

NUTRITION AND THE PATIENT WITH CANCER: HARNESSING THE POWER OF FOOD

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DISCLOSURES

- The speaker has nothing to disclose



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TODAY'S OBJECTIVES

- Participants will be able to:
 - Identify the validated malnutrition screening tool used within the oncology outpatient/ambulatory setting
 - Identify why screening in this population is so important
 - Recognize the most common nutrition impact symptoms and how oncology dietitians can help maximize intake during treatment
 - Recognize some of the most questions asked regarding nutrition and be able to answer them with confidence
 - Recognize emerging trends in the realm of oncology nutrition
 - Recognize reputable nutrition related resources for providers and patients

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IDENTIFYING MALNUTRITION

- Malnutrition is estimated to occur in ~80% of cancer patients¹
 - At **diagnosis**, 40-80% of GI, pancreatic, head and neck and colorectal cancers have signs of nutritional impairment²
 - Cancer related malnutrition results in accelerated weight loss triggered by¹
 - Systemic inflammation and catabolic factors
 - Negative energy balance and skeletal muscle loss is also driven by
 - Poor oral intake related to tumor or treatment (nutrition impact symptoms or NIS)
 - Metabolic alterations (elevated resting energy expenditure, insulin resistance, lipolysis and proteolysis)
 - Involuntary weight loss of just 5% decreases survival³

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MALNUTRITION

- Academy of Nutrition and Dietetics Evidence Analysis Library^{1,4}
 - Grade 1 (strong) evidence demonstrating the association between poor nutritional status (adult) and:
 - Decreased tolerance to radiation treatment
 - Decreased tolerance to chemotherapy
 - Increased hospital length of stay
 - Lower quality of life
 - Mortality
- Higher rates of malnutrition are found within:
 - Head and neck cancer
 - Esophageal
 - Gastric
 - Hepatobiliary
 - Pancreatic
 - Lung
- The above should be referred at initial medical/surgical/radiation oncology visit regardless of malnutrition screening score

MALNUTRITION

- Despite high rates of malnutrition, <60% of patients classified as malnourished receive nutritional intervention of any type¹
- Why?
 - ~ 90% of oncology treatment occurs in ambulatory centers
 - Screening tools are ambiguous and inconsistently applied within ambulatory settings (vs inpatient screening)
 - Medical nutrition therapy (MNT) is not consistently included in multidisciplinary care
 - A lack of oncology dietitians (1 Oncology RD:2308-2674 patients)^{1,2}
 - Insurance Coverage
 - Reimbursement

MALNUTRITION SCREENING TOOL

- Screening⁵
 - Should be simple, quick and easy to use
 - Done by any member of the team
 - Identifies those patients experiencing or at risk for malnutrition
 - Ensures proactive nutrition care
 - Should be conducted on initial oncology service visit
 - Applied routinely throughout treatment for RD to assess status
 - Helps prioritize care

VALIDATED SCREENING TOOLS FOR THE ONCOLOGY SETTING⁴⁻⁶

- Malnutrition Screening Tool (MST)*
- Patient-Generated Subjective Global Assessment (PG-SGA)*
 - Screening and assessment
 - Short form
- Nutriscore*
 - Newer validated tool (2017)
- Malnutrition Universal Screening Tool (MUST)
- Malnutrition Screening Tool for Cancer Patients (MSTC)

*MST, PG-SGA and Nutriscore all validated in the outpatient ambulatory setting
(MST used within all ambulatory oncology clinics within AHCI, also used inpatient)

MALNUTRITION SCREENING TOOL (MST)⁷⁻⁸

- Very easy to use
 - 2 data points
- Purely a screening tool
- Validated
 - Inpatient
 - Outpatient
- Score ≥ 2 = nutrition consult
- Dietitian completes full assessment

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NUTRITION ASSESSMENT: MALNUTRITION DEFINED

American Society of Enteral and Parenteral Nutrition (ASPEN)/Academy of Nutrition and Dietetics⁹

Malnutrition Criteria	Severe Malnutrition			Moderate Malnutrition		
	Acute Illness	Chronic Illness	Social Circumstances	Acute Illness	Chronic illness	Social Circumstances
Weight loss	>2% in 1 wk >5% in 1 mo >7.5% in 3 mo	>5% in 1 mo >7.5% in 3 mo >10% in 6 mo >20% in 12 mo	>5% in 1 mo >7.5% in 3 mo >10% in 6 mo >20% in 12 mo	1%-2% in 1 wk 5% in 1 mo 7.5% in 3 mo	5% in 1 mo 7.5% in 3 mo 10% in 6 mo 20% in 12 mo	5% in 1 mo 7.5% in 3 mo 10% in 6 mo 20% in 12 mo
Energy intake	$\leq 50\%$ compared with estimated needs for ≥ 5 d	$\leq 75\%$ compared with estimated needs for ≥ 1 mo	$\leq 50\%$ compared with estimated needs for ≥ 1 mo	$< 75\%$ compared with estimated needs for > 7 days	$< 75\%$ compared with estimated needs for ≥ 1 mo	$< 75\%$ compared with estimated needs for ≥ 3 mo
Body fat and muscle mass	Moderate depletion	Severe depletion	Severe depletion	Mild depletion	Mild depletion	Mild depletion
Fluid accumulation	Moderate to severe	Severe	Severe	Mild	Mild	Mild
Functional status	Measurably reduced	Measurably reduced	Measurably reduced	Not applicable	Not applicable	Not applicable

Minimum of 2 of the 6 characteristics needed for diagnosis of severe or non-severe malnutrition

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NUTRITION IMPACT SYMPTOMS (NIS)¹⁰

- Complex symptoms that negatively impact oral intake, digestion, absorption and utilization of nutrients. May result in:
 - Decreased quality of life
 - Malnutrition
 - Suboptimal outcomes
- Common NIS
 - Anorexia
 - Fatigue
 - Early satiety
 - Dysgeusia/ageusia
 - Dysphagia
 - Mucositis/esophagitis
 - Nausea/vomiting
 - Odynophagia
 - Thrush
 - Xerostomia
- Oncology dietitians anticipate type of treatment (surgical, medical, radiation) and NIS

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THE EATING EXPERIENCE¹¹⁻¹²

- Eating:
 - The function of consuming sustenance, necessary to sustain life
- The eating experience
 - Physiological
 - Psychological
 - Social
 - Cultural elements
- Self-image and identity
- “It is through eating we express prosperity, good health, strength, and love; obtain psychological comfort and hope and develop new friendships and reconnect with our past”

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CLINICAL EXPERIENCE: PATIENT PERSPECTIVE

Fear

Guilt



Mixed
Messages

Stress

Anxiety

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RESEARCH SHOWS¹³⁻¹⁴

- 94% of health care professionals (HCP) discuss nutrition
- 77% of HCP provide information on nutrition
- Only 39% of HCP reported awareness of nutrition guidelines and cancer; only 20% were completely confident in providing advice
 - Registered Dietitians had greatest awareness of guidelines and confidence in providing nutrition advice (76.3%)
 - Only 3.7% and 32.4% of doctors were completely or somewhat confident in providing nutrition advice
 - Oncology nurses, 53.4% were somewhat confident; only 4.1% were completely confident
- Sullivan et al.
 - Nutrition was rated as "important" by 97.8% of breast cancer survey respondents

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AMERICAN CANCER SOCIETY 2022-GUIDELINES FOR CANCER SURVIVORSHIP¹⁵

- Achieve and maintain a healthy body weight throughout life
 - Keep body weight within a healthy range and avoid weight gain in adult life
- Be physically active
 - 150-300 min of moderate-intensity physical activity/week; striving to meet or exceed upper limit of 300 min
 - Or 75-150 min of vigorous intensity physical activity
- Follow a healthy eating pattern
 - Foods high in nutrients
 - Variety of vegetables (dark green, red, orange, fiber-rich legumes)
 - Fruits, especially whole fruits/variety of colors
 - Whole grains
- A healthy eating pattern limits or does not include:
 - Red or processed meats
 - Sugar sweetened beverages
 - Highly processed foods
- It is best not to drink alcohol
 - For those who choose to drink alcohol; no more than 1 drink/day for women, 2 drinks/day for men

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COMMON QUESTION: SUGAR¹⁶⁻¹⁷

- Number one question “does sugar feed cancer?”
 - Answer: Sugar feeds every cell in the body
 - Difference between complex carbohydrates and simple sugars
 - Whole grains, beans and legumes, fruits and vegetables (complex, cancer fighting carbohydrates)
 - Limit simple sugars (processed, less healthy choice, increase insulin/hormones)
 - Consume a blend of carbohydrate, protein and fat with meals and snacks
 - Consume consistent carbohydrates (45-60 grams/meal, 15-30 grams/snacks)
 - Physical activity to maintain/promote healthy blood glucose levels
 - Bottom line
 - **Limit** processed foods (cakes, candy, cookies, sugar-sweetened beverages) to reduce caloric intake and minimize weight gain/promote a healthy body weight and lower insulin secretion in individuals with metabolic abnormalities (such as those with prediabetes or type 2 diabetes)
 - A word on the ketogenic diet: Currently, no organization or guideline recommends a ketogenic diet as adjunct therapy; current data supports prioritization of plant-based diets



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COMMON QUESTION: SOY¹⁸

Concern: Phytoestrogen (plant estrogen)
Phytoestrogen ≠ Female estrogen



World Cancer Research Fund/American Institute for Cancer Research. Continuous Update Project Expert Report 2018. Diet, nutrition, physical activity, and breast cancer survivors. Available at dietandcancerreport.org

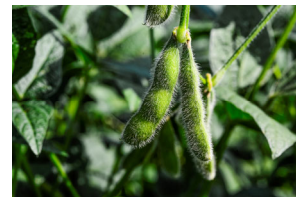
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COMMON QUESTION: SOY¹⁵

- Soy food consumption before diagnosis is associated with lower risk of overall mortality
- There is consistent evidence that soy intake, whether pre-diagnosis or postdiagnosis, or postdiagnosis soy isoflavone intake, is associated with a lower risk of recurrence
- Whole soy foods vs. soy supplements
- 1-2 servings of whole soy food/day is considered moderation
 - Servings=1/3 cup tofu/3 oz., 1 cup soy milk, 1/2 cup edamame, 1/4 cup or 1 ounce soy nuts



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COMMON QUESTION: SUPPLEMENTS¹⁹⁻²⁰

- AICR “aim to meet nutritional needs through diet alone”
 - Up to 80% of cancer patients use some form of “supplement”
 - Most common among breast cancer survivors
 - Reasons for use:
 - Improved quality of life
 - Reducing symptoms of treatment and/or disease process
 - Recommendations from medical practitioners, family or friends
 - All supplements should be reviewed by provider *prior to treatment*
 - Lack of evidence to support benefit or harm with use
 - Concern that use of antioxidant supplements during treatment could reduce cytotoxic effects of ROS generated by chemotherapy agents
 - Study by Ambrosone C, et al found use of any antioxidant supplements both before and during treatment was associated with an increased hazard of recurrence, and, to a lesser extent, death. Use of B12 and iron also indicated increased risk of recurrence and mortality
 - Bottom line: AICR and ACS advise against the use during treatment
 - **Ask patients about use.** If unsure, refer to pharmacy, integrative medicine or dietitian



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COMMON QUESTIONS: ALCOHOL²¹

- For cancer prevention it is best not to consume alcohol
 - Alcohol is a known carcinogen, linked to several types of cancer
 - There is **strong evidence** that alcohol increases the risk of breast cancer
 - There is **convincing evidence** that drinking alcohol increases the risk of post menopausal breast cancer
 - There is **probable evidence** that drinking alcohol increases the risk of premenopausal breast cancer
 - Alcohol may lead to increased estrogen levels
 - For those who chose to drink, no more than 1 drink/day for women, 2 drinks/day for men
 - Increased risk starts at less than one drink/day
 - Standard size 5 oz of wine, 12 oz beer, 1.5 oz of spirits
 - Any reduction in alcohol intake is a step towards lower risk of cancer
- A word on aspartame²²



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A WORD ON ASPARTAME²²⁻²³

- July 2023 International Agency for Research on Cancer (IARC)
 - Classified aspartame as possibly carcinogenic to humans (Group 2B)
 - Group 1= can cause cancer
 - Group 2a= probably causes cancer
 - Group 2b=possibly causes cancer
 - Group 3= no risk
 - Continued with previously acceptable daily intake of 0-40 mg/kg
 - Roughly 9-14 cans of diet soda/day
 - Same category as aloe vera and pickled vegetables
 - Compare to alcohol
 - Group 1
 - Linked to 6 cancers

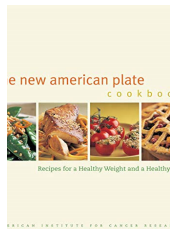
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CURRENT TRENDS²⁴⁻²⁵

- Precision Nutrition
 - Nutrigenomics
 - The study of how nutrients and genes interact to influence nutrition status and health outcomes
 - Encompasses several subdisciplines, including nutrigenetics and nutrigenomics
 - How diet can influence gene expression
 - Nutrigenetics
 - Focuses on the effect of specific dietary compounds on gene expression
 - Example: Phenylketonuria; variant in the gene that encodes the phenylalanine hydroxylase enzyme disrupts the ability of this enzyme to convert phenylalanine to tyrosine
 - Describes how the interaction between genotype and diet affects health outcomes
- Dietitians are **not** genetic counselors

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REPUTABLE RESOURCES FOR PROVIDERS AND PATIENTS



- × American Cancer Society (www.cancer.org)²⁶
 - × New guidelines, free resource
 - × Rock C, et al. *CA Cancer J Clin* 2022;72(3):195-300¹⁵
 - × Rock C, et al. *CA Cancer J Clin* 2020;70(4):245-271¹⁶
- × American Institute for Cancer Research (www.aicr.org)²⁷
 - × The New American Plate Cookbook²⁸
- × National Cancer Institute (www.cancer.gov)²⁹
- × Oncology Nutrition Dietetic Practice Group (ON DPG)³⁰
 - × Dietetic Practice Group of the Academy of Nutrition and Dietetics
 - × Addresses common questions
 - × Oncologynutrition.org
- × Cancer Fighting Kitchen by Rebecca Katz³¹

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BOTTOM LINE: ONCOLOGY NUTRITION

- Screening for risk of malnutrition
 - Allows for **timely** intervention
 - Now a system wide oncology nutrition policy and nursing protocol
- Referral to RD if ≥ 2 on MST for full nutrition assessment
 - Nutrition intervention, address NIS
 - Monitoring and evaluation/re-evaluation
- Referral to RD for following diagnosis, regardless of MST score:
 - HNC, Gastric, Pancreatic, Hepatobiliary, Esophageal, Lung
- Collaboration with team (patient centered)
 - Consistent approach
 - Consistent messaging to patients
 - Realistic expectations

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