but not always!) chemotherapy



What Do We Mean By Cognitive Problems?

Changes or "fogginess" in domains of:



(Mental skills including planning, problem solving, flexible thinking, & self-control)

(Ahles et al, 2008; Jansen et al, 2011; Reid-Arndt & Cox, 2012)

Prevalence

Up to 30% of patients experience cognitive problems prior to cancer treatment

Up to 75% experience cognitive problems during treatment

Up to 35% experience cognitive problems months or years following completion of treatment

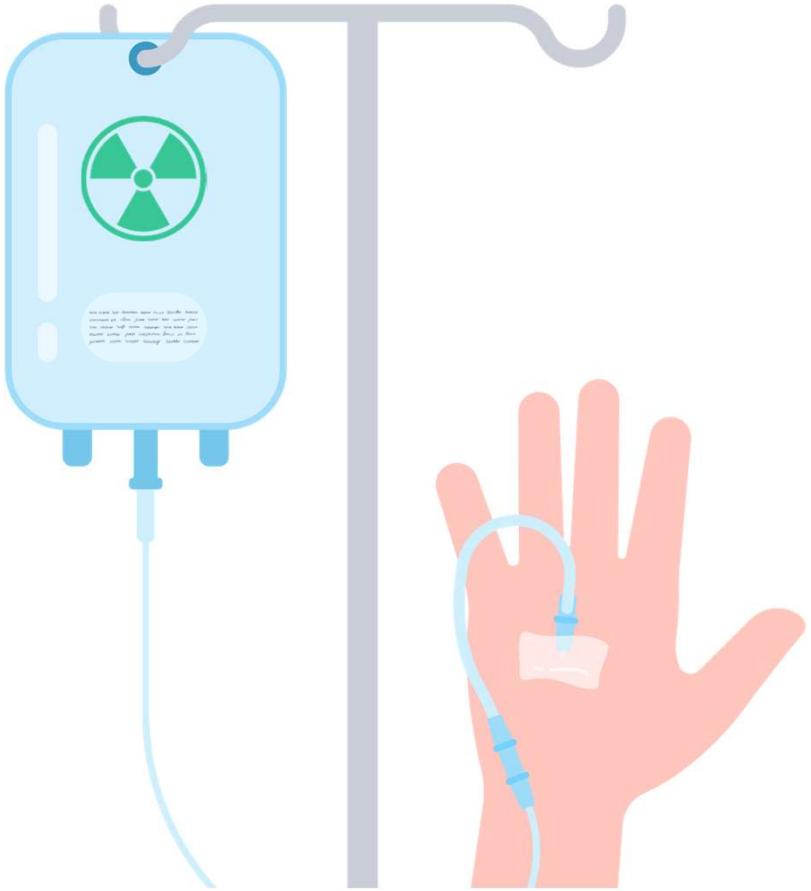
(Janelsins et al., 2011)

Variable Experiences

Cognitive issues can vary in terms of:

- **Cognitive domains** affected
- **Onset:** Earlier → Delayed
- **Severity:** Subtle → Dramatic
- **Duration:** Temporary → Permanent
- **Stability:** Stable → Progressive

Association With Chemotherapy



- **Systematic research** to understand this phenomena was first reported in the **mid 1990s-early 2000s**
- Initially established to be associated with **anticancer chemotherapy treatments — "chemo brain"**
- To date, **35+ longitudinal studies** have been done
  - Largely in breast cancer patients
  - 12-82% demonstrated problems in key cognitive domains

(Collin et al, 2009; Jansen et al, 2011; Wefel et al, 2010)

Other Treatments Can Also Contribute

Radiation Therapy

Associated with **deficits in similar cognitive domains** as chemotherapy

Hormonal Therapies

Linked to **subtle cognitive deficits**, particularly in verbal memory & executive function

Immunotherapy & Targeted Therapies

Emerging evidence suggests they **may contribute to cognitive problems**

"Cancer-related cognitive impairment" (CRCI) may be a more appropriate term

(Lange et al, 2019; Ahles & Root, 2022; Olivia et al, 2024)

Consequences of Cognitive Problems

Cognitive problems ⬇:

- **Quality of life**
- **Ability to function at/in:**
  - Home
  - Work/school
  - Life (e.g., relationships)
  - Self-evaluations
- **Functional independence**
- **Treatment compliance**
- **Clinical follow-up**

(Bradley et al, 2005; Myers, 2012; Reid-Arndt et al, 2009; Wefel et al, 2004)

Current Research Areas

1

Determinant Research

Evaluating factors contributing to cognitive problems

2

Intervention Research

Evaluating strategies to help manage & cope with cognitive problems

Current Research Areas

1

Determinant Research

Evaluating factors contributing to cognitive problems

2

Intervention Research

Evaluating strategies to help manage & cope with cognitive problems

Socioemographic & Medical

- Several **sociodemographic & medical factors may contribute** to cognitive problems, but **none are firmly established**
  - **Age** is the most cited, yet both young & older patients experience cognitive problems
  - **Other factors:** Race, ethnicity, socio-economic status, stage of disease, menopausal status, diet, body mass index

- **Unclear how other symptoms** (e.g., fatigue, anxiety, depression, sleep dysfunction, nausea) **may influence effects** on cognitive function

(Conroy et al, 2013; Loef & Walach, 2012, 2013; Sherwin, 2012; Morrow et al, 2005; Mustian et al, 2012; Palesh et al, 2012; Ryan et al, 2007; Vearncombe et al, 2009)

Biological & Molecular

- Inflammation in the brain
- Oxidative stress
- DNA damage to brain cells
- Low energy in brain cells (mitochondrial dysfunction)
- Changes in gene activity
- Problems with brain connections (white matter)
- "Leaky" blood-brain barrier

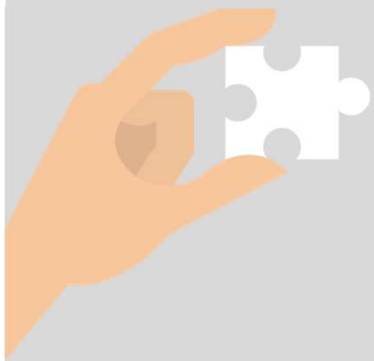
Understanding these processes can help researchers find ways to prevent or treat cognitive problems in the future

(Janelsins et al, 2014; Fleming et al, 2023)

Current Research Areas

1

Determinant Research



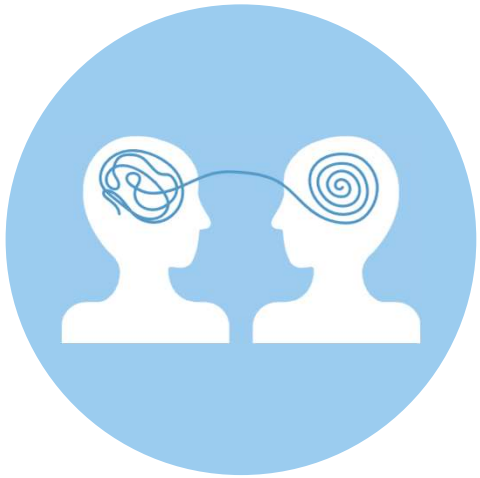
Evaluating factors contributing to cognitive problems

2

Intervention Research

Evaluating strategies to help manage & cope with cognitive problems

Ongoing Research: How Can Cognitive Problems Be Managed?



Cognitive Behavioural Therapy

Cognitive Training & Rehabilitation

Physical Activity

Cognitive Behavioural Therapy (CBT) to **Manage** & **Cope**

Definition & Research

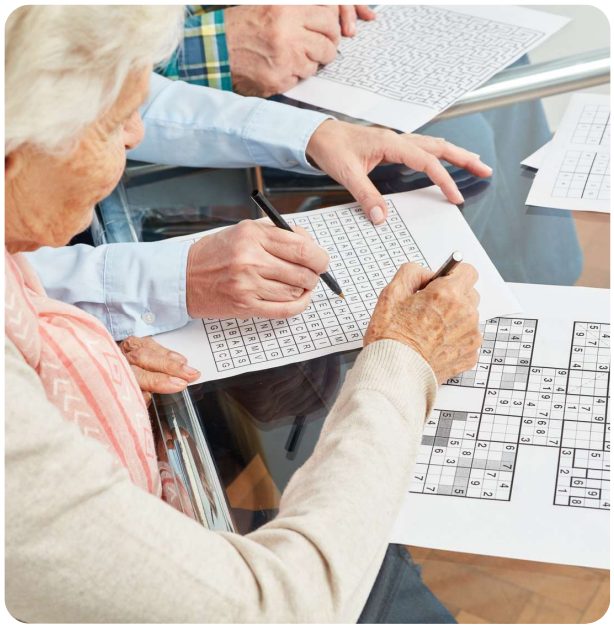
- Structured, goal-oriented approach that **can help support cognitive function** by changing unhelpful thoughts/behaviours, building coping skills, & improving confidence
  - *"I always forget things" → "I sometimes forget, but I can use strategies to help me remember"*
- **Improved perceived cognition** & quality of life in cancer survivors

Some Ways to Access CBT:

Cancer survivorship programs & organizations	E.g., MindShift CBT, CBT Thought Diary, MindDoc	E.g., This Way Up, MoodGYM, BounceBack
Healthcare Services	Apps/Websites	Online Programs

(Von Ah & Crouch, 2021; Blumenstein et al, 2022)

Cognitive Training & Rehabilitation to **Manage** & **Cope**



Definition & Research

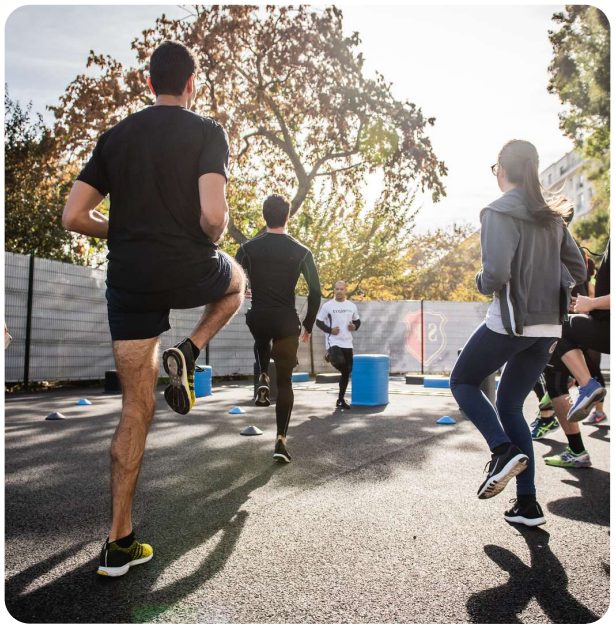
- Structured activities to **improve/restore different mental abilities**
- **Improved perceived & objective cognition** in cancer survivors across the lifespan & of different tumour types/stages
- **Some variability in effectiveness** across cognitive domains (e.g., processing speed) & perceived cognition

Everyday Brain Boosters to Try:

Elevate | Luminosity | BrainHQ | Peak | NYT Games | Sudoku | Duolingo

(Von Ah & Crouch, 2021; Nakamura, 2024; Haywood et al, 2025)

Physical Activity to Manage & Cope — Our Research!



Definition & Research

- **Any bodily movement** produced by skeletal muscles that results in energy expenditure
- **Considerable variability** in findings & effect sizes are small-to-medium, but it is a **promising approach** to managing cognitive problems

Journal of Cancer Survivorship
https://doi.org/10.1007/s11764-023-01441-x

REVIEW

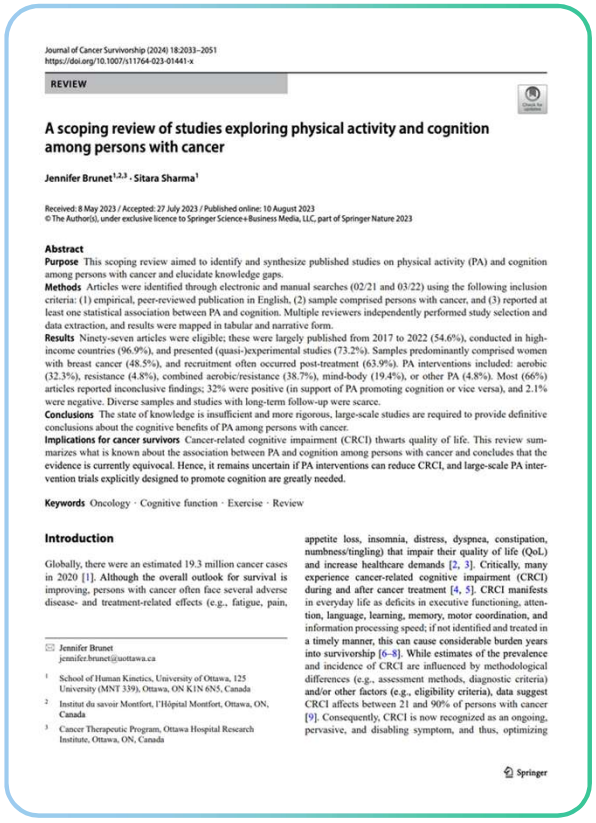
Check for updates

A scoping review of studies exploring physical activity and cognition among persons with cancer

Jennifer Brunet[1,2,3] · Sitara Sharma[1]

(Campbell et al, 2020; Brunet & Sharma, 2023; Haywood et al, 2025)

Lab Research: Scoping Review



Journal of Cancer Survivorship (2024) 18:2033–2051
https://doi.org/10.1007/s11764-023-01441-x

REVIEW

A scoping review of studies exploring physical activity and cognition among persons with cancer

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Received: 8 May 2023 / Accepted: 27 July 2023 / Published online: 10 August 2023

Abstract

Purpose This scoping review aimed to identify and synthesize published studies on physical activity (PA) and cognition among persons with cancer and elucidate knowledge gaps.

Methods Articles were identified through electronic and manual searches (02/21 and 03/22) using the following inclusion criteria: (1) empirical, peer-reviewed publication in English, (2) sample comprised persons with cancer, and (3) reported at least one statistical association between PA and cognition. Multiple reviewers independently performed study selection and data extraction, and results were mapped in tabular and narrative form.

Results Ninety-seven articles were eligible; these were largely published from 2017 to 2022 (54.6%), conducted in high-income countries (96.9%), and presented (quasi-)experimental studies (73.2%). Samples predominantly comprised women with breast cancer (48.5%), and recruitment often occurred post-treatment (63.9%). PA interventions included: aerobic (32.3%), resistance (4.8%), combined aerobic/resistance (38.7%), mind-body (19.4%), or other PA (4.8%). Most (66%) articles reported inconclusive findings; 32% were positive (in support of PA promoting cognition or vice versa), and 2.1% were negative. Diverse samples and studies with long-term follow-up were scarce.

Conclusions The state of knowledge is insufficient and more rigorous, large-scale studies are required to provide definitive conclusions about the cognitive benefits of PA among persons with cancer.

Implications for cancer survivors Cancer-related cognitive impairment (CRCI) thwarts quality of life. This review summarizes what is known about the association between PA and cognition among persons with cancer and concludes that the evidence is currently equivocal. Hence, it remains uncertain if PA interventions can reduce CRCI, and large-scale PA intervention trials explicitly designed to promote cognition are greatly needed.

Keywords Oncology · Cognitive function · Exercise · Review

Introduction

Globally, there were an estimated 19.3 million cancer cases in 2020 [1]. Although the overall outlook for survival is improving, persons with cancer often face several adverse disease- and treatment-related effects (e.g., fatigue, pain, appetite loss, insomnia, distress, dyspnea, constipation, numbness/tingling) that impair their quality of life (QoL) and increase healthcare demands [2, 3]. Critically, many experience cancer-related cognitive impairment (CRCI) during and after cancer treatment [4, 5]. CRCI manifests in everyday life as deficits in executive functioning, attention, language, learning, memory, motor coordination, and information processing speed; if not identified and treated in a timely manner, this can cause considerable burden years into survivorship [6–8]. While estimates of the prevalence and incidence of CRCI are influenced by methodological differences (e.g., assessment methods, diagnostic criteria) and/or other factors (e.g., eligibility criteria), data suggest CRCI affects between 21 and 90% of persons with cancer [9]. Consequently, CRCI is now recognized as an ongoing, pervasive, and disabling symptom, and thus, optimizing

✉ Jennifer Brunet
jennifer.brunet@uottawa.ca

[1] School of Human Kinetics, University of Ottawa, 125 University (MNT 339), Ottawa, ON K1N 6N5, Canada
[2] Institut du savoir Montfort, l'Hôpital Montfort, Ottawa, ON, Canada
[3] Cancer Therapeutic Program, Ottawa Hospital Research Institute, Ottawa, ON, Canada

Springer

What Did We Do?

- Synthesized results from **97 articles** reporting ≥1 statistical association between **physical activity & cognition in persons with cancer**

What Did We Find?

32% — Positive Associations or Effects

Physical activity promoted cognition (or vice versa)

2.1% — Negative Associations or Effects

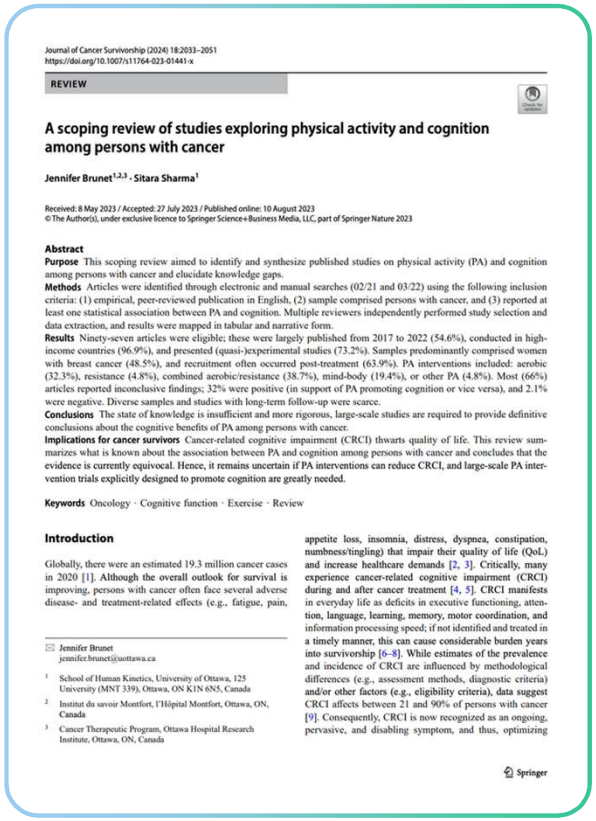
Physical activity was associated with declines in cognition (or vice versa)

66% — Inconclusive Associations or Effects

No significant associations between physical activity and cognition

(Brunet & Sharma, 2023)

Lab Research: Scoping Review



Journal of Cancer Survivorship (2024) 18:2033–2051
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REVIEW

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✉ Jennifer Brunet
jennifer.brunet@uottawa.ca

[1] School of Human Kinetics, University of Ottawa, 125 University (MNT 339), Ottawa, ON K1N 6N5, Canada
[2] Institut du savoir Montfort, l'Hôpital Montfort, Ottawa, ON, Canada
[3] Cancer Therapeutic Program, Ottawa Hospital Research Institute, Ottawa, ON, Canada

What Do These Results Mean?

Results are **currently equivocal**, but physical activity may play a role in **preserving or improving cognition** in adults diagnosed with cancer

- Several methodological factors (i.e., gaps found in the research) may help explain null/negative findings

Cognition may also predict physical activity participation

- Suggests this relationship may be bidirectional

(Brunet & Sharma, 2023)

Hot Off the Press: More Relevant Research from the Lab

Research Report

Preliminary Evidence of Improvement in Adolescent and Young Adult Cancer Survivors' Brain Health Following Physical Activity: A Proof-of-Concept Sub-Study

BMC Neurology

RESEARCH Open Access

A proof-of-concept sub-study exploring feasibility and preliminary evidence for the role of physical activity on neural activity during executive functioning tasks among young adults after cancer treatment

Current Oncology

MDPI

Article

Young Adults' Lived Experiences with Cancer-Related Cognitive Impairment: An Exploratory Qualitative Study

Sitara Sharma and Jennifer Brunet

JOURNAL OF PSYCHOSOCIAL ONCOLOGY

Routledge Taylor & Francis Group

BRIEF REPORT

Cognitive impairment in young adults after cancer treatment: A descriptive correlational study on levels and associations with disease-related, psychological, and lifestyle factors

Sitara Sharma, MA and Jennifer Brunet, PhD

ORIGINAL ARTICLE

Aerobic exercise and CogniTIVe functioning in women with breAsT cancEr (ACTIVATE): A randomized controlled trial

Jennifer Brunet PhD | Sitara Sharma MA | Kendra Zadravec PT, MSc | Monica Taljaard PhD | Nathalie LeVasseur MD | Amirrtha Srikanthan MD | Kelcey A. Bland MSc | Elham Sabri PhD | Barbara Collins PhD | Sherri Hayden PhD | Christine Simmons MD | Andra M. Smith PhD | Kristin L. Campbell PT, PhD

Brain and Behavior

WILEY

Brain and Behavior

ORIGINAL ARTICLE

Changes in EEG Microstate Dynamics and Cognition Post-Chemotherapy in People With Breast Cancer

(Physical Activity & Health Promotion Lab & Collaborators)

Lab Research: Proof-of-Concept

Brain Plasticity 7 (2021) 97–109
DOI 10.3233/BPL-210124
IOS Press

97

Research Report

Preliminary Evidence of Improvement in Adolescent and Young Adult Cancer Survivors' Brain Health Following Physical Activity: A Proof-of-Concept Sub-Study

Maude Lambert[a], Amanda Wurz[b,1], Andra M. Smith[a], Zhuo Fang[a] and Jennifer Brunet[b,c,d,*]
[a]*School of Psychology, University of Ottawa, Ottawa, Ontario, Canada*
[b]*School of Human Kinetics, University of Ottawa, Ottawa, Ontario, Canada*
[c]*Cancer Therapeutic Program, Ottawa Hospital Research Institute, Ottawa, Ontario, Canada*
[d]*Institut du savoir Montfort, Hôpital Montfort, Ottawa, Ontario, Canada*

Accepted 5 May 2021
Pre-press 22 May 2021
Published 19 October 2021

Abstract.
Background: Cognitive impairment is common among adolescent and young adult (AYA) cancer survivors. Physical activity (PA) may help mitigate cognitive impairment post-treatment by positively impacting two indicators of general brain health: fractional anisotropy (FA) and functional connectivity (FC). As part of a two-arm, mixed-methods pilot randomized controlled trial (RCT), this sub-study was designed to provide preliminary proof-of-concept evidence for the effects of PA on FA and FC among AYA cancer survivors post-treatment to help inform decisions about proceeding to larger trials.
Methods: AYA cancer survivors who had completed cancer treatment and who were enrolled in a larger pilot RCT comparing a 12-week PA intervention to a waitlist control group, were invited to participate in this sub-study. Sub-study participants completed diffusion tensor imaging and resting-state functional magnetic resonance imaging prior to randomization and post-intervention. Data were analyzed with descriptive statistics, independent component analysis, and paired sample *t*-tests.
Results: Post-intervention, participants showed increases in FA of the bilateral hippocampal cingulum, left anterior corona radiata, middle cingulum, left anterior thalamic radiation, and left cerebellum. A decrease in overall FC of the default mode network and increases in the cerebellar and visual networks were also noted post-intervention ($p < .05$).
Conclusion: Results provide preliminary evidence for the possible positive effects of PA on FA and FC among AYA cancer survivors post-treatment. On the basis of these results, larger trials assessing the effects of PA on specific brain health indicators, as captured by FA and FC, among AYA cancer survivors are appropriate and warranted.

Keywords: Exercise, neuroimaging, cancer survivors, fractional anisotropy, functional connectivity

[1]Author's current institutional affiliation: Faculty of Kinesiology, University of Calgary, Calgary, Alberta, Canada.
*Correspondence to: Jennifer Brunet, PhD, Associate Professor, School of Human Kinetics, University of Ottawa. 125 University Private, Montpetit Hall, Room 339, Ottawa, Ontario K1N 6N5, Canada. Tel.: 613 562 5800 (3068); Fax: 613 562 5497.
E-mail: jennifer.brunet@uottawa.ca; ORCID: Maude Lambert: 0000-0001-8872-8474; Amanda Wurz: 0000-0002-7804-9811; Andra M. Smith: 0000-0002-1212-2473; Zhuo Fang: 0000-0001-6742-7955; Jennifer Brunet: 0000-0003-3242-5444.

Wurz *et al. BMC Neurology* (2021) 21:300
https://doi.org/10.1186/s12883-021-02280-y

BMC Neurology

RESEARCH Open Access

A proof-of-concept sub-study exploring feasibility and preliminary evidence for the role of physical activity on neural activity during executive functioning tasks among young adults after cancer treatment

Amanda Wurz[1,2], Gladys Ayson[3], Andra M. Smith[3] and Jennifer Brunet[1,4,5*]

Abstract
Background: Executive functioning (EF) deficits are troubling for adolescents and young adults (AYAs) after cancer treatment. Physical activity (PA) may enhance neural activity underlying EF among older adults affected by cancer. Establishing whether PA enhances neural activity among AYAs is warranted. As part of a two-arm, mixed-methods pilot randomized controlled trial (RCT), this proof-of-concept sub-study sought to answer the following questions: (1) is it feasible to use neuroimaging with EF tasks to assess neural activity changes following a 12-week PA intervention? And (2) is there preliminary evidence that a 12-week PA intervention enhances neural activity among AYAs after cancer treatment?
Methods: AYAs in the pilot RCT were approached for enrollment into this sub-study. Those who were eligible and enrolled, completed functional magnetic resonance imaging (fMRI) with EF tasks (letter n-back, Go/No Go) pre- and post-PA intervention. Sub-study enrollment, adherence to scheduled fMRI scans, outliers, missing data, and EF task performance data were collected. Data were analyzed with descriptive statistics, blood oxygen level dependent (BOLD) analyses, and paired sample *t*-tests.
Results: Nine eligible participants enrolled into this sub-study; six attended scheduled fMRI scans. One outlier was identified and was subsequently removed from the analytical sample. Participants showed no differences in EF task performance from pre- to post-PA intervention. Increases in neural activity in brain regions responsible for motor control, information encoding and processing, and decision-making were observed post-PA intervention ($p < 0.05$; $n = 5$).

* Correspondence: jennifer.brunet@uottawa.ca
[1]School of Human Kinetics, University of Ottawa, 125 University Private, Montpetit Hall, Room 339, K1N 6N5 Ottawa, Ontario, Canada
[2]Cancer Therapeutic Program, Ottawa Hospital Research Institute, The Ottawa Hospital, Ottawa, Ontario, Canada
Full list of author information is available at the end of the article

What Did We Do?

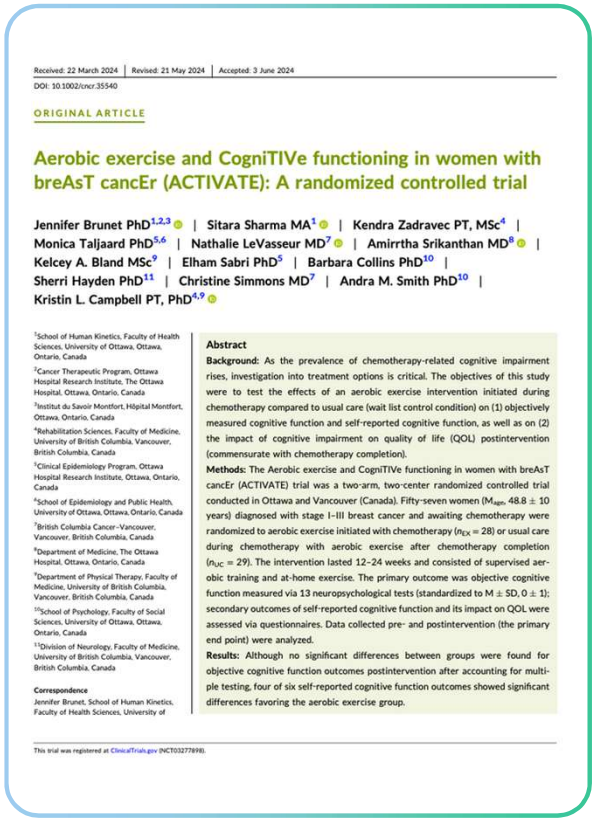
- **Assessed physical activity's effect on executive functioning & two brain health indicators**
- 5 AYAs (M=37.7 years) post-cancer treatment were enrolled from a larger pilot exercise trial
- **Measures:** Neurocognitive tests (i.e., "brain games") & neuroimaging (i.e., "brain scans")

What Did We Find?

- **No change** in test performance
- Signs of **improved brain structure** post-exercise
- **Brain activity patterns shifted**—some networks became more connected, others less

(Lambert et al, 2021; Wurz et al, 2021)

Lab Research: The ACTIVATE Trial



Received: 22 March 2024 | Revised: 21 May 2024 | Accepted: 3 June 2024
DOI: 10.1002/cncr.35540

ORIGINAL ARTICLE

Aerobic exercise and CogniTIVe functioning in women with breAsT cancEr (ACTIVATE): A randomized controlled trial

Jennifer Brunet PhD[1,2,3] | Sitara Sharma MA[1] | Kendra Zadravec PT, MSc[4] | Monica Taljaard PhD[5,6] | Nathalie LeVasseur MD[7] | Amirrtha Srikanthan MD[8] | Kelcey A. Bland MSc[9] | Elham Sabri PhD[5] | Barbara Collins PhD[10] | Sherri Hayden PhD[11] | Christine Simmons MD[7] | Andra M. Smith PhD[10] | Kristin L. Campbell PT, PhD[4,9]

[1]School of Human Kinetics, Faculty of Health Sciences, University of Ottawa, Ottawa, Ontario, Canada
[2]Cancer Therapeutic Program, Ottawa Hospital Research Institute, The Ottawa Hospital, Ottawa, Ontario, Canada
[3]Institut du Savoir Montfort, Hôpital Montfort, Ottawa, Ontario, Canada
[4]Rehabilitation Sciences, Faculty of Medicine, University of British Columbia, Vancouver, British Columbia, Canada
[5]Clinical Epidemiology Program, Ottawa Hospital Research Institute, Ottawa, Ontario, Canada
[6]School of Epidemiology and Public Health, University of Ottawa, Ottawa, Ontario, Canada
[7]British Columbia Cancer–Vancouver, Vancouver, British Columbia, Canada
[8]Department of Medicine, The Ottawa Hospital, Ottawa, Ontario, Canada
[9]Department of Physical Therapy, Faculty of Medicine, University of British Columbia, Vancouver, British Columbia, Canada
[10]School of Psychology, Faculty of Social Sciences, University of Ottawa, Ottawa, Ontario, Canada
[11]Division of Neurology, Faculty of Medicine, University of British Columbia, Vancouver, British Columbia, Canada

Correspondence
Jennifer Brunet, School of Human Kinetics, Faculty of Health Sciences, University of

Abstract

Background: As the prevalence of chemotherapy-related cognitive impairment rises, investigation into treatment options is critical. The objectives of this study were to test the effects of an aerobic exercise intervention initiated during chemotherapy compared to usual care (wait list control condition) on (1) objectively measured cognitive function and self-reported cognitive function, as well as on (2) the impact of cognitive impairment on quality of life (QOL) postintervention (commensurate with chemotherapy completion).

Methods: The Aerobic exercise and CogniTIVe functioning in women with breAsT cancEr (ACTIVATE) trial was a two-arm, two-center randomized controlled trial conducted in Ottawa and Vancouver (Canada). Fifty-seven women (M_{age}, 48.8 ± 10 years) diagnosed with stage I–III breast cancer and awaiting chemotherapy were randomized to aerobic exercise initiated with chemotherapy (n_{EX} = 28) or usual care during chemotherapy with aerobic exercise after chemotherapy completion (n_{UC} = 29). The intervention lasted 12–24 weeks and consisted of supervised aerobic training and at-home exercise. The primary outcome was objective cognitive function measured via 13 neuropsychological tests (standardized to M ± SD, 0 ± 1); secondary outcomes of self-reported cognitive function and its impact on QOL were assessed via questionnaires. Data collected pre- and postintervention (the primary end point) were analyzed.

Results: Although no significant differences between groups were found for objective cognitive function outcomes postintervention after accounting for multiple testing, four of six self-reported cognitive function outcomes showed significant differences favoring the aerobic exercise group.

This trial was registered at ClinicalTrials.gov (NCT03277898).

What Did We Do?

- Clinical trial conducted in Ottawa & Vancouver
- 57 women (M=48.8 years) diagnosed with stage I–III breast cancer & awaiting chemotherapy were randomized to either:
  - An **aerobic exercise (EX) intervention initiated alongside chemo** (n=28)
  - **Usual care during chemo** with EX after chemo completion (n=29)
- **Assessed:** Objective cognitive function (via 13 neuropsychological tests), self-reported cognitive function & its impact on quality of life (via questionnaires)

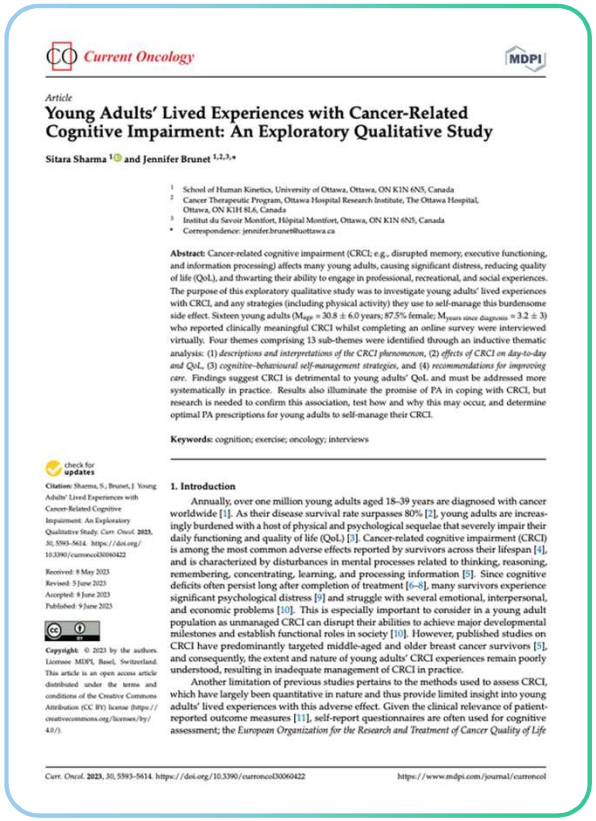
What Did We Find?

- **Similar cognitive performance** on neuropsychological testing between groups
- **Better self-reported cognition** in the intervention group than those who received standard care without exercise

This is key!

(Brunet et al, 2024)

Lab Research: CRCI Lived Experiences



Current Oncology

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Article

Young Adults' Lived Experiences with Cancer-Related Cognitive Impairment: An Exploratory Qualitative Study

Sitara Sharma [1] and Jennifer Brunet [1,2,3,*]

[1] School of Human Kinetics, University of Ottawa, Ottawa, ON K1N 6N5, Canada
[2] Cancer Therapeutic Program, Ottawa Hospital Research Institute, The Ottawa Hospital, Ottawa, ON K1H 8L6, Canada
[3] Institut du Savoir Montfort, Hôpital Montfort, Ottawa, ON K1N 6N5, Canada
* Correspondence: jennifer.brunet@uottawa.ca

Abstract: Cancer-related cognitive impairment (CRCI; e.g., disrupted memory, executive functioning, and information processing) affects many young adults, causing significant distress, reducing quality of life (QoL), and thwarting their ability to engage in professional, recreational, and social experiences. The purpose of this exploratory qualitative study was to investigate young adults' lived experiences with CRCI, and any strategies (including physical activity) they use to self-manage this burdensome side effect. Sixteen young adults (M_{age} = 30.8 ± 6.0 years; 87.5% female; $M_{years\ since\ diagnosis}$ = 3.2 ± 3) who reported clinically meaningful CRCI whilst completing an online survey were interviewed virtually. Four themes comprising 13 sub-themes were identified through an inductive thematic analysis: (1) *descriptions and interpretations of the CRCI phenomenon*, (2) *effects of CRCI on day-to-day and QoL*, (3) *cognitive-behavioural self-management strategies*, and (4) *recommendations for improving care*. Findings suggest CRCI is detrimental to young adults' QoL and must be addressed more systematically in practice. Results also illuminate the promise of PA in coping with CRCI, but research is needed to confirm this association, test how and why this may occur, and determine optimal PA prescriptions for young adults to self-manage their CRCI.

Keywords: cognition; exercise; oncology; interviews

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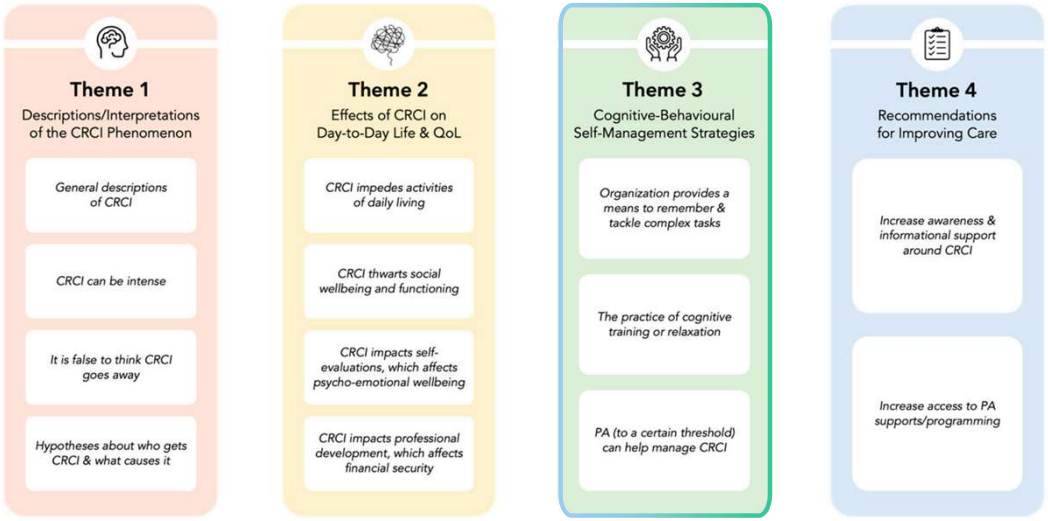
1. Introduction

Annually, over one million young adults aged 18–39 years are diagnosed with cancer worldwide [1]. As their disease survival rate surpasses 80% [2], young adults are increasingly burdened with a host of physical and psychological sequelae that severely impair their daily functioning and quality of life (QoL) [3]. Cancer-related cognitive impairment (CRCI) is among the most common adverse effects reported by survivors across their lifespan [4], and is characterized by disturbances in mental processes related to thinking, reasoning, remembering, concentrating, learning, and processing information [5]. Since cognitive deficits often persist long after completion of treatment [6–8], many survivors experience significant psychological distress [9] and struggle with several emotional, interpersonal, and economic problems [10]. This is especially important to consider in a young adult population as unmanaged CRCI can disrupt their abilities to achieve major developmental milestones and establish functional roles in society [10]. However, published studies on CRCI have predominantly targeted middle-aged and older breast cancer survivors [5], and consequently, the extent and nature of young adults' CRCI experiences remain poorly understood, resulting in inadequate management of CRCI in practice.

Another limitation of previous studies pertains to the methods used to assess CRCI, which have largely been quantitative in nature and thus provide limited insight into young adults' lived experiences with this adverse effect. Given the clinical relevance of patient-reported outcome measures [11], self-report questionnaires are often used for cognitive assessment; the *European Organization for the Research and Treatment of Cancer Quality of Life*

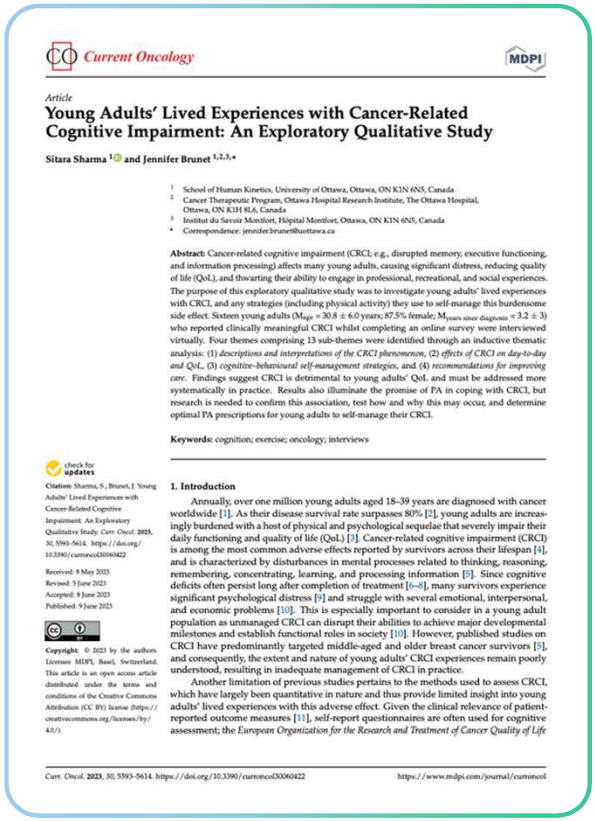
What Did We Do & Find?

- Interviewed **16 young adults** (M=30.8 years) post-cancer treatment to explore their experiences with CRCI & any strategies they use to self-manage it
- Identified **4 key themes**:



(Sharma & Brunet, 2023)

Lab Research: CRCI Lived Experiences (Qualitative)



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"One size may not fit all" when managing CRCI, but young adults may benefit from **4 key tasks:**

1

Using Organizational Tools

2

"Training" the Brain

3

Calming the Mind

4

Engaging in Physical Activity

(Sharma & Brunet, 2023)

The Verdict? Physical Activity is Promising, But...

- How much?
- What intensity?
- How often?
- What type?
- When?
- In what context?

Some is better than none — we recommend doing what works for you ☺

Gaps to Address in Future Research

Determine the optimal timing & parameters of physical activity (PA) for cognitive benefits

- Investigate different doses/contexts of PA and combine/compare different types (e.g., aerobic, strength, balance, mind-body practices)

Explore whether combining PA with other CRCI management strategies offers added value

- E.g., PA + cognitive training; PA + meditation

Better equip healthcare providers to offer physical activity-based self-management support for CRCI

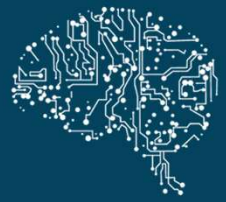
- Co-design & evaluate trainings with stakeholders

Main Takeaways

Cognitive problems are real, common, and vary in severity, often **negatively affecting quality of life** even years after cancer treatment ends

The **underlying cause of cognitive problems is not well understood**; likely a **combination** of sociodemographic, medical, biological, & molecular factors

There is **no single cure**, but psychological & behavioural **management strategies exist and are continuing to be developed and tested**



Thanks for your attention!

Have questions? Feel free to contact us.

Jennifer Brunet, PhD

@brunet_jen

jennifer.brunet@uottawa.ca

pahealthpromolab.com

Sitara Sharma, PhD(c)

@sitarashar

sitara.sharma@uottawa.ca