

# **SABC Review 2024**

Updates in Integrative Medicine:

Session title: "Sex, Drugs, and Rock and Roll"

Sarah Miller, DO  
February 14, 2025

# Supplements/ Medical Cannabis

## Why are we talking about this?

- Many breast cancer survivors seek a holistic, whole person approach to their cancer care
- High interest in and use of dietary supplements by cancer survivors
- Increasing use of cannabis by cancer survivors
- Many claims of benefit, limited data
- *Survivors need to know options for effectively meeting their health goals*



# Dietary Supplement Use by Cancer Survivors

**50-85% of breast cancer survivors use dietary supplements after diagnosis**

We want to know:

- Is it safe?
- Does it work?

Challenges:

- Not regulated by the FDA as drugs, but as food
- Many inconsistent and misleading health claims
- Low disclosure of use to providers
- Possible interactions and harm
- Patients and clinicians struggle with decision-making



Du et al, *J Nutr* 2020

## Vitamin D and Breast Cancer

- Benefits
  - Bone health
  - Blood sugar regulation
  - Immune function
  - Mood
  - Observational studies show better breast cancer clinical outcomes in women with sufficient vitamin D (>30 ng/ml)
- Can be monitored/measured by standard lab tests
- Target levels: 30-50 ng/ml
- Few interactions, low risk



NIH Office of Dietary Supplements  
Li et al, *J Steroid Biochem Mol Biol* 2021  
Yao et al, *JAMA Oncol* 2017

## Causes for Concern – Dietary Supplements

Human - Clinical trial  
Human - Observational  
In vitro

Supplement	Claimed benefits	Potential Interactions / Contraindications
Multivitamin	Nutrient support	Antioxidant, Absorption issues, Estrogenic (added botanicals)
Fish Oil / Omega-3s	Nutrient support Anti-inflammatory support	Bleeding
Turmeric	Anti-inflammatory support Anti-cancer therapy	Bleeding, CYP interactions, Hepatotoxicity, Antioxidant, Estrogenic
Melatonin	Sleep support Immune support	Antioxidant, Bleeding, CYP1A2 interactions, Estrogenic
Medicinal mushrooms: Reishi, Turkey Tail, Lion's Mane, etc.	Immune support	Hepatotoxicity, Bleeding, Antioxidant, CYP interactions (Reishi)

### Observational studies showing poorer survival in breast cancer patients:

- Combination carotenoids (Greenlee et al, *Cancer* 2013)
- Iron (Ambrosone et al, *J Clin Oncol* 2020)
- B12 (Ambrosone et al, *J Clin Oncol* 2020)


Natural Medicines Database  
MSKCC About Herbs

This presentation is the intellectual property of Heather Greenlee, ND, PhD, MPH. Contact hgreenlee@fredhutch.org for permission to reprint and/or distribute.

# SWOG Trial S0221


- Use of supplements
  - Antioxidants: Vitamins A, C, E, Carotenoids, CoEnzyme Q10
  - Vitamin B12, iron, MVI, folic acid, calcium
- Recorded use prior to adjuvant breast cancer treatment and during treatment (chemotherapy)
- Notable Findings:
  - Antioxidant use during chemotherapy increased risk of breast cancer recurrence
  - Vitamin B12 and iron use also associated with an increased risk of recurrence
  - MVI had no effect on outcomes

# Medical Marijuana



SAN ANTONIO  
BREAST CANCER  
SYMPOSIUM™


DECEMBER



SAN ANTONIO  
BREAST CANCER  
SYMPOSIUM™  
U.T. Health  
AACR

## Cannabis – What is it?

- Schedule I drug according to US FDA
- Regulated by US states for medicinal and/or recreational use
- 100+ *cannabinoids*
  - **THC**: delta-9-tetra-hydrocannabinol → *Causes the “high”*
    - Active in pain, sleep, nausea, appetite
  - **CBD**: cannabidiol
    - Active in epilepsy, anxiety, anti-oxidant, anti-inflammatory, may reduce pain
- Multiple routes of consumption
- Range of safety considerations
  - Cannabinoid hyperemesis syndrome
  - Exacerbation of mood disorders
  - Cardiac, addiction, drug interaction concerns



Lynda Balneaves, RN, PhD – University of Manitoba  
Braun J Clin Oncol 2024  
Natural Medicines Database

This presentation is the intellectual property of Heather Greenlee, ND, PhD, MPH. Contact hgreenlee@redhutch.org for permission to reprint and/or distribute.



**Allegheny**  
Health Network

## Cannabis Use by Cancer Survivors

- Increasing number (9-30%) of cancer survivors use *Cannabis* for pain, insomnia, mood/stress, appetite, or recreational use
- **Breast cancer** (national, n=612; 42% use):
  - 49% of users believed *Cannabis* could treat cancer
  - 39% discussed use with physician
  - 79% used during treatment
- **Across cancer types** (national, n=13,180):
  - ~65% perceive **risk** associated with *Cannabis* use
  - ~85% perceive **benefit** to *Cannabis* use

Weiss et al, *Cancer* 2022  
Ellison et al, *JNCI Monograph* 2024  
Krok-Schoen et al, *Support Care Cancer* 2024

This presentation is the intellectual property of Heather Greenlee, ND, PhD, MPH. Contact hgreenlee@fredhutch.org for permission to reprint and/or distribute.

12/20/2022

## Causes for Concern - Cannabis

- Interactions with drugs and cancer treatments affecting drug metabolism
- Low level of evidence on potential interactions due to mostly preclinical data
- Impacts on long-term outcomes not known

Prevalence of Cannabis related potential medication interactions (PMI) among patients with cancer during treatment  
(ASCO 2024 – Kim et al. Poster #12073; doi: 10.1200/JCO.2024.42.16\_suppl.12073)  
N=313  
15%  
breast

Top 10 most common cannabis PMIs.

PMI	Prevalence (%)
Acetaminophen	39 (9.5%)
Dexamethasone	33 (8.0%)
Ondansetron	26 (6.3%)
Prochlorperazine	19 (4.6%)
Paclitaxel	16 (3.9%)
Claritin	14 (3.4%)
Gabapentin	14 (3.4%)
Omeprazole	10 (2.4%)
Lidocaine	10 (2.4%)
Diphenhydramine	10 (2.4%)

Most common treatment-related PMIs:  
Paclitaxel  
Doxorubicin

Mechanism of Interaction	Rating	Severity	Occurrence	Level of Evidence	Drug-Cannabis Interactions
P-glycoprotein	Moderate	Moderate	Possible	D (theoretical, in vitro, animal)	Everolimus, tamoxifen
CYP450-2C9		High			Tamoxifen
CYP450-3A4 inhibitors and substrates		Moderate			Abemaciclib, cyclophosphamide, everolimus, exemestane, lapatinib, letrozole, palbociclib, tamoxifen

Natural Medicines Database

This presentation is the intellectual property of Heather Greenlee, ND, PhD, MPH. Contact hgreenlee@redhutch.org for permission to reprint and/or distribute.

12/2024

# Medical Marijuana

Concerns with our patient:

- No proven anti-cancer properties. Not recommended as a cancer treatment
- Hyperemesis Syndrome
  - Most often develops after daily marijuana use over > 10 years. Resolves with drug cessation.
- Interactions with Cancer Treatment
  - Most interactions with chemotherapy are unknown
  - Study with 200 lung cancer patients receiving pembrolizumab did not appear to effect cancer related outcomes
    - European Journal of Cancer 2023

## Where does that leave us?

- **Clinical practice guidelines**
  - Systematic process to review evidence at hand and make clinical recommendations
  - Facilitates shared decision making between patients, their caregivers, and their providers





# Recommendations on Use of Dietary Supplements

## SIO Breast Cancer Guidelines

Supplements to be considered	Indication	Caveats
<b>Ginseng + antiemetics</b> (Grade C)	Nausea/vomiting during chemotherapy	<ul style="list-style-type: none"> <li>Use with standard antiemetics</li> </ul>
<b>Ginseng</b> (Grade C)	Fatigue during treatment	<ul style="list-style-type: none"> <li>Studies were of American ginseng for 8 weeks duration</li> <li>Long term safety and efficacy is uncertain</li> <li>Some ginseng preparations have estrogenic properties</li> </ul>

**Grade C:** Recommends selectively offering to individual patients based on professional judgment and patient preferences (there is at least moderate certainty that the net benefit is small: offer this modality for selected patients, depending on individual circumstances).

### Special Session 3: Sex, Drugs, Rock & Roll



DECEI

## Recommendations on Use of Dietary Supplements SIO Breast Cancer Guidelines

Supplements <b>ineffective</b> or <b>harmful</b>	Indication
<b>Aloe vera</b> (Grade D)	Acute radiation skin reaction
<b>Hyaluronic acid</b> (Grade D)	Acute radiation skin reaction
<b>Glutamine</b> (Grade D)	Nausea and vomiting during chemotherapy
<b>Acetyl-L-carnitine</b> (Grade D)	Fatigue during treatment
<b>Guarana</b> (Grade D)	Fatigue during treatment
<b>Soy</b> (Grade D)	Hot flashes
<b>Acetyl-L-carnitine</b> (Grade H)	Chemotherapy-induced peripheral neuropathy

**Grade D:** Recommends against use (there is moderate or high certainty that the modality has no net benefit: discourage use).

**Grade H:** Recommends against use (there is moderate or high certainty that the harms outweigh the benefits):



Greenlee et al, *CA Cancer J Clin* 2017  
Lyman et al, *J Clin Oncol* 2018

## Special Session 3: Sex, Drugs, Rock & Roll



DECEMBER



ASCO Guidelines

## INTEGRATIVE MEDICINE FOR PAIN MANAGEMENT IN ONCOLOGY

### AT-A-GLANCE GUIDELINE RECOMMENDED INTERVENTIONS

Symptom Setting	Integrative Therapy	Type of Recommendation	Evidence Quality	Strength of Rec.
Aromatase inhibitor-related joint pain	<ul style="list-style-type: none"> <li>Acupuncture</li> <li>Yoga</li> </ul>	<ul style="list-style-type: none"> <li>Evidence-based</li> <li>Evidence-based</li> </ul>	<ul style="list-style-type: none"> <li>Intermediate</li> <li>Low</li> </ul>	<ul style="list-style-type: none"> <li>Moderate</li> <li>Weak</li> </ul>
General cancer pain	<ul style="list-style-type: none"> <li>Acupuncture</li> <li>Reflexology or acupressure</li> <li>Massage</li> <li>Hatha yoga</li> <li>Guided imagery with PMR</li> </ul>	<ul style="list-style-type: none"> <li>Evidence-based</li> <li>Evidence-based</li> <li>Evidence-based</li> <li>Evidence-based</li> <li>Evidence-based</li> </ul>	<ul style="list-style-type: none"> <li>Intermediate</li> <li>Intermediate</li> <li>Low</li> <li>Low</li> <li>Low</li> </ul>	<ul style="list-style-type: none"> <li>Moderate</li> <li>Moderate</li> <li>Moderate</li> <li>Weak</li> <li>Weak</li> </ul>
CIPN	<ul style="list-style-type: none"> <li>Acupuncture</li> <li>Reflexology or acupressure</li> </ul>	<ul style="list-style-type: none"> <li>Evidence-based/Informal consensus</li> <li>Evidence-based</li> </ul>	<ul style="list-style-type: none"> <li>Low</li> <li>Low</li> </ul>	<ul style="list-style-type: none"> <li>Weak</li> <li>Weak</li> </ul>
Procedural pain	<ul style="list-style-type: none"> <li>Hypnosis</li> </ul>	<ul style="list-style-type: none"> <li>Evidence-based</li> </ul>	<ul style="list-style-type: none"> <li>Intermediate</li> </ul>	<ul style="list-style-type: none"> <li>Moderate</li> </ul>
Surgical pain	<ul style="list-style-type: none"> <li>Acupuncture or acupressure</li> <li>Music therapy</li> </ul>	<ul style="list-style-type: none"> <li>Evidence-based/Informal consensus</li> <li>Evidence-based</li> </ul>	<ul style="list-style-type: none"> <li>Low</li> <li>Low</li> </ul>	<ul style="list-style-type: none"> <li>Weak</li> <li>Weak</li> </ul>
Pain during palliative care	<ul style="list-style-type: none"> <li>Massage</li> </ul>	<ul style="list-style-type: none"> <li>Evidence-based</li> </ul>	<ul style="list-style-type: none"> <li>Intermediate</li> </ul>	<ul style="list-style-type: none"> <li>Moderate</li> </ul>

Mao et al *J Clin Oncol* 2022  
[ascopubs.org/survivorship-guidelines](https://ascopubs.org/survivorship-guidelines)

Abbreviations: CIPN, chemotherapy-induced peripheral neuropathy; PMR, progressive muscle relaxation; Rec, recommendation

## Special Session 3: Sex, Drugs, Rock & Roll



DECEMBER



ASCO Guidelines

### INTEGRATIVE ONCOLOGY CARE OF SYMPTOMS OF ANXIETY AND DEPRESSION IN ADULT PATIENTS WITH CANCER

#### GUIDELINE AT-A-GLANCE RECOMMENDED INTERVENTIONS

##### Anxiety

###### During Active Treatment

- Mindfulness-based interventions
- Yoga
- Hypnosis
- Relaxation therapy
- Music therapy or music-based interventions
- Reflexology
- Lavender essential oil inhalation

###### Post-Treatment

- Mindfulness-based interventions
- Yoga
- Acupuncture
- Tai chi and/or qigong
- Reflexology

##### Depression

###### During Active Treatment

- Mindfulness-based interventions
- Yoga
- Relaxation therapy
- Music therapy or music-based interventions
- Reflexology

###### Post-Treatment

- Mindfulness-based interventions
- Yoga
- Tai chi and/or qigong

Carlson et al *J Clin Oncol* 2023  
[ascopubs.org/ascoguidelines](https://ascopubs.org/journal/ascopubs/ascoguidelines)

Note. Evidence quality and strength of recommendations are available in the guideline publication.

## Special Session 3: Sex, Drugs, Rock & Roll



DECEMBER



ASCO Guidelines

## MANAGEMENT OF FATIGUE IN ADULT SURVIVORS OF CANCER

### During Active Treatment

### After Active Treatment

### Post-Treatment

#### Recommended Interventions:

- Exercise (aerobic, resistance, or a combination)
- Cognitive behavioral therapy with or without hypnosis
- Mindfulness-based programs (MBSR, MBCT)
- Tai chi or qigong
- Psychoeducation
- American ginseng (*Panax quinquefolius*)

- Exercise (aerobic, resistance, or a combination)
- Cognitive behavioral therapy
- Mindfulness-based programs (MBSR, MBCT, MAPs)
- Yoga
- Acupressure
- Moxibustion

- Cognitive behavioral therapy
- Corticosteroids

#### Interventions Clinicians Should NOT Recommend:

- Wakefulness agents
- Psychostimulants
- L-carnitine
- Antidepressants

- Wakefulness agents
- Psychostimulants

- Wakefulness agents
- Psychostimulants

Bower et al *J Clin Oncol* 2024  
[ascopubs.org/survivorshipguidelines](https://ascopubs.org/journal/ascosurvivorshipguidelines)

**Abbreviations.** MAPs, mindful awareness practices; MBCT, mindfulness-based cognitive therapy; MBSR, mindfulness-based stress reduction.  
**Note.** Evidence quality and strength of recommendations are available in the guideline publication.

## ASCO Guidelines

## CANNABIS AND CANNABINOIDS IN ADULTS WITH CANCER

### Key Takeaways:

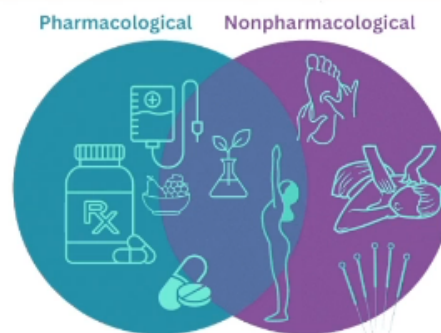
- 1 Cannabis and cannabinoids are medicinal.
- 2 Through the ASCO Guidelines process, cannabis and cannabinoids were evaluated with the same level of rigorous scrutiny as any other aspect of medicine.
- 3 The most compelling oncologic evidence available weakly supports the use of cannabis and cannabinoids as a management strategy for refractory chemotherapy-induced nausea and vomiting.  
The cancer-related indications for which there is actionable clinical evidence at this time are relatively narrow.
- 4 Clinical researchers and others should conduct gold-standard studies evaluating the merit of other common reasons that adults with cancer turn to cannabis and cannabinoids.

Braun et al *J Clin Oncol* 2024

[asco.org/supportive-care-guidelines](https://ascopubs.org/doi/10.1200/JCO.2024.42.15_suppl.1500)

## Dietary Supplements & Cannabis: Takeaways

- Use is **high** – limited data supporting efficacy
- Recommendations can be made:
  - Avoid Vitamin D deficiency
  - Lavender aromatherapy for anxiety
  - Ginseng for fatigue
  - Cannabis for refractory nausea/vomiting
- Potential for interactions is **high**, pharmacy review is essential
- Need for informed decision-making between patients and providers
- Other effective approaches should be considered for health promotion
  - Nutrition, physical activity, acupuncture, massage, yoga, meditation



This presentation is the intellectual property of Heather Greenlee, ND, PhD, MPH. Contact [hgreenlee@redhutch.org](mailto:hgreenlee@redhutch.org) for permission to reprint and/or distribute.

# Presenter's Recommendation:

Special Session 3: Sex, Drugs, Rock & Roll



DECEMBER

## Integrative Medicine



### Our approach at Fred Hutch:

- Focus on whole person care: nutrition, physical activity, weight management, sleep hygiene, fatigue, stress management (mindfulness)
- Educate and promote the safe and appropriate use of natural products and dietary supplements through clinician counseling and pharmacy review
- Often move patients towards effective non-pharmacologic options to meet their goals



**Now that the drugs are out of the way...**



# Sexuality After a Diagnosis of Cancer: What is Lost Can Always Be Found

---

Don S. Dizon MD, FACP, FASCO

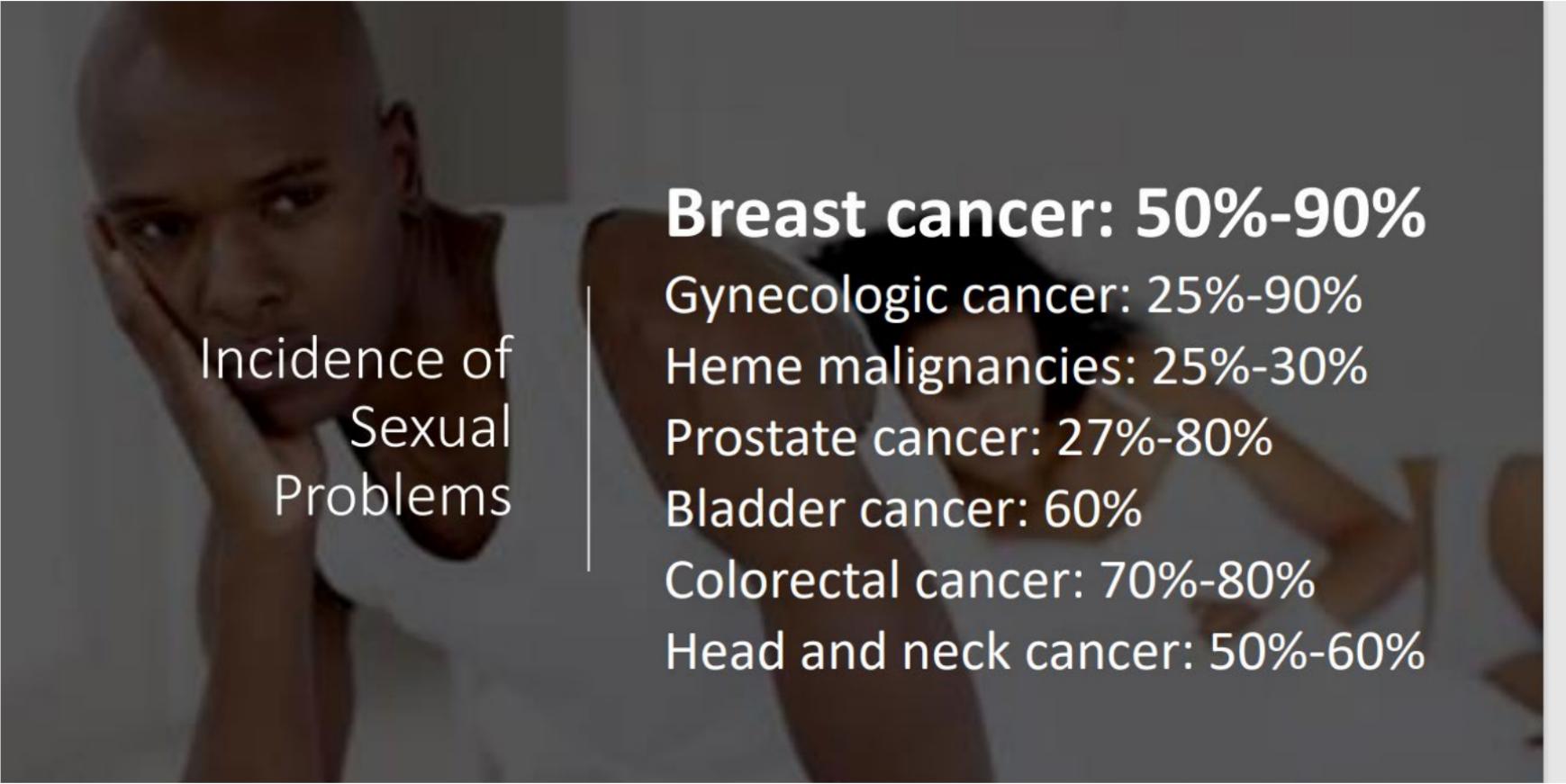
Professor of Medicine and Professor of Surgery, Brown University

Director, Pelvic Malignancies Program, Lifespan Cancer Institute

Founder, The Oncology Sexual Health Responders Clinic, The Miriam Hospital, Lifespan Cancer Institute

Director, Medical Oncology, Rhode Island Hospital

Associate Director, Community Outreach and Engagement, Legorreta Cancer Center at Brown University



Incidence of  
Sexual  
Problems

**Breast cancer: 50%-90%**

Gynecologic cancer: 25%-90%

Heme malignancies: 25%-30%

Prostate cancer: 27%-80%

Bladder cancer: 60%

Colorectal cancer: 70%-80%

Head and neck cancer: 50%-60%

# Approach to Treatment

## Vaginal Health

- Address genitourinary symptoms of menopause (GSM)
  - Vulvar and vaginal moisturizers
  - Vaginal laser therapy
  - Hormones

## Sexual Health

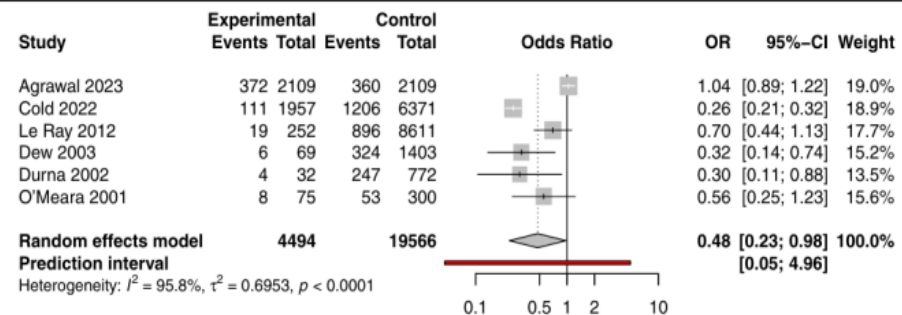
- Address ways to make sexual activities more pleasurable
  - Lubricants, lidocaine, dilators, medications
- Address desire
  - Sensate focusing, medications

# Approaching GSM

- Moisturizers are the primary treatment
  - Use 5x/week and can reapply 1h before planned sexual activities
- DHEA is an option
  - No systemic increase in estrogen levels > ULN
- Vaginal estrogen is **not contraindicated**
  - 2024 meta-analysis (breast cancer recurrence primary outcome)
    - OR for mortality (n= 59,724): 0.46 (95%CI 0.42-0.49)
  - Selection bias is at play (healthier survivors more likely to use, AI provided if greater risk)

FIGURE 2

Forest plot for breast cancer recurrence



Barton DL, et al. Supp Care Ca 2018; 26:1335-43; Beste M, Kaunitz AJ, McKinney JA, Sanchez-Ramos L. Am J Obstet Gynecol 2024; Epub Nov 7.

**On to Rock and Roll...Somehow that = Eating and Drinking 😊**

---

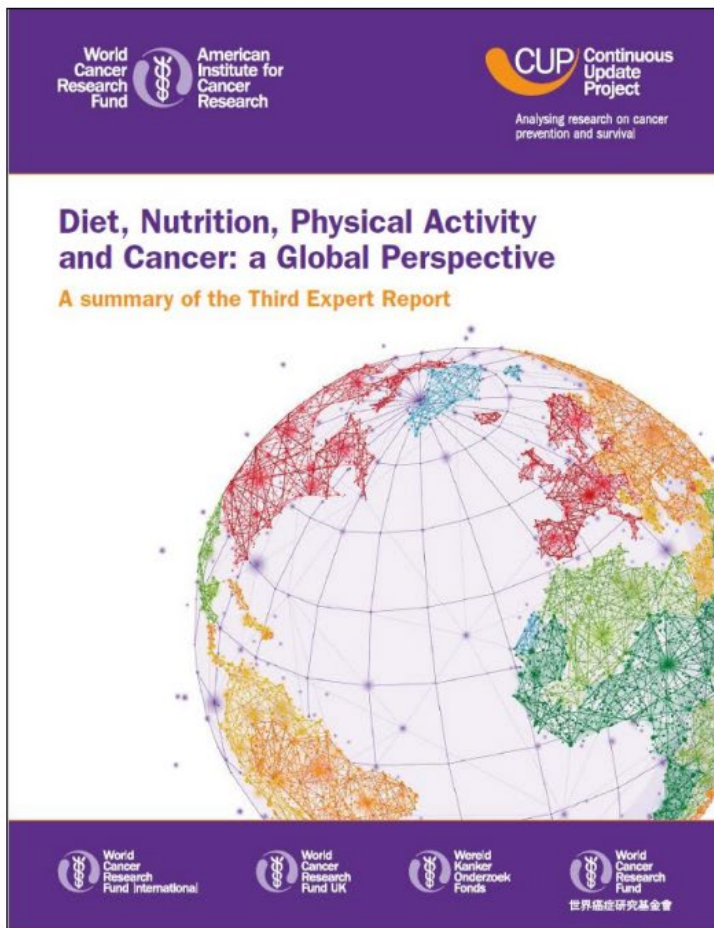
**San Antonio Breast Cancer Symposium**

10 December 2024

**Special Session 3: Sex, Drugs, Rock and Roll**  
**Eating and Drinking**

**Lawrence H. Kushi, ScD**

Division of Research, Kaiser Permanente Northern California  
4480 Hacienda Drive, Pleasanton, CA



World Cancer Research Fund/  
American Institute for Cancer Research.  
**Diet, Nutrition, Physical Activity and  
Cancer: a Global Perspective**  
Continuous Update Project  
Third Expert Report, 2018

There is substantial evidence that  
dietary factors play an important  
role in the development of cancer

## Nutrition and Physical Activity Guidelines for Cancer Survivors

*CA Cancer J Clin 2012;62:242-274.*

“After receiving a diagnosis of cancer, survivors soon find there are few clear answers to even the simplest questions, such as: *Should I change what I eat? Should I exercise more? Should I gain or lose weight? Should I take dietary supplements?* Cancer survivors receive a wide range of advice from many sources about foods they should eat, foods they should avoid, how they should exercise, and what types of supplements they should take, if any. Unfortunately, this advice is often inconsistent and not supported by data.”

### **Most recent guideline statement from the ACS:**

Rock CL, et al. American Cancer Society nutrition and physical activity guideline for cancer survivors. *CA Cancer J Clin* 2022;72:230-262.



The Journal of Nutrition

International Research Conference on Food, Nutrition, and Cancer

# Lifestyle Factors and Survival in Women with Breast Cancer<sup>1–3</sup>

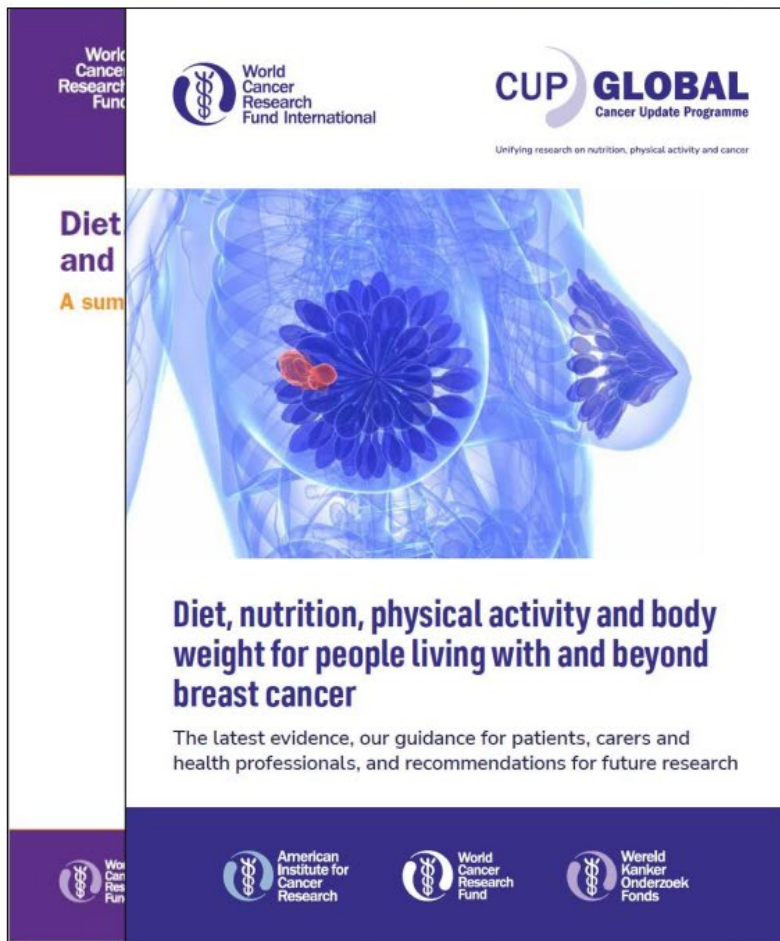
Lawrence H. Kushi,<sup>4\*</sup> Marilyn L. Kwan,<sup>4</sup> Marion M. Lee,<sup>5</sup> and Christine B. Ambrosone<sup>6</sup>

<sup>4</sup>Division of Research, Kaiser Permanente, Oakland, CA; <sup>5</sup>Department of Epidemiology and Biostatistics, University of California, San Francisco, CA; and <sup>6</sup>Department of Epidemiology, Roswell Park Cancer Institute, Buffalo, NY

---

## Abstract

With increasing longevity and more effective cancer therapies, the population of cancer survivors is increasing. For example, it is estimated that there are over 2 million breast cancer survivors in the United States. Among cancer survivors and their families, there is substantial interest in whether there is anything that they can do beyond conventional therapy to improve their prognosis. Chief among these is interest in diet and use of complementary and alternative therapies. Despite this interest, there is surprisingly little that is known about the effects of these factors on cancer survival. This is in part because of the usual approach to research on diet and breast cancer in human populations. Studies that have had food and nutrition as a main interest have focused almost exclusively on cancer etiology and prevention; there are literally hundreds of such studies. Meanwhile, studies of populations after a breast cancer diagnosis have rarely considered lifestyle factors.



World Cancer Research Fund/  
American Institute for Cancer Research.  
**Diet, Nutrition, Physical Activity and  
Cancer: a Global Perspective**  
Continuous Update Project  
Third Expert Report, 2018

World Cancer Research Fund/  
American Institute for Cancer Research.  
**Diet, Nutrition, Physical Activity and  
Body Weight for People Living with  
and Beyond Breast Cancer**  
Continuous Update Project  
2024

 KAISER PERMANENTE®

 **Allegheny**  
Health Network

# The Pathways Study:

## A Prospective Study of Breast Cancer Survivorship

*NCI grants R01 CA105274, U01 CA195565 provide core funding*

### Overview

- Investigate the effects of lifestyle, clinical, molecular, psychosocial and neighborhood factors on breast cancer prognosis and outcomes.
- Enrolled 4,504 women diagnosed with breast cancer in Kaiser Permanente Northern California from January 2006 through May 2013.
- Active and passive follow-up through surveys and linkage to clinical and registry databases

### Areas of Interest include

- (Post-diagnosis) lifestyle and behavioral factors including diet, physical activity, and complementary and alternative health practices
- Quality of life, social support, processes of care, and related factors
- Cancer treatment, toxicities, and comorbid conditions
- Social, environmental, and built environment characteristics
- Molecular and genetic factors



**We examined four diet quality indices that are consistent with healthy eating recommendations and their associations with breast cancer outcomes**



**American Cancer  
Society Nutrition  
Guidelines  
(ACS)**



**The Mediterranean  
Diet  
(MED)**



**Dietary Approaches  
to Stop  
Hypertension  
(DASH)**

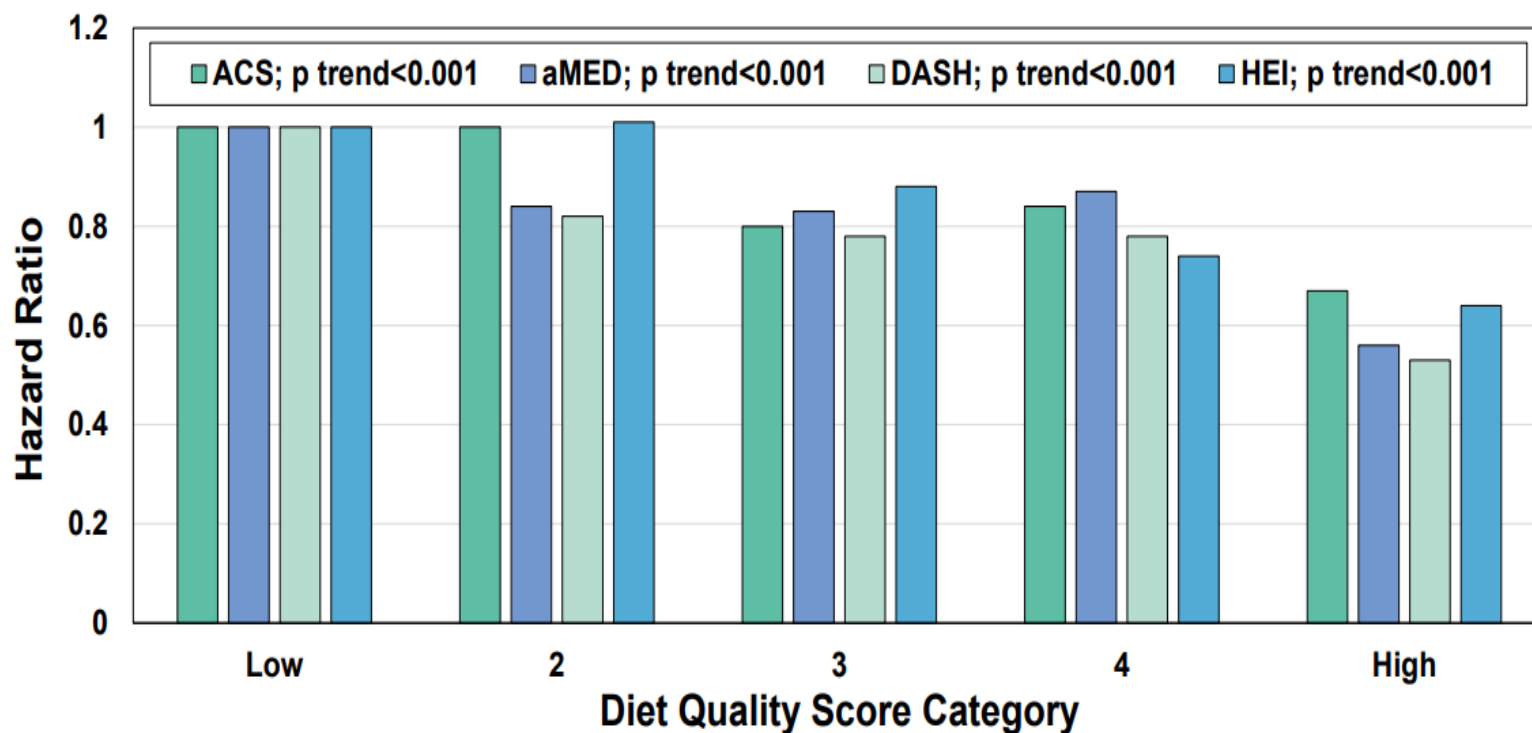


**Healthy Eating  
Index  
(HEI)**

## These dietary pattern indices are similar, but also differ

	ACS	MED	DASH	HEI
<b>Score range</b>	(0-9)	(0-9)	(8-40)	(0-100)
<b>Encourages</b>	Fruits (variety) Vegetables (variety) Whole grains	Fruits Vegetables Whole grains Fish Legumes Nuts Unsaturated fats	Fruits Vegetables Whole grains Low-fat dairy Nuts & Legumes	Fruits Vegetables Greens and beans Whole grains Diary Protein Seafood Unsaturated fats
<b>Discourages</b>	Red meats Processed meats	Red meats Processed meats High/no alcohol	Red meats Processed meats Sodium Sweet beverages	Refined grains Saturated fats Sodium Added sugar

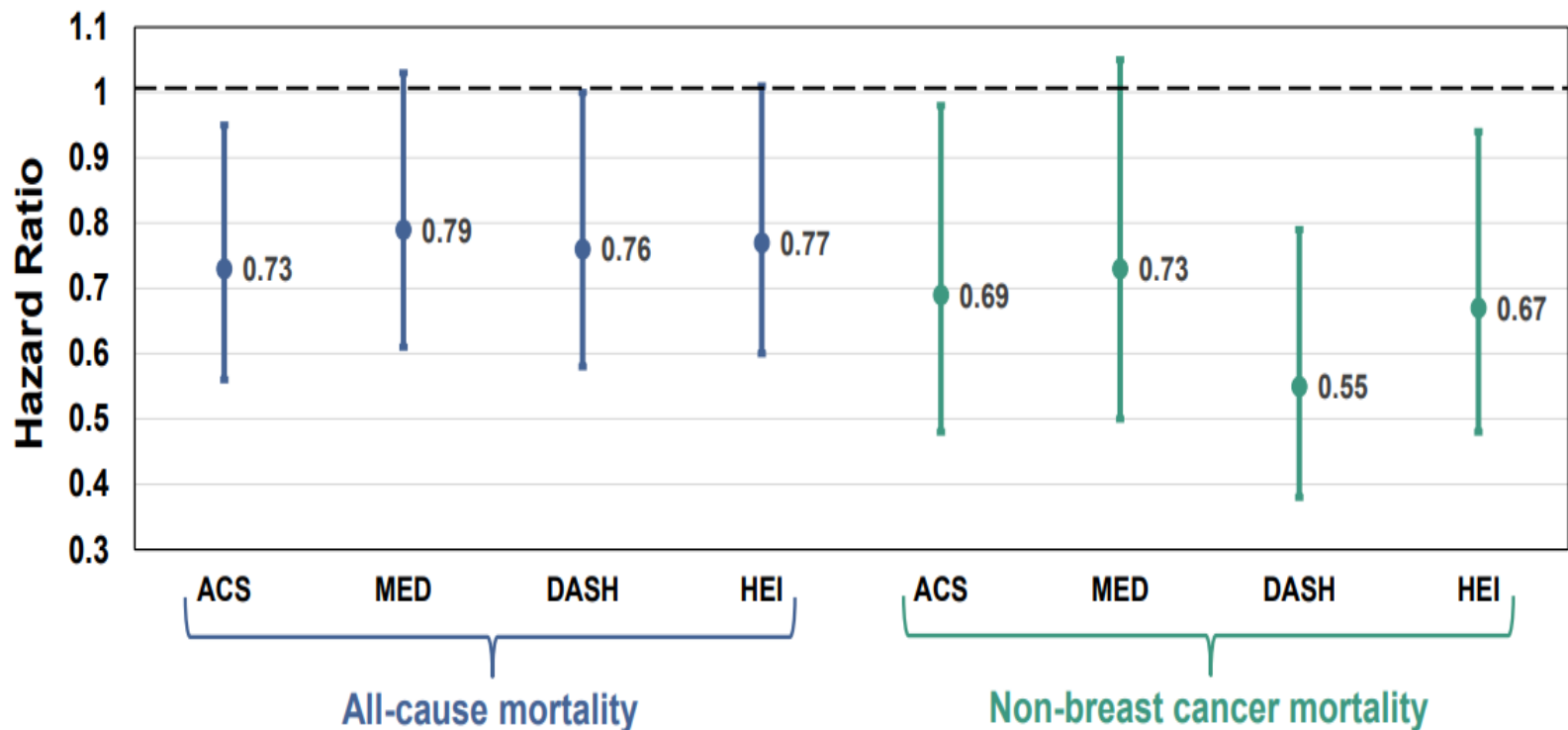
## Higher Diet Quality is associated with Lower Mortality in the Pathways Study



Ergas, et al., JNCI Cancer Spectrum 2021;5(2):pkab019




## Diet quality around diagnosis was associated with all-cause and non-breast cancer mortality

Hazard ratios & 95% confidence intervals comparing the highest to lowest quintiles



Ergas IJ, et al. JNCI Cancer Spectr. 2024

# Diet quality and cardiovascular disease risk among breast cancer survivors in the Pathways Study

Isaac J. Ergas , PhD, MPH, MFA,<sup>1,\*</sup> Richard K. Cheng, MD, MS,<sup>2</sup> Janise M. Roh , MSW, MPH,<sup>1</sup> Lawrence H. Kushi, ScD,<sup>1</sup> Jacob K. Kresovich, PhD, MPH,<sup>3</sup> Carlos Iribarren , MD, MPH, PhD,<sup>1</sup> Mai Nguyen-Huynh, MD, MAS,<sup>1</sup> Jamal S. Rana, MD, PhD,<sup>1,4</sup> Eileen Rillamas-Sun, PhD, MPH,<sup>5</sup> Cecile A. Laurent, MS,<sup>1</sup> Valerie S. Lee, MHS,<sup>1</sup> Charles P. Quesenberry, PhD,<sup>1</sup> Heather Greenlee, ND, PhD, MPH,<sup>2,5</sup> Marilyn L. Kwan, PhD<sup>1</sup>

<sup>1</sup>Division of Research, Kaiser Permanente Northern California, Oakland, CA, USA

<sup>2</sup>University of Washington Medical Center, Seattle, WA, USA

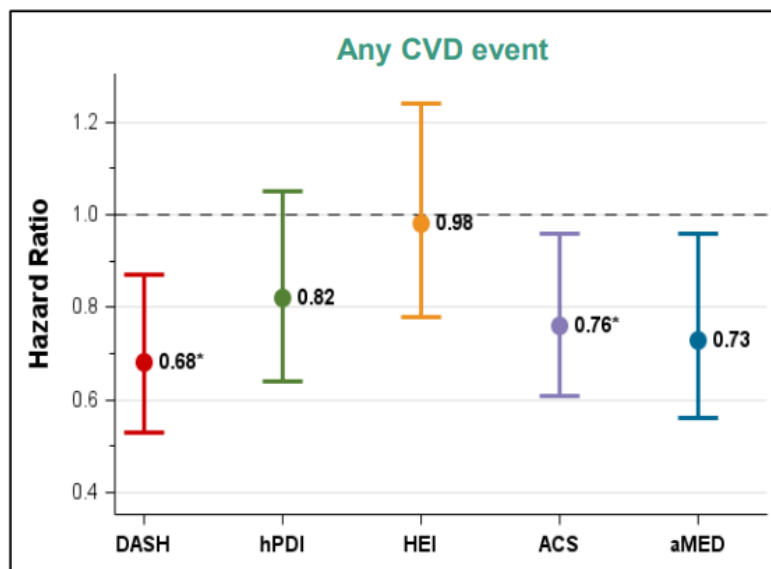
<sup>3</sup>H. Lee Moffitt Cancer Center and Research Institute, Tampa, FL, USA

<sup>4</sup>Oakland Medical Center, Oakland, CA, USA

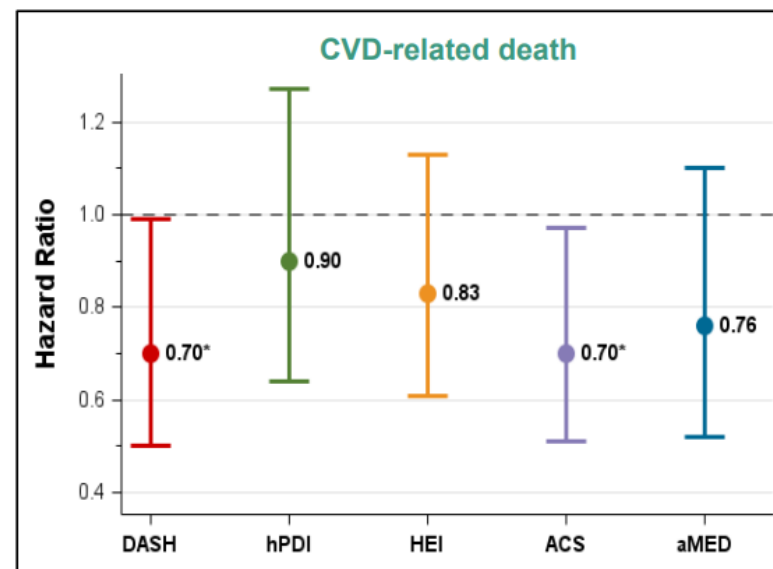
<sup>5</sup>Division of Public Health Sciences, Fred Hutchinson Cancer Center, Seattle, WA, USA

## The DASH, ACS, and aMED dietary pattern indices were inversely associated with having any CVD event and/or CVD-related death

Hazard ratios and 95% confidence intervals comparing the highest to lowest quartiles



\*test for trend  $p < .05$



Ergas IJ, et al. JNCI Cancer Spectr. 2024

# What About Drinking Alcoholic Beverages?

## Known Risk Factors for Breast Cancer



Gender



Family History



Radiation



Weight



Increasing Age



Age at First Birth



Breast Density



Physical Activity



Genetics



Parity



Hormone  
Replacement



Alcohol

*Does alcohol intake affect outcomes after a breast cancer diagnosis?*

Received: 23 February 2023 | Revised: 24 June 2023 | Accepted: 28 June 2023

DOI: 10.1002/cncr.34972

ORIGINAL ARTICLE

*Cancer.* 2023;129:3938–3951.

## Alcohol consumption and prognosis and survival in breast cancer survivors: The Pathways Study

Marilyn L. Kwan PhD<sup>1</sup>  | Emily Valice MPH<sup>1,2</sup> | Isaac J. Ergas PhD, MPH<sup>1</sup>  |  
Janise M. Roh MSW, MPH<sup>1</sup> | Bette J. Caan DrPH<sup>1</sup> |  
Elizabeth M. Cespedes Feliciano ScD<sup>1</sup>  | Tatjana Kolevska MD<sup>3</sup> |  
Terry J. Hartman PhD, MPH, RD<sup>2</sup> | Charles P. Quesenberry Jr PhD<sup>1</sup> |  
Christine B. Ambrosone PhD<sup>4</sup> | Lawrence H. Kushi ScD<sup>1</sup>

<sup>1</sup>Division of Research, Kaiser Permanente Northern California, Oakland, California, USA

<sup>2</sup>Department of Epidemiology, Rollins School of Public Health, Emory University, Atlanta, Georgia, USA

<sup>3</sup>Department of Oncology, Kaiser Permanente Vallejo Medical Center, Vallejo, California, USA

<sup>4</sup>Department of Cancer Prevention and Control, Roswell Park Comprehensive Cancer Center, Buffalo, New York, USA

### ABSTRACT

**Background:** The impact of alcohol consumption on breast cancer (BC) prognosis remains unclear.

**Methods:** The authors examined short-term alcohol intake in relation to recurrence and mortality in 3659 women who were diagnosed with stage I–IV BC from 2003 to 2013 in the Pathways Study. Alcohol drinking in the past 6 months was assessed at cohort entry (mean, 2 months postdiagnosis) and 6 months later using a food-



## How much alcohol do women in the Pathways Study drink?

Alcohol (g/day)	Peri-Diagnosis (Baseline)		Early Post-Diagnosis (6-month)	
	n	%	n	%
Non-drinker (<0.36 g/day)	1,352	37.0	1,183	42.8
Occasional Drinker (0.36-<6.0 g/day)	1,211	33.1	878	31.8
Regular Drinker (6.0-<12.0 g/day)	1,096	30.0	702	25.4
Among drinkers	g/day	drinks/day	g/day	drinks/day
Mean alcohol intake	11.2	~0.9	9.9	~0.8
Median alcohol intake	5.5	~0.45	4.4	~0.37
0.36 g/day = ¼ drink per week 6 g/day of ethanol = 3½ drinks per week				

Kwan et al., Cancer. 2023;129:3938–3951.

## Alcohol intake during the peri-diagnosis period (baseline) was not associated with breast cancer outcomes

Outcome	Non-drinker	Occasional	Regular	P for trend
Recurrence (n=524)	Ref	1.14 (0.92-1.42)	1.07 (0.84-1.36)	0.52
All Cause Death (n=834)	Ref	0.97 (0.82-1.15)	0.89 (0.74-1.08)	0.25
BC Death (n=369)	Ref	1.04 (0.81-1.35)	0.95 (0.71-1.27)	0.77
CVD Death (n=314)	Ref	0.96 (0.73-1.27)	0.89 (0.66-1.22)	0.49

\* Adjusted for age at diagnosis, AJCC stage, race/ethnicity, education, menopausal status at diagnosis, nulliparity at diagnosis, hormone receptor status, surgery, treatment, smoking at diagnosis, physical activity at diagnosis, BMI at diagnosis, comorbidity at diagnosis, neighborhood SES, history of alcohol dependence at diagnosis

† End of follow-up for this analysis: December 31, 2021

Kwan et al., Cancer. 2023;129:3938–3951.

## Alcohol intake during the early follow-up period (6 months) was not associated with breast cancer outcomes

Outcome	Non-drinker	Occasional	Regular	P for trend
Recurrence (n=524)	Ref	1.06 (0.81-1.39)	1.26 (0.94-1.69)	0.13
All Cause Death (n=834)	Ref	0.89 (0.72-1.10)	0.95 (0.76-1.19)	0.54
BC Death (n=369)	Ref	1.08 (0.78-1.50)	1.12 (0.77-1.62)	0.53
CVD Death (n=314)	Ref	0.83 (0.59-1.18)	0.96 (0.67-1.38)	0.71

\* Adjusted for age at diagnosis, AJCC stage, race/ethnicity, education, menopausal status at diagnosis, nulliparity at diagnosis, hormone receptor status, surgery, treatment, smoking at diagnosis, physical activity at diagnosis, BMI at diagnosis, comorbidity at diagnosis, neighborhood SES, history of alcohol dependence at diagnosis

† End of follow-up for this analysis: December 31, 2021

Kwan et al., Cancer. 2023;129:3938–3951.

## Surprising Finding:

- Higher BMI ( $> 30 \text{ kg/m}^2$ )
  - -decreased risk of BC or CVD specific mortality if ETOH consumption was increased post diagnosis (HR 0.71)
    - (average increase was by one drink per day)
    - Not statistically significant in women with a BMI of  $< 30$



World Cancer Research Fund/  
American Institute for Cancer Research.  
**Diet, Nutrition, Physical Activity and Body  
Weight for People Living with and Beyond  
Breast Cancer**  
Continuous Update Project, 2024

## Physical Activity

- Increasing physical activity improves health-related quality of life after a diagnosis of breast cancer.
- People who are more physically active have better health outcomes after a diagnosis of breast cancer, but it is uncertain whether increasing physical activity will improve these outcomes
- We recommend that people are physically active. However, physical activity should be increased under the supervision of health care professionals.

 KAISER PERMANENTE.



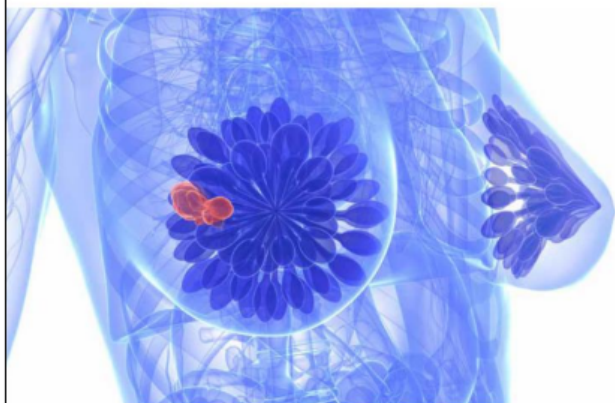
World Cancer Research Fund/  
American Institute for Cancer Research.  
**Diet, Nutrition, Physical Activity and Body  
Weight for People Living with and Beyond  
Breast Cancer**  
Continuous Update Project, 2024

### Dietary Fiber

- People who eat more dietary fiber have better health outcomes after a diagnosis of breast cancer.
- While it is uncertain that increasing dietary fiber improves these outcomes, we suggest that people consider increasing their dietary fiber intake.



Unifying research on nutrition, physical activity and cancer



## Diet, nutrition, physical activity and body weight for people living with and beyond breast cancer

The latest evidence, our guidance for patients, carers and health professionals, and recommendations for future research

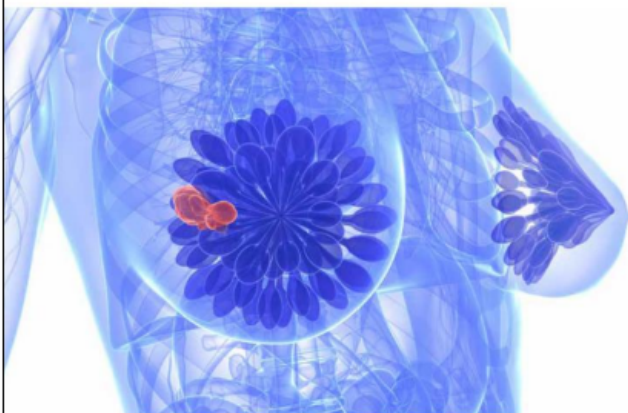


World Cancer Research Fund/  
American Institute for Cancer Research.  
**Diet, Nutrition, Physical Activity and Body  
Weight for People Living with and Beyond  
Breast Cancer**  
Continuous Update Project, 2024

### Soy Foods

- The evidence does not support guidance to consume more soy foods (or to introduce soy foods if these are not currently part of the diet) after a diagnosis of breast cancer, but for those who already consume them, there is no need to stop.
- If soy alternatives to dairy are consumed, it is preferable to use products that are unsweetened and fortified with calcium and other essential nutrients, such as vitamin D and iodine (check the product label).





## Diet, nutrition, physical activity and body weight for people living with and beyond breast cancer

The latest evidence, our guidance for patients, carers and health professionals, and recommendations for future research



World Cancer Research Fund/  
American Institute for Cancer Research.  
**Diet, Nutrition, Physical Activity and Body Weight for People Living with and Beyond Breast Cancer**  
Continuous Update Project, 2024

### Body Weight

- Those with body weight in the 'healthy range' after a diagnosis of breast cancer have the best health outcomes.
- While it is uncertain that deliberate weight loss by people with overweight or obesity improves these outcomes, we suggest that people who are not underweight aim to avoid gaining weight during and after treatment.





World Cancer Research Fund/  
American Institute for Cancer Research.  
**Diet, Nutrition, Physical Activity and Body  
Weight for People Living with and Beyond  
Breast Cancer**  
Continuous Update Project, 2024

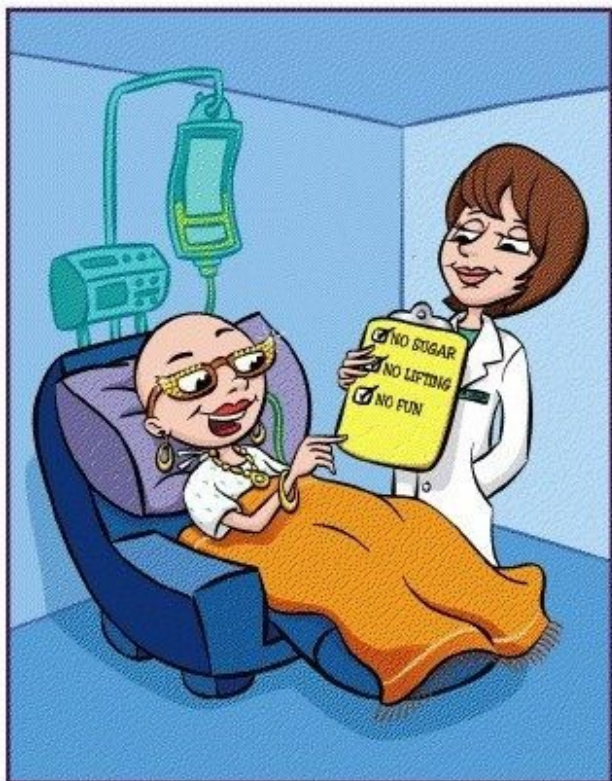
## WCRF/AICR Recommendations for Cancer Prevention

- People who follow WCRF/AICR's Cancer Prevention Recommendations are predicted to have better outcomes after a breast cancer diagnosis.
- We suggest that people consider following as many of these recommendations as they are able to.

 KAISER PERMANENTE®



# Thank you !!!!



"Can you add 'No Vacuuming?'"



"Can you add some tequila to that?"