# Nutrition's Role in Cardio-Oncology

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New York State Academy of Nutrition and Dietetics

April 9, 2022

People living at least 5 years beyond a cancer diagnosis have increases in CVD risk factors and a **1.3- to 3.6-fold increased risk of death from CVD** compared to age-matched counterparts with no history of cancer

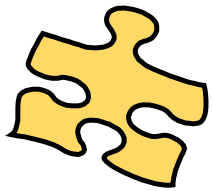
AHA Scientific Statement – Gilchrist, Circulation 2019;139(21):e997

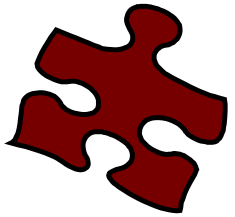
*Karen Collins, MS, RDN, CDN, FAND*

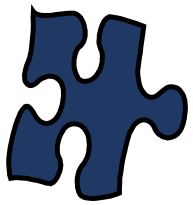
# Disclosure

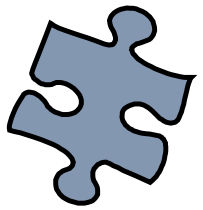
**Nutrition Advisor,**
**American Institute for Cancer Research**

# Our Puzzle Today:
# The Intersection of Cardiovascular Nutrition & Cancer Care

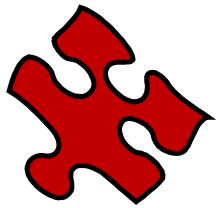


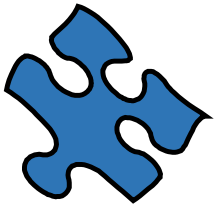






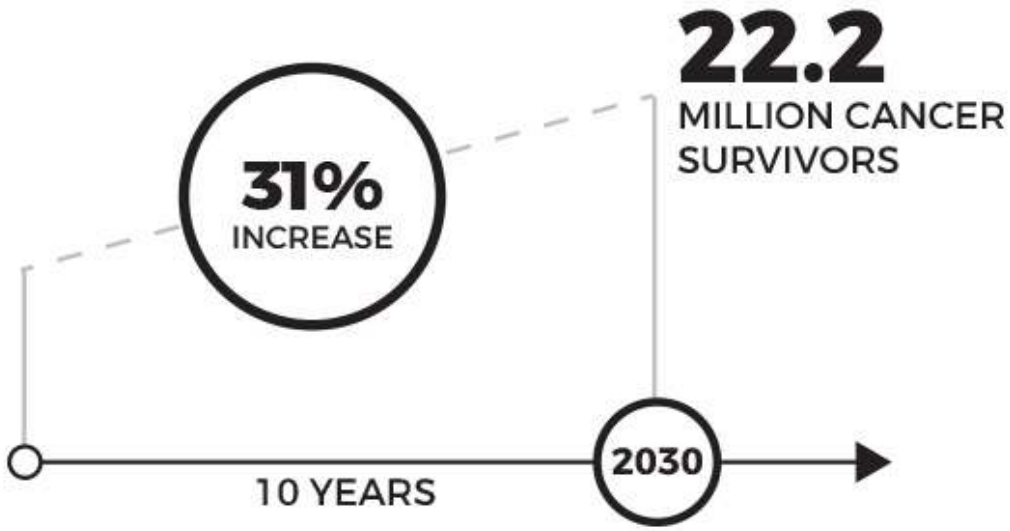
- **Understand** increased cardiovascular disease risk among many cancer survivors
- **Individualize** by adapting heart-healthy eating advice to meet cancer survivors' needs and concerns
- **Support** RDNs as valuable members of the cardio-oncology team



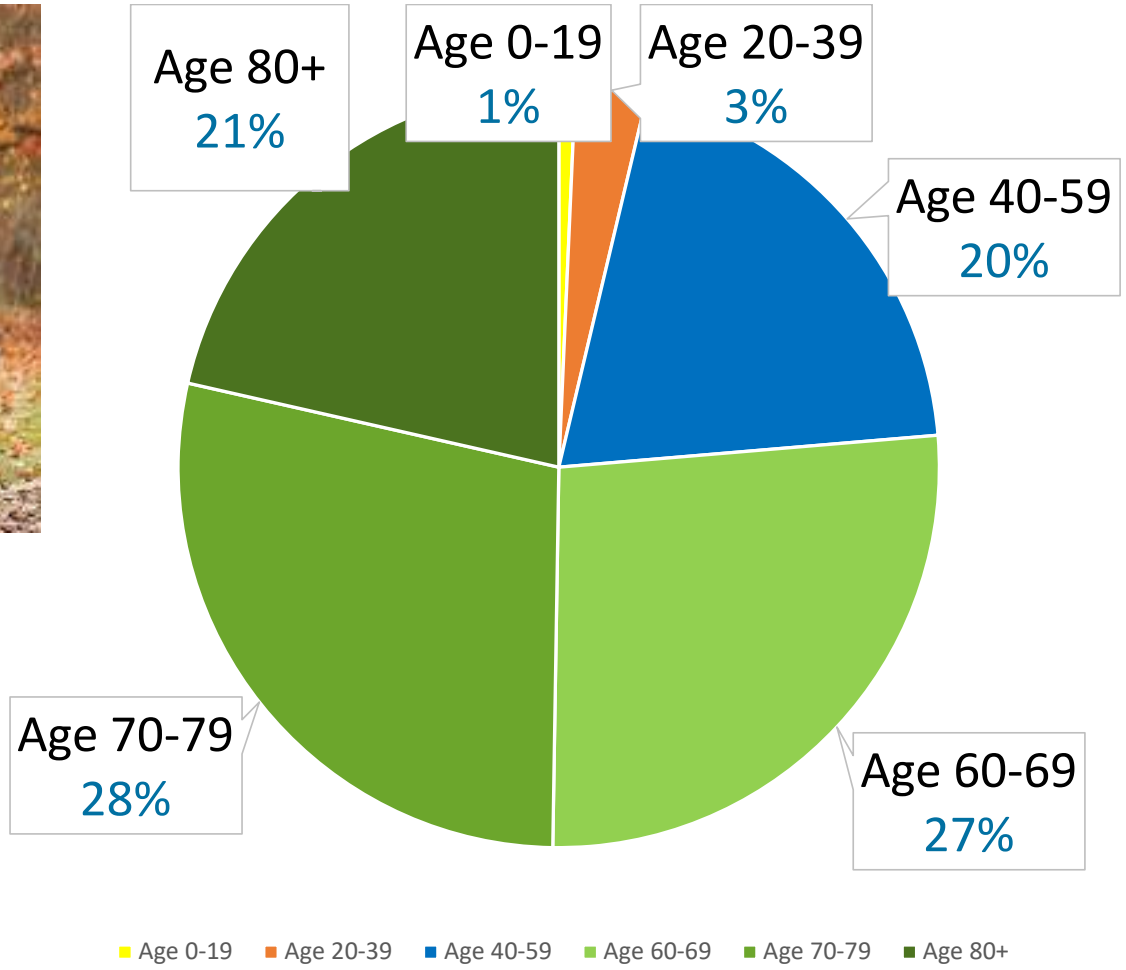


# Cardiovascular Disease Risk After Cancer

# Cancer in the U.S. — Today and Looking Ahead

# Who Are Today's Cancer Survivors?

**CVD after a cancer diagnosis may become even more prevalent:**

- As the population of aging adults grows, more people have CVD or CVD risk factors at cancer diagnosis
- Continued improvements in cancer treatment bring potential for late effects months or years after treatment

AHA Scientific Statement – Gilchrist, Circulation 2019;139(21):e997
Miller, CA Cancer J Clin. 2019;69(5):363

# Cardio-Oncology Syndrome
# Direct & Indirect Associations of Cancer & CVD

Cancer leads to CVD

Cancer treatment causes CVD

Heart & Kidney changes create pro-oncogenic environment

CVD treatment & diagnostics create pro-oncogenic environment

Cancer & CVD are both Secondary to systemic or genetic conditions

De Boer, Cardiooncology 2021 Jun 21;7(1):24

# Possible Cardiovascular Toxicities of Cancer Treatment

**Cardiac Toxicities**

- Cardiomyopathy
- Myocarditis (toxicity or immune-mediated inflammation)
- Arrhythmias & conduction abnormalities
- Cardiac dysfunction (asymptomatic or symptomatic with heart failure)

**Peripheral Vascular Toxicities**

- Hypertension  (pulmonary or systemic)
- Accelerated atherosclerosis
- Thrombosis
- Vasculitis

# Cardio-Oncology's Implications for Care

- **Work is in progress** to protect cardiovascular health during and after cancer treatment
  - Risk identified in cohort studies often reflects older cancer treatment protocols
- Cardiotoxicity is *most often* mild, even in therapy of moderate/high risk of cardiotoxicity [1]
- **People at greatest risk** in treatment identified with potential cardiotoxicity [2]
  - Past exposure to cardiotoxic therapies - including during childhood, adolescent or young adult cancer at increased risk of cardiovascular late effects.
  - History of myocardial infarction or existing CVD
  - Two or more major CVD risk factors (smoking, hypertension, diabetes, dyslipidemia, obesity)
  - Older age (≥ 60 years)
- **Current clinical practice guidelines:** screen for and actively manage modifiable CVD risk factors in all patients receiving or previously treated with potentially cardiotoxic treatments

[1] López-Sendón, Eur Heart J. 2020 May 7;41(18):1720 [2] ASCO Guidelines: Armenian, J Clin Oncol. 2017;35(8):893

# Heart Failure

- Treatment-related risk:
  - Anthracycline chemotherapy
  - HER2-targeted therapy
  - Radiation therapy with the heart in the field of treatment
- Risk of heart failure is greatest in people with two or more CVD risk factors, and blood pressure management is an important strategy in its prevention.

Herrmann, Nat Rev Cardiol. 2020;17(8):474
Lyon, Eur J Heart Fail 2020; 22(11):1945

# Hypertension

- One of the most frequent vascular toxicities of cancer treatment
  - Acute rapid-onset may require decrease dose or pause in chemotherapy
  - May occur as late effect many years after cancer treatment

- Treatment-related risk:
  - VEGF inhibitors promote endothelial dysfunction
  - Platinum-based therapy
  - HER2-targeted therapy
  - Antiandrogen therapy (abiraterone)

Curigliano, Ann Oncol. 2020;31(2):171
Herrmann, Nat Rev Cardiol. 2020;17(8):474
Lyon, Eur J Heart Fail 2020; 22(11):1945

# Accelerated Atherosclerosis

- Already present in many adults and can be enhanced by some cancer treatments
- Treatment-related risk
  - Radiation therapy
  - Several forms of chemotherapy (alkylating agents, antimetabolites)
  - BCR-ABL targeted kinase inhibitors (some types)
  - Immune checkpoint inhibitors (ICI)
- Potential Mechanisms
  - Changes in lipid metabolism and inflammation-mediated acceleration of atherosclerosis
  - Increased by hypertension, smoking, dyslipidemia, and insulin resistance promoting endothelial cell expression of adhesion molecules

Herrmann, Nat Rev Cardiol. 2020;17(8):474
Lyon, Eur J Heart Fail 2020; 22(11):1945
Koene, Circulation. 2016;133(11):1104

# Survivors of Childhood, Adolescent, & Young Adult Cancers

- Coronary artery disease, Valvular heart disease, Systolic dysfunction leading to heart failure
- Childhood Cancer 5-year survivors:

  3.4 times CVD death than expected in the general population (UK cohort) [1]
- Adolescent and Young Adult (AYA) Cancer 5-year survivors:

  1.4 times CVD death than expected in the general population (US cohort) [2]
- Cardiovascular toxicity especially linked to radiation therapy and anthracycline chemotherapy
- Corticosteroid therapy can cause rapid weight gain, insulin resistance, and dyslipidemia [3,4]
- Cardiovascular toxicity is much lower in childhood & AYA cancers diagnosed since 1990s [2,5]

[1] Fidler, Circulation 2017;135(10):951 [2] Wang, Eur Heart J 2021; 42(1):101 [3] Armenian, J Clin Oncol 2018;36(21):2135
[4] Zhang, Curr Obes Rep 2017;6(2):168 [5] Mulrooney, BMJ 2020;368::l6794

# Survivors of Childhood, Adolescent, & Young Adult Cancers
## Take-Home Points

- Consider short-term (< 10 years) and long-term (> 10 years) risk
  - Increased CVD risk continues in childhood and AYA cancer survivors into their 50s and 60s [1,2]
- Consider CVD risk in children and adolescents with cancer [3,4]
  - Lifestyle is significantly associated with risk
  - Consider addressing during maintenance therapy when family may be more "ready"
- Working with adult survivors of childhood and AYA cancers
  - Hypertension, diabetes, and dyslipidemia may be under-diagnosed & under-treated [3]
  - More prevalent and tend to occur at younger ages than in siblings or the general population
- Hypertension as a risk factor for special attention

  → Adult survivors of childhood cancer: by age 50, >70% had hypertension [5]

  → 2.6 higher prevalence than expected based on age, sex, race, BMI in general US population

[1] Fidler, Circulation2017;135(10):951 [2] Wang, Eur Heart J 2021; 42(1):101 [3] Armenian, J Clin Oncol 2018;36(21):2135
[4] Zhang, Curr Obes Rep 2017;6(2):168 [5] Gibson, Cancer Epi Biom Prev 2017;26(12):1705

# Connections of Metabolic Syndrome and Cancer

**What you probably know about Metabolic Syndrome**

- Increases risk of CVD more than two-fold and Type 2 diabetes more than four-fold [1]
- About 1 in 3 US adults have metabolic syndrome [1,2]

**What's less widely known about Metabolic Syndrome: Cancer risk, recurrence, mortality**

- Associated with 20% to >60% increase in risk of colorectal, endometrial, liver, pancreatic, and postmenopausal breast cancers [3]
- After a cancer diagnosis, greater risk of postsurgical complications, recurrence, and mortality [3]
- Common late effect in survivors of childhood cancers — Latency often up to 20 years [4]

[1] Virani, Circulation, 2020;141(9):e139 [2] Marcotte-Chénard, Appl Physiol Nutr Metab. 2019;44(8):861
[3] Micucci, Oncotarget. 2016 Jun 21;7(25):38959 [4] Friedman, Horm Res Paediatr. 2019. 91(2):118

# Metabolic Syndrome and Breast Cancer

**Prevalence of Metabolic Syndrome in women**

- Half of U.S. women age ≥60 and a third of women ages 40 to 59

**Aromatase inhibitors** can increase risk of dyslipidemia [1]

**Metabolic Syndrome & Breast Cancer Risk** [2]

- Not related to premenopausal breast cancer risk.
- Associated with **two times greater risk of breast cancer** among postmenopausal women.
- **No single component** of metabolic syndrome (like waist or triglyceride levels) increased breast cancer risk nearly as much as did the presence of metabolic syndrome.

**Metabolic Syndrome in Breast Cancer: Emerging Evidence** [3]

- Greater number of metabolic syndrome components associated with greater mortality
  CVD mortality, possibly all-cause mortality -- inconsistent: breast cancer mortality
- Limited evidence of link to increased risk of recurrence

[1] AHA Scientific Statement- Okwuosa, Circ Genom Precis Med. 2021;14(3):e000082 [2] Zhao, Obes Facts. 2020;13(4):384
[3] Simon, Cancer. 2018;124:1798 [3]Gathirua-Mwangi, Int J Cancer, 2018;143:535 [3]Li, Diabetol Metab Syndr, 2020;12:10

# Metabolic Syndrome in Prostate Cancer

**Metabolic syndrome with Androgen Deprivation Therapy (ADT)**

- Weight gain with **increased visceral fat** and **decreased lean body mass**
- Insulin resistance, increased insulin secretion, increased blood glucose/A1C
- Increased LDL and serum Triglycerides

**Metabolic syndrome + prostate cancer**

- Greater risk of aggressive tumors and biochemical recurrence [1]

**Consequences for metabolic environment**

- Increased inflammatory cytokines (TNF-alpha, IL-6)
- Increased pro-thrombotic markers (PAI, CRP)
- Increased endothelial dysfunction and vascular inflammation

AHA Scientific Statement- Okwuosa, Circ Genom Precis Med. 2021;14(3):e000082

[1] Gacci, Prostate Cancer Prostatic Dis. 2017;20(2):146

# A Heart-Healthy Diet After Cancer

# Diet and Lifestyle for Health After Cancer

## Healthy lifestyle in adults who develop cancer [1]

- Among people ages 40-70 who developed cancer during 15 years of follow-up

  each 1-point increase in healthy lifestyle score was associated with:

  **10% lower risk of developing CVD** (HR: 0.90; 95% CI: 0.87-0.93)

- Healthy Lifestyle Index Scoring: no smoking, regular physical activity,

  healthy diet*, zero to moderate alcohol, sleep duration

## Healthy lifestyle in adult survivors of childhood cancer [2]

- Median age 32.7 years – **32% had Metabolic Syndrome**
- Scored for lifestyle consistent with AICR Recommendations**

  Those who did not meet ≥4 guidelines (of 7 in score) vs. people who met ≥4 guidelines:

  2.2 to 2.4 times **greater risk of metabolic syndrome**

[1] Cao, JACC: CardioOncology, 2021;3(5):675

*Healthy diet score: ≥4 of 7 components per Mozaffarian, Circulation, 2016;133:187

[2] Smith, Cancer, 2014;120: 2742 **AICR Score per 2007 guidelines: BMI, physical activity, 4 components of diet, limited alcohol

Recommendation:

# Follow a Healthy Eating Pattern

Emphasis on **dietary pattern** continues to grow, rather than "reductionist" focus on individual nutrients and compounds

# Diet Quality Matters for Cancer Survivors

**Among cancer survivors, higher overall diet quality:**

**17% lower all-cause mortality** (RR 0.83, CI 0.77-0.88)

**18% lower cancer mortality** (RR 0.82, CI 0.75-0.89)

- Meta-analysis of 12 prospective cohort studies
- Diet quality based on dietary quality index scores (DASH, HEI, AHEI)
  - High in vegetables, fruits, and whole grains;
  - Includes healthy sources of fat
  - Low in sodium and added sugars
- Evidence quality: moderate

Morze, J Acad Nutr Diet. 2020;120(12):1998

# Dietary Pattern: Many Routes to Lower Blood Pressure

## Evidence from Non-Oncology Populations

- **Make Vegetables and Fruits the Stars**
  - Potassium- and magnesium-rich choices, including citrus fruit and dark leafy greens
  - Polyphenol-rich berries, apples and grapes
  - Nitrate-rich vegetables – like spinach, kale, beets and celery
- **Reduce Sodium by Swapping Out Highly-Processed Foods**
- **Limit Alcohol**
- **Modest Weight Loss if someone has overweight or obesity**

**Start with a DASH Diet as a template – modify for individual fit**

- Overall BP reductions of 5-7/3-4 mm Hg
- Among people with high blood pressure: reductions of about 11/6 mm Hg

Chivaroli, Nutrients. 2019;11(2):338; Fu, J Am Heart Assoc. 2020;9(19):e016804; Whelton, Hypertension 2018;71(6):e13

# Practice Pearls: Plant Foods and Cancer Risk

Fiber and more: whole grains, legumes

- Fiber goal 30 grams/day from food sources
- Whole grains: Not fiber alone. No specific target amount
  - 17% ↓ colorectal cancer risk per 90 gm/day (≈ 3 servings/day)
  - Whole grains and dietary fiber associated with lower risk of weight gain and overweight/obesity
- Legumes: No specific cancer prevention target amount
  - Potential benefit by amounts for CVD and T2DM

# Key Message:
# Eat More and Eat More Variety













# FAQ: “Does Sugar Feed Cancer?”


- Current evidence does not show a direct link between sugar consumption & cancer growth.
- All cells are fueled by blood sugar (from food & body production).
- Lots of high-sugar foods & drinks may mean calories exceeding need, unhealthy weight gain & its metabolic consequences.
- Fear of all sugar can be counter-productive for people at a vulnerable time & struggling to eat.

# Sugar-Related Recommendations: Big Picture

**AICR Recommendations**

- Limit consumption of sugar sweetened drinks

  Drink mostly water and unsweetened drinks

- Cancer-related Rationale: Reduce unintended weight gain

**CVD & Metabolic Syndrome**

Sugar-sweetened beverages: links to greater incidence of metabolic syndrome components[1]

[1] Malik, Nutrients. 2019;11(8):1840

# Processed Foods in Current Recommendations

**AICR Recommendations**

- Limit consumption of “fast foods” & other processed foods high in fat, starches or sugars
- Cancer-related Rationale: Reduce unintended weight gain

**CVD & Metabolic Syndrome**

Ultra-processed foods – links related to high consumption [1]

- Greater prevalence of metabolic syndrome, overweight/obesity (Cross-sectional*)
- Greater all-cause mortality, CVD incidence/mortality, Overweight/Obesity (Prospective cohorts)

[1] Pagliai, Br J Nutr. 2021;125(3):308

# Practice Pearls: Processed Foods


Processed versus ultra-processed foods

- Some processing can enhance nutrient bioavailability and/or convenience of healthy eating
- Ultra-processed: what is removed, what is added

Starches versus refined starches

- Whole grains and legumes: no link to weight gain
- Refined grains: limited evidence of link to weight gain
- Refined grains + high added sugar/fat: ↑ weight gain

AICR/WCRF Third Expert Report, 2018; Juul, Br J Nutr 2018, 120(1):90; Poti, Curr Obes Rep 2017, 6(4):420

# Practice Pearls: Red Meat and Cancer Risk

What does "limit" mean?

- Limit red meat to no more than 12 to 18 ounces (cooked weight) per week
  - ◊ Often translates to ≤ 3/week
  - ◊ 4 to 6 portions/week <u>if</u> portions are 3-oz deck-of-cards size

Red meat: what counts?

- Red meat: mainly beef, pork, lamb
  - ◊ Choose lean for heart health, limit amount for cancer risk [1]
  - ◊ Likely mechanisms for colon cancer risk aren't fat-related [2]
    - ○ Heme iron (oxidative stress, NOCs)
    - ○ Inflammation, Microbiome
    - ○ HCAs and PAHs formed in cooking

[1,2] AICR/WCRF Third Expert Report 2018;
[2] Turesky, *CHIMIA International Journal for Chemistry.* 2018;72(10):718;
[2] Hammerling, Crit Rev Food Sci Nutr 2016, 56(4):614;
[2] Fonseca-Nunes, Cancer Epi Bio Prev 2014, 23(1):12

# Practice Pearls:
# Red and Processed Meat and Cancer Risk

Processed meat: what counts?

- Processed meat [1] =

  Smoked, Cured, Salted, Fermented, Preservatives

  - "Safe" forms?
  - Average U.S. intake 0.99 oz/day --

    Alternatives are situation-specific:

    breakfast? grilling? sandwich? sports event?

"But what can I eat?"

- Opportunity to re-orient the plate: Focus on what *replaces* processed meat and big portions of red meat

[1] AICR/WCRF Third Expert Report 2018; [1] Hammerling, Crit Rev Food Sci Nutr 2016, 56(4):614;
[1] IARC Working Group, IARC Monographs 2015, Volume 114

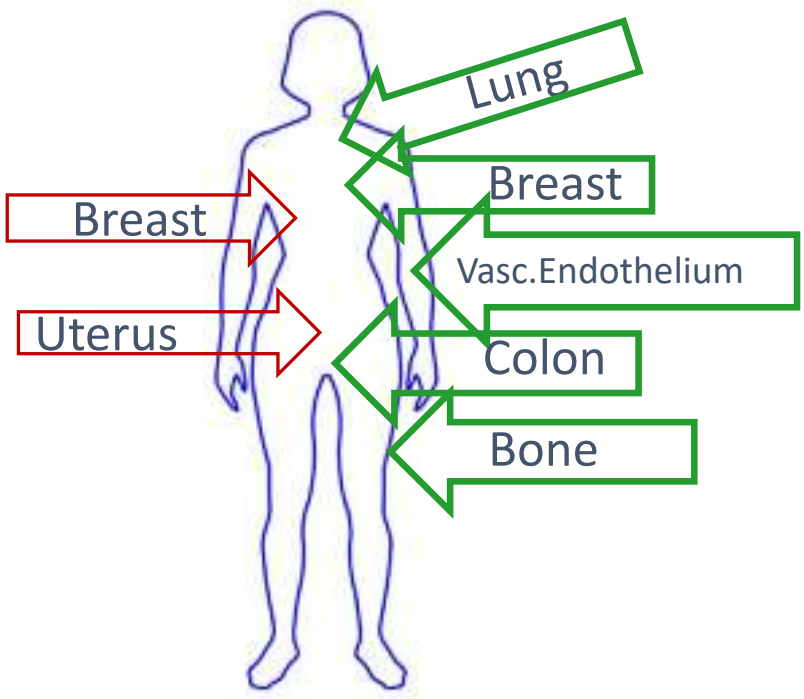
# Practice Pearls: Soy and Cancer Risk:

## Updated Understanding of Laboratory Studies

Isoflavones as SERMS (selective estrogen receptor modulators)

Estrogen receptors:

- ERα – promote cell proliferation
- ERβ – emerging as anti-proliferation




Shanle, Adv Drug Deliv Rev. 2010; 62(13):1265;
Nilsson, Clin Pharmacol Ther 2011; 89(1):44; Setchell, AJCN 2011; 94(5):1284;

# Dispelling Myths about Soy

The Message:

**Soy is Safe**
**for Breast Cancer Survivors**


AICR FOOD FACTS › FOODS THAT FIGHT CANCER

Soy: Intake Does Not Increase Risk for Breast Cancer Survivors

RESEARCH RECIPES & TIPS READING REFERENCES

*This content was last updated on April 8, 2021*

The Cancer Research

Research results differ on whether soy foods are likely to reduce cancer risk. The variety of study outcomes may reflect influences that differ by the type of soy food, time of life they are consumed, the type of cancer, and individual differences in genetics, gut microbiota or overall diet.

Consistent findings from population studies indicate no increased risk for breast cancer survivors who consume soyfoods. In fact, limited

Qiu, Eur J Nutr 2019, 58(8):3079; Zhang, Cancer 2017, 123:2070
AICR/WCRF Third Expert Report, 2018; Nechuta, Am J Clin Nutr 2012, 96(1):123

# Practice Pearls: What are "Soyfoods"?

Moderate soy consumption = 1-2 servings a day

One serving = 7 gm protein, 25 mg isoflavones

- ⅓ cup tofu (about 3 ounces)
- ½ cup tempeh (3 ounces)
- ½ cup edamame or cooked/canned mature soybeans
- 1 cup soymilk or soy yogurt
- 1 oz. soynuts (about ¼ cup)
- 1 Tbsp. miso

Veggie burgers, cereal and bars with soy protein ~1-10 mg

Asian populations: average intake 20-30 mg isoflavones/day

US cohorts: "high" consumers typically soy foods a few times/week

# Obesity & Body Composition In Cardiovascular Health After Cancer

# European Society of Medical Oncology Consensus Recommendations

## Management of Cardiac Disease in Cancer Patients Throughout Oncological Treatment

- Patients undergoing anticancer therapy and long-term cancer survivors should be encouraged to maintain a normal weight
- Grade of Recommendation: B

  Strong or moderate evidence for efficacy but with a limited clinical benefit, generally recommended

### Evidence Review

Increasing evidence: having overweight increases the risk of recurrence and reduces the likelihood of survival (disease-free survival and overall) among those diagnosed with cancer

Avoidance of weight gain and weight maintenance throughout treatment may be important for survivors who have normal weight, overweight or obesity at the time of diagnosis

Growing evidence supports intentional weight loss post-treatment in cancer survivors, which may result in improved prognosis and overall survival

Curigliano, Ann Oncol. 2020 Feb;31(2):171

# Making Sense of Adiposity's Link to Cancer Risk & Cancer Survivorship

**Lifestyle association or Physiological effect?**

- ⬆ Bioavailable estrogen
- ⬆ Inflammatory cytokines
- ⬆ Leptin
- ⬇ Adiponectin
- ⬆ Insulin and insulin-related growth factors



Smith, J Acad Nutr Diet 2018;118:652
Iyengar, J Clin Oncol 2016;34:4270
Giovannucci, Cancer Causes Control 2018;29(1):1
AICR/WCRF Third Expert Report, 2018

# Risks of Overweight and Obesity After Cancer

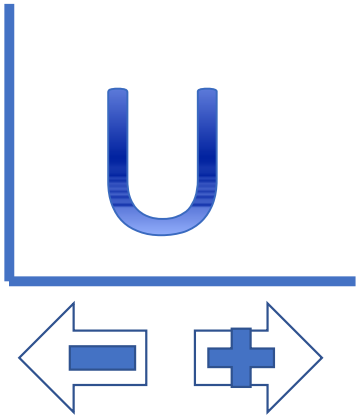
- Overweight and obesity are associated with decreased disease-free and overall survival in several types of cancer [1-4]
- Large weight gains (usually at least 5% to 10%) have been linked with increased cancer-specific and all-cause mortality in prostate and breast cancers [1,5]
- But weight is complex: reflecting body fat, bone, lean muscle tissue, and water balance


[1] McTiernan, Proc Nutr Soc. 2018;77(4):403
[2] Demark-Wahnefried, CA Cancer J Clin. 2018;68(1):64
[3] Trujillo, J Acad Nutr Diet. 2018;118:749
[4] AICR/WCRF Third Expert Report, 2018
[5] Troeschel, J Clin Oncol. 2020;38(18):2018

# Unintentional Weight Change after Cancer

## Unplanned Weight Loss & Loss of Lean Body Mass

- Treatment interruption, dose reduction
- Infection, Decreased survival
- Sarcopenia in 20-70% of cancer patients[1]
    - Often overlooked due to obesity




## Unhealthy Weight Gain

- Prostate cancer: >5 % gain vs. stable weight [2]

  Prostate cancer mortality HR 1.65 (1.21–2.25)

- Breast cancer and high weight gain (>10%):

  Greater Breast cancer mortality[3,4] & All-cause mortality[4]

  (5-10% weight gain: no clear increased mortality)

[1]Trujillo, J Acad Nutr Diet 2018; 118(4):749; [2]Troeschel, J Clin Oncol. 2020;38(18):2018;
[3]AICR/WCRF Third Expert Report, 2018; [4] Jung, Int J Cancer 2021;148(1):18

# Beyond BMI:
# Body Composition and Metabolic Syndrome

**Sarcopenia**

- Associated greater mortality In people with cancer – at any level of adiposity [1]

**Fat Distribution**

Normal weight postmenopausal women with central obesity:

Greater all-cause mortality, CVD mortality and cancer mortality [2]

**Metabolic syndrome – even with normal BMI – indicates risk** [3]

- More likely to have excess visceral adiposity and ectopic fat deposition (mainly in the liver, heart, and skeletal muscle)
- More likely adipocyte dysfunction, inflammation, insulin resistance, and dysregulated secretion of hormones and signaling proteins

[1] Caan, JAMA Oncol. 2018;4(6):798
[2] Sun, JAMA Netw Open, 2019;2(7):e197337
[3] Shi, Prev Chronic Dis. 2020;17:E36

# Moderate Weight Loss
## Potential Benefit for Cancer Survivors

**Intentional weight loss in people with cancer** who had overweight or obesity showed improvement in markers of inflammation and metabolic health [1]

- Most data from breast cancer survivors [2,3]
- Weight loss of ≥5% linked to beneficial changes:
  - Insulin, Leptin, Sex hormone binding globulin (SHBG)
  - Inflammatory markers: CRP, IL-6

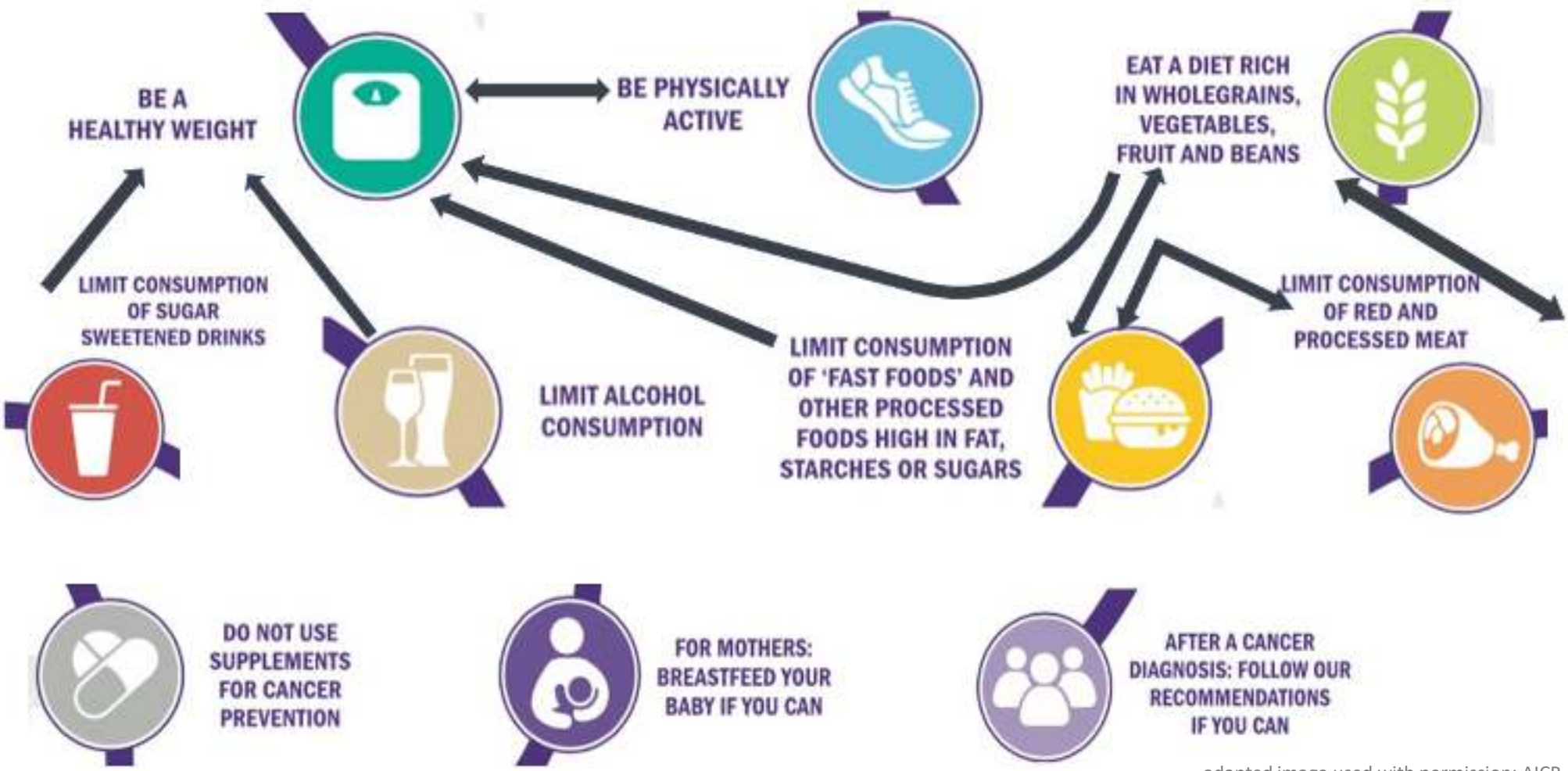
**Weight loss benefits found in non-cancer populations**

5% to 10% weight loss can produce clinically meaningful changes in biomarkers of the insulin, sex hormone and inflammatory pathways [4,5,6]


[1] Demark-Wahnefried, CA Cancer J Clin. 2018;68(1):64
[2] Rock, Clin Breast Cancer 2013; 3:188
[3] Harrigan, J Clin Oncol 2016; 34(7):669
[4] Chlebowski, Cancer 2019;125(2):205
[5] Look AHEAD Research Group, Obesity. 2020;28(9):1678
[6] van Gemert Endocr Relat Cancer. 2017;24(6):297

# Translating Recommendations in Patient Conversations

# Cancer Prevention: Recommendations as a Package




adapted image used with permission: AICR

# Individualize Nutrition Recommendations

Priorities vary among individuals and at different times

- ◊ Survivorship issues
- ◊ Risk of new cancers
- ◊ Risk of other cardiovascular disease and other chronic diseases

**Current clinical practice guidelines** [1]

- Clinicians should screen for and actively manage modifiable CVD risk factors (smoking, hypertension, diabetes, dyslipidemia, obesity) in all patients receiving or previously treated with potentially cardiotoxic treatments.
- A heart-healthy lifestyle, including the role of a healthy diet and exercise, should be discussed as part of long-term follow-up care.

[1] American Society of Clinical Oncology Clinical Practice Guideline. J Clin Oncol. 2017;35(8):893-911

# Talking with Patients Amidst Headline Hype

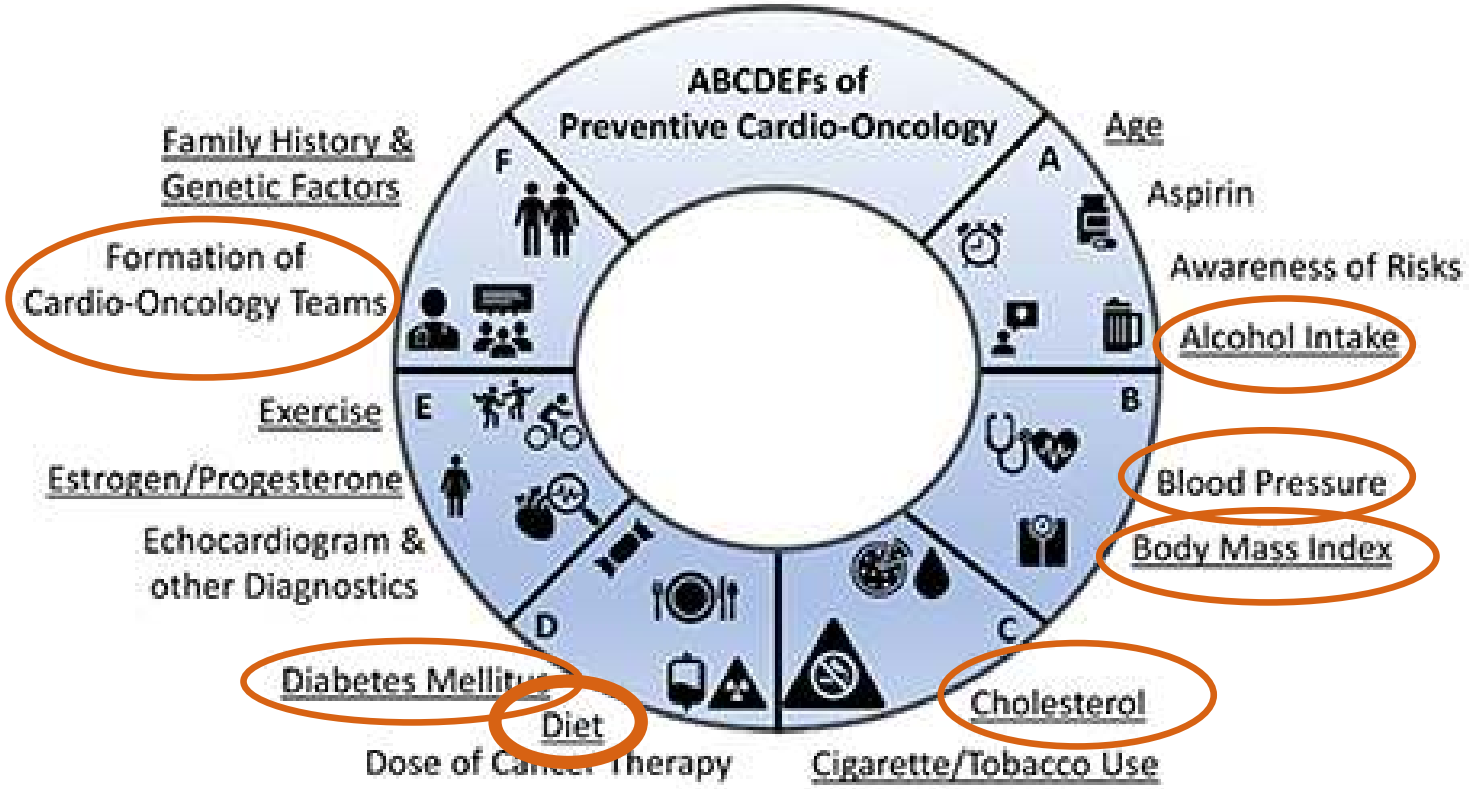
- **Crucial questions:**
  - In whom?
  - Compared to what alternative?
  - With how much support?
  - How does it fit with other research?
- **Educate people: all information is not equal**

Base choices on recommendations and reports

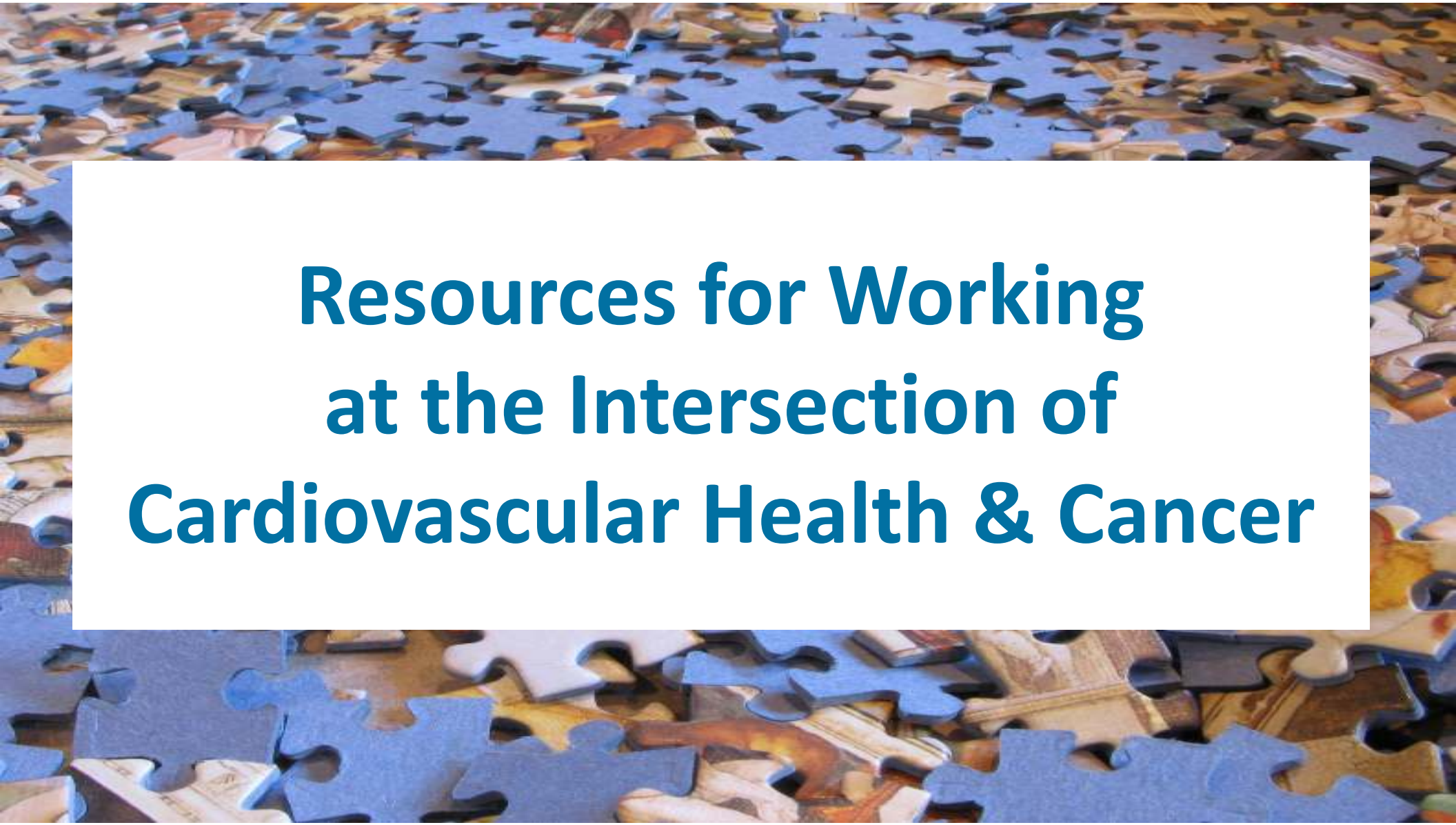
…not single studies and hearsay

# The ABCDE – and F – of Preventive Cardio-Oncology

## Dietitians Play a Valuable Role




Brown SA, Front Cardiovasc Med. 2020;6:187



# Resources for Working at the Intersection of Cardiovascular Health & Cancer

# Professional Resources

## From the American Institute for Cancer Research (AICR)

- AICR Expert Report (matrix of conclusions, findings by cancer type and lifestyle factor; systematic literature has dose-response curves & analysis of factors not in recommendations) http://www.aicr.org/cancer-research/dietandcancerreport/
- Blog (excellent source for insights on stories in the headlines) https://www.aicr.org/resources/blog/
- AICR's Food Facts Library (update on research behind the headlines) https://www.aicr.org/cancer-prevention/food-facts/

## From Karen Collins, MS, RDN, CDN, FAND

- Research reviews on nutrition in cardiovascular health and cancer + links to resources https://karencollinsnutrition.com/

# Additional Professional Resources

- American Cancer Society nutrition and physical activity guideline for cancer survivors. Rock CL et al. CA Cancer J Clin. 2022 Mar 16. doi: 10.3322/caac.21719
- National Comprehensive Cancer Network (NCCN) Guidelines for Patients: Survivorship Care for Healthy Living, 2021 – (free registration) https://www.nccn.org/guidelines/category_3
- National Cancer Institute – help for treatment side effects
- Oncology Nutrition dietetic practice group website: Eat Right to Fight Cancer – common questions addressed, handouts
- Access to Nutrition Care in Outpatient Cancer Care
  - Report from Institute of Medicine Workshop
  - Closing the Gap in Nutrition Care (J Acad Nutr Dietetics 2018)
- Feeding America Toolkit – (largest hunger-relief organization in the U.S.) Food Insecurity Toolkit (with 2-question validated screening tool Hunger Vital Sign™)

# Additional Resources – Related Topics

**Addressing Integrative Care Questions**

- National Center for Complementary & Integrative Health
  - Information for everyone
  - Healthcare providers section
- Office of Dietary Supplements (National Institutes of Health)
  - What You Need to Know about Supplements
  - Vitamin & Mineral Fact Sheets
  - Botanical Supplement Fact Sheets
- Memorial Sloan Kettering Cancer Center, Integrative Medicine, herbs & botanicals information

**Exercise and Physical Activity**

- Physical Activity Guidelines for Americans (Chapter 6 addresses Adult Cancer Survivors)
- Exercise Guidelines for Cancer Survivors: Consensus Statement (Campbell et al. *Medicine & Science in Sports & Exercise, 51*(11), 2375-2390. – https://pubmed.ncbi.nlm.nih.gov/31626055/

# Key Scientific Papers and Guidelines

## Notes for Nutrition in Cardio-Oncology

◊ **American Heart Association Scientific Statement on Cardio-Oncology Rehabilitation**

Gilchrist SC et al. Cardio-Oncology Rehabilitation to Manage Cardiovascular Outcomes in Cancer Patients and Survivors: A Scientific Statement From the American Heart Association. Circulation. 2019 May 21;139(21):e997-e1012. doi: 10.1161/CIR.0000000000000679.
https://pubmed.ncbi.nlm.nih.gov/30955352/

◊ **American Heart Association Scientific Statement on CVD and Breast Cancer**

Mehta LS, et al. Cardiovascular Disease and Breast Cancer: Where These Entities Intersect: **A Scientific Statement From the American Heart Association.** Circulation. 2018 Feb 20;137(8):e30-e66. doi: 10.1161/CIR.0000000000000556.
https://pubmed.ncbi.nlm.nih.gov/29437116/

◊ **American Society of Clinical Oncology (ASCO) Clinical Guidelines**

Armenian SH, et al. Prevention and Monitoring of Cardiac Dysfunction in Survivors of Adult Cancers: American Society of Clinical Oncology Clinical Practice Guideline. J Clin Oncol. 2017;35(8):893-911. doi: 10.1200/JCO.2016.70.5400.
https://pubmed.ncbi.nlm.nih.gov/27918725/

◊ **European Society of Medical Oncology (ESMO) Consensus Recommendations on Management of Cardiac Disease** (with recommendations on diet & weight)

ESMO (European Society for Medical Oncology) Curigliano G, et al. Management of cardiac disease in cancer patients throughout oncological treatment: ESMO consensus recommendations. Ann Oncol. 2020 Feb;31(2):171-190. doi: 10.1016/j.annonc.2019.10.023.
https://www.annalsofoncology.org/article/S0923-7534(19)36080-6/fulltext

◊ **National Comprehensive Cancer Network (NCCN) Guidelines** (includes ABCDEs to Promote Cardiovascular Wellness in Cancer Survivors)

NCCN Guidelines Insights: Survivorship, Version 2.2020. Journal of the National Comprehensive Cancer Network J Natl Compr Canc Netw, 2020;18(8):1016-1023**.**
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7785060/

→ **Oncologists' Attitudes and Practice of Addressing Diet, Physical Activity, and Weight Management With Patients With Cancer: Findings of an ASCO Survey of the Oncology Workforce** -- Ligibel JA et al. Journal of Oncology Practice 2019 15:6, e520-e528
https://ascopubs.org/doi/10.1200/JOP.19.00124https://ascopubs.org/doi/10.1200/JOP.19.00124

# Major Consensus Statements, Position Papers, Guidelines

## Mechanisms and Medical Assessment & Care


◊ Lyon AR, et al. Baseline cardiovascular risk assessment in cancer patients scheduled to receive cardiotoxic cancer therapies: a position statement and new risk assessment tools from the Cardio-Oncology Study Group of the Heart Failure Association of the European Society of Cardiology in collaboration with the International Cardio-Oncology Society. Eur J Heart Fail. 2020 Nov;22(11):1945-1960. doi: 10.1002/ejhf.1920.

◊ Pudil R, et al. Role of serum biomarkers in cancer patients receiving cardiotoxic cancer therapies: a position statement from the Cardio-Oncology Study Group of the Heart Failure Association and the Cardio-Oncology Council of the European Society of Cardiology. Eur J Heart Fail. 2020 Nov;22(11):1966-1983. doi: 10.1002/ejhf.2017.

◊ de Boer RA, et al. Common mechanistic pathways in cancer and heart failure. A scientific roadmap on behalf of the Translational Research Committee of the Heart Failure Association (HFA) of the European Society of Cardiology (ESC). Eur J Heart Fail. 2020 Dec;22(12):2272-2289. doi: 10.1002/ejhf.2029.

◊ Okwuosa TM, et al. Impact of Hormonal Therapies for Treatment of Hormone-Dependent Cancers (Breast and Prostate) on the Cardiovascular System: Effects and Modifications: A Scientific Statement From the American Heart Association. Circ Genom Precis Med. 2021 Jun;14(3):e000082. doi: 10.1161/HCG.0000000000000082.

◊ Herrmann J, et al. Defining cardiovascular toxicities of cancer therapies: an International Cardio-Oncology Society (IC-OS) consensus statement, *European Heart Journal*, 2021;, ehab674. doi: 10.1093/eurheartj/ehab674

# Resources for Patients

## From the American Institute for Cancer Research (AICR)

- Recommendations for Cancer Prevention

  https://www.aicr.org/cancer-prevention/

- New American Plate https://www.aicr.org/new-american-plate/
- Healthy10 Challenge (free online program) https://healthy10challenge.org/
- AICR's Foods that Fight Cancer (update on research behind the headlines) https://www.aicr.org/cancer-prevention/food-facts/

## From the American Cancer Society (ACS)

- Eat Healthy and Get Active https://www.cancer.org/healthy/eat-healthy-get-active

# Thank you!

Let's Keep the Conversation Going….

**Get Nutrition Research in Perspective**

**Email Updates & Free Resources:**

**SIGN UP AT bit.ly/KCNreviews**

**OR KarenCollinsNutrition.com**

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