

# UC San Diego

MOORES CANCER CENTER

## Nutrition Optimization and Considerations in Cancer Care



**Patrick Pablo, RDN –**  
*Clinical Dietitian*



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# Nutrition Optimization and Considerations in Cancer Care

## AGENDA



**Nutrition's Role in Oncology & Care Team Integration**



**Screening & Malnutrition Identification (MST, ASPEN/AND)**



**Oncology Nutrition Team**



**Nutrition Management During Treatment and Exercise**



**Advanced Support & Resources (EN/PN, Food Safety, Patient Tools)**



# MALNUTRITION IN CANCER CARE: A COMMON, UNDERRECOGNIZED ISSUE

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GLOBALLY,  
MALNUTRITION AFFECTS  
**41%** OF CANCER  
PATIENTS

But that number can vary widely—  
anywhere from **25%** to as high as **75%**,  
depending on the type of cancer and  
the stage of disease.

## BREAKING IT DOWN FURTHER:

ROUGHLY

**1 IN 5**



PATIENTS ARE  
**MODERATELY  
MALNOURISHED**

ANOTHER

**1 IN 5**



PATIENTS ARE  
**SEVERELY  
MALNOURISHED**



THIS IS NOT A SMALL SUBSET—  
**THIS IS A SIGNIFICANT PORTION**  
OF THE POPULATION WE CARE FOR.



UP TO  
**50%**

OF PATIENTS ALREADY HAVE  
**NUTRITIONAL DEFICIENCIES**  
AT THE TIME OF DIAGNOSIS,  
before they've even started treatment.





# THE CONSEQUENCES ARE REAL AND MEASURABLE

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SEVERELY MALNOURISHED  
PATIENTS HAVE

**2-5x**  
HIGHER RISK OF  
MORTALITY



OVERALL,  
MALNUTRITION  
IS ASSOCIATED  
WITH ABOUT A  
**2x**  
INCREASE IN  
MORTALITY RISK



ABOUT A  
**90%**  
INCREASE IN  
POSTOPERATIVE  
COMPLICATIONS

with major implications  
for recovery and  
healthcare utilization.

## BEYOND THAT, MALNUTRITION CONTRIBUTES TO:



INCREASED  
TREATMENT  
TOXICITY



REDUCED  
TOLERANCE  
TO THERAPY



LOWER  
ADHERENCE TO  
TREATMENT PLANS



SO ULTIMATELY, THIS ISN'T JUST  
**ABOUT WEIGHT LOSS—**  
**IT'S ABOUT OUTCOMES.**



Identifying and addressing  
malnutrition is a  
**CRITICAL COMPONENT**  
of improving survival,  
recovery, and quality of  
life for our patients.



# Role of Nutrition in Cancer Care



**Nutrition is a critical component across the entire cancer continuum**



**Cancer and treatments increase risk of malnutrition and muscle loss (sarcopenia)**

- Leads to ↓ immune function, ↑ symptoms, and impaired recovery



**Adequate nutrition support is essential**

- Preserves strength and lean body mass
- Improves treatment tolerance and recovery outcomes





# Role of Nutrition in Cancer Care



## Nutrition care must be individualized

- Based on cancer type, treatment, and patient condition
- Addresses symptoms impacting intake (e.g., taste changes, nausea, dysphagia)



## Role of the Oncology Dietitian

- Provide personalized nutrition plans
- Monitor status and intervene early



## Nutrition interventions can improve outcomes

- Oral nutrition supplements, enteral, and parenteral nutrition when indicated



**Vital part of cancer treatment impacting  
function, quality of life, and treatment response**







## CLINICAL GUIDELINES

# Malnutrition risk screening in adult oncology outpatients: An ASPEN systematic review and clinical recommendations

Elaine B. Trujillo MS, RDN<sup>1</sup> | Kunal C. Kadakia MD<sup>2</sup> |  
 Cynthia Thomson PhD, RDN<sup>3</sup> | Fang Fang Zhang MD, PhD<sup>4</sup> |  
 Alicia Livinski MA, MPH<sup>5</sup> | Kim Pollard RN<sup>6</sup> | Todd Mattox PharmD<sup>7</sup> |  
 Anne Tucker PharmD<sup>8</sup> | Valaree Williams MS, RDN<sup>9</sup> | Declan Walsh MD<sup>2</sup> |  
 Steven Clinton MD, PhD<sup>10</sup> | Aaron Grossberg MD, PhD<sup>11</sup> |  
 Gordon Jensen MD, PhD<sup>12</sup> | Rhone Levin MEd, RDN<sup>13</sup> |  
 Jeannine Mills MS, RDN<sup>14</sup> | Anurag Singh MD<sup>15</sup> | Meredith Smith RN<sup>16</sup> |  
 Renee Stubbins PhD, RDN<sup>17</sup> | Kathleen Wiley MSN, RN<sup>18</sup> |  
 Kristen Sullivan MPH, MS<sup>19</sup> | Mary Platek PhD, RDN<sup>15</sup> | Colleen K. Spees PhD, RDN<sup>10</sup>

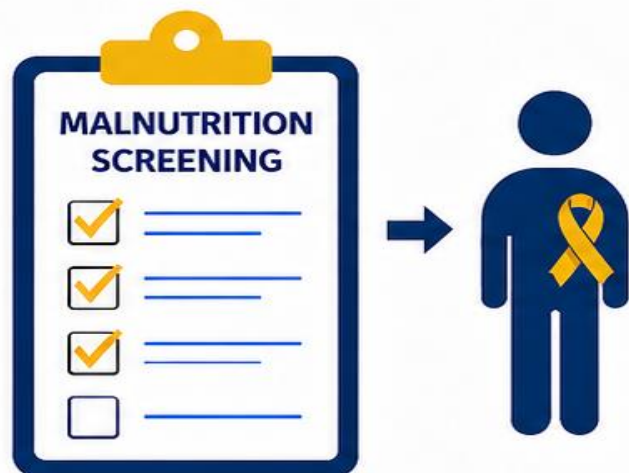
Cover Art: Refer to this issue of JPEN, researchers evaluated the validity of screening tools for identification of malnutrition risk in adult oncology outpatients.



1

**ALL PATIENTS**

should undergo malnutrition screening using a validated tool with nutrition specific follow up plan for those at risk

**AT RISK****NUTRITION SPECIFIC FOLLOW UP PLAN**

- ☒ Nutrition assessment
- ☒ Personalized plan
- ☒ Education & counseling
- ☒ Ongoing monitoring

2

**6 TOOLS**

with various cut-points demonstrated validity and are recommended in ambulatory settings:

**MNA**

(Mini Nutritional Assessment)

**MST**

(Malnutrition Screening Tool)

**MUST**

(Malnutrition Universal Screening Tool)

**NRS-2002**

(Nutrition Risk Screening 2002)

**NUTRISCORE**

(Nutritional Risk Score)

**PG SGA SF**

(Patient-Generated Subjective Global Assessment Short Form)

3

**ALL PATIENTS**

with cancer should undergo routine malnutrition risk screenings using a valid tool after diagnosis and throughout treatment.



After  
Diagnosis



Throughout  
Treatment



Ongoing  
Monitoring

**RISK IDENTIFICATION**

calls for a comprehensive nutrition assessment by a trained nutrition professional, such as an RDN





# Malnutrition Screening Tool (MST) Workflow

## Algorithm: MST in Moores

Nursing Staff

RN or MA to administer MST at patient intake in clinic

- If completed by MA, notify RN of MST scores of 2 or > RN will enter referral to nutrition: MUC Onc Nutrition
- If completed by RN, enter referral for all scores of 2 or >
- MST must always be administered at the patient's initial appointment of the day. It is not necessary to administer MST > once daily
- If patient is being followed by Nutrition (RD), it is not necessary to place a duplicate referral

Locate MST in the Nursing flowsheets

Administer the two-question MST to patient. If score is < 2, no action necessary

END

Administer the two question MST to patient. If MST score is 2 or >, enter Nutrition referral

Referrals scheduled with Nutrition Team

Patients will receive an initial assessment by RD, be provided a patient-specific nutrition plan and followed as needed

Monthly MST score report will be generated for auditing purposes to assure compliance

Dietitian

## Flowsheets

File Add Rows Add LDA Cascade Add Col Insert Col Last Filed Reg Doc Graph Go to Date Values By Refresh

IV Assessment ECOG / XRT Coding Complete LACE+ Score Vital Signs/Intake Intake Intake Derm Surgery SP C

MST



Mode: Accordion Expanded View All

No depa...

10/3/18

1000

MST

Have you recently lost weight without trying?

If yes, how much weight have you lost?

Have you been eating poorly because of a decreased appetite?

Malnutrition Screening Tool (MST)

MST Score addressed



# Clinical Nutrition: A.S.P.E.N./ Academy of Nutrition and Dietetics Consensus: Characteristics of Protein-Calorie Malnutrition

## Defining Malnutrition (Clinical Update)



**ASPEN/AND  
criteria**



**Diagnosis =  
≥2 of 6  
characteristics**



**Key Update:**



**Albumin & prealbumin**

**Not valid indicators of  
malnutrition  
(inflammation markers)**

**Protein-Calorie Malnutrition Occurs at ALL Body Mass Index**

**Clinical Characteristics: include all that apply**

### 1) Energy Intake

Dietitian obtains diet history, calculates energy (and protein) demand. Suboptimal intake is calculated as percentage of estimated needs over time.

<75% of  
estimated  
energy  
requirement  
for >7 days

≤50% of  
estimated  
energy  
requirement  
for ≥5 days

<75% of  
estimated  
energy  
requirement  
for ≥1 month

≤75% of  
estimated  
energy  
requirement  
for ≥1 month

<75% of  
estimated  
energy  
requirement  
for ≥3  
months

≤50% of  
estimated  
energy  
requirement  
for ≥1 month

### 2) Weight Loss

Evaluate weight loss in light of other clinical findings, including hydration status. Weight change over time is reported as a percentage of weight lost (or weight change) from baseline.  
Equation: original weight minus current weight divided by original weight x 100 = % weight change

% Time  
1-2 1 wk  
5 1 mo  
7.5 3 mo

% Time  
>2 1 wk  
>5 1 mo  
>7.5 3 mo

% Time  
5 1 mo  
7.5 3 mo  
10 6 mo  
20 1 yr

% Time  
>5 1 mo  
>7.5 3 mo  
>10 6 mo  
>20 1 yr

% Time  
5 1 mo  
7.5 3 mo  
10 6 mo  
20 1 yr

% Time  
>5 1 mo  
>7.5 3 mo  
>10 6 mo  
>20 1 yr

### 3) Muscle Mass - Physical Assessment (all noted)

Muscle loss (e.g., wasting of the temples (temporalis muscle), clavicles (pectoralis and deltoids), shoulders (deltoids), interosseous muscles, scapula (latissimus dorsi, trapezius, deltoids), thigh (quadriceps), and calf (gastrocnemius).

Mild  
Depletion

Moderate  
Depletion

Mild  
Depletion

Severe  
Depletion

Mild  
Depletion

Severe  
Depletion

### 4) Body Fat - Physical Assessment (all noted)

Loss of subcutaneous fat (e.g., orbital, triceps, overlying ribs).

Mild  
Depletion

Moderate  
Depletion

Mild  
Depletion

Severe  
Depletion

Mild  
Depletion

Severe  
Depletion

### 5) Fluid Accumulation- Physical Assessment

Generalized or localized fluid accumulation evident on exam (extremities, volar/sacraledema, or ascites). Weight loss is often masked by generalized fluid retention (edema), and fluid weight gain may be observed.

Mild

Moderate to  
Severe

Mild

Severe

Mild

Severe

### 6) Functional Assessment: Grip Strength

American Society of Hand Therapists Method 3<sup>rd</sup> ed. 2016

NA

Measurably  
Reduced

NA

Measurably  
Reduced

NA

Measurably  
Reduced

**Albumin & pre-albumin are not used as nutrition markers, as they are part of a negative acute-phase response, and not directly indicative of Low albumin and pre-albumin values may be indicative of morbidity and mortality rather than clinical malnutrition.**

- Registered dietitians perform nutritional assessment & determine the type and severity of PCM for a nutrition diagnosis, which is then shared with MD for consideration, documentation and inclusion in the patient problem list.

- Height and weight should be measured rather than estimated to determine body mass index (BMI) and weight changes.
- Usual weight should be obtained to determine the percentage and to

- The National Center for Health Statistics defines chronic as a disease/condition lasting 3 months or longer.
- Adapted from: ASPEN/Academy Consensus Characteristics of



# And so, why NOT Albumin and Prealbumin?

*One that still comes up frequently in practice...*

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Albumin and prealbumin are **negative acute-phase reactants**, so they drop with inflammation.



Low levels reflect **inflammation, disease burden**, or treatment effects—not nutrition intake.



They **don't correlate** with muscle mass and don't improve reliably with nutrition alone.



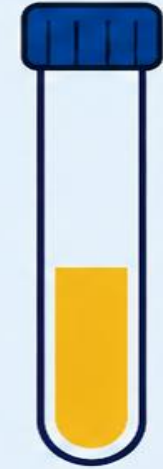
They often **fail to detect early malnutrition**—when intervention matters most.



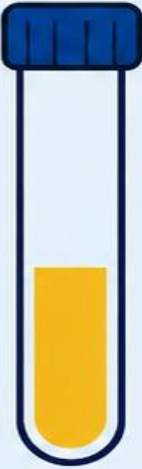
Therefore, ASPEN and the Academy **exclude** albumin and prealbumin from malnutrition diagnosis criteria.

## THE BOTTOM LINE

ALBUMIN



PREALBUMIN



Negative acute-phase reactants



Decrease with inflammation



Reflect disease burden or treatment effects



Don't correlate with muscle mass



Don't improve reliably with nutrition alone



Fail to detect early malnutrition

**NOT** reliable nutrition markers.  
**NOT** part of malnutrition diagnosis.



# Oncology Nutrition Team

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## Dietitian Supervisor



Traci Roberts, DCN, RD

## Outpatient Registered Dietitians



Patrick Pablo, RD



Patricia Rubio, MS, RD,  
CNSC, CSO



Maria Oirkha, RD,  
CSO



Stacy Carlson, MS,  
RD



Mallory Callaway,  
MS, RD



# Expanding Access with Group Classes



## Available programs:



**Breast Cancer** (new, pre-treatment)



**Head & Neck** (pre-treatment)



**Gynecology Oncology** (weight reduction)



**Pre-Bone Marrow Transplant**



**Bladder Cancer Survivorship**



**Surgical Prehab & Recovery**



### Purpose:

Improve access when  
1:1 scheduling is limited



**Plans for Prostate  
Cancer Survivorship Class.**  
Start TBD



# Nutrition care is truly multidisciplinary.



We Oncology Dietitians collaborate closely with many teams including:



- the Speech Language Pathology (SLP) team for swallow evaluations and safe diet textures



- as well as our Licensed Clinical Social Work team, who help address barriers like food access, transportation, and financial constraints.



For example, a patient may need nutrition support, but if they don't have access to food or transportation, **those issues must be addressed first.**





# Nutritional Considerations During Cancer Treatment

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Goals during treatment can change and are highly individual.  
We encourage patients to work with their medical team  
and dietitian to monitor and manage personal goals.







# BARRIERS TO NUTRITION DURING CANCER TREATMENTS

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Nutrition challenges are common during cancer treatment and can affect a person's strength, ability to heal, and overall quality of life.

## WHY BARRIERS MATTER

Many factors during cancer treatment can make it difficult to eat well and maintain adequate nutrition.



Poor intake can lead to weight loss, loss of muscle, weakness, and fatigue.



It can increase the risk of complications and delay recovery.



It may make it harder to tolerate treatments and affect outcomes.



Addressing nutrition barriers early can make a meaningful difference.

## COMMON SIDE EFFECTS THAT IMPACT APPETITE AND INTAKE



Nausea  
and/or  
Vomiting



Diarrhea or  
Constipation



Taste  
Changes



Mouth sores  
or tenderness



Fatigue



Pain



Indigestion



**MANAGING SIDE EFFECTS  
CAN REDUCE BARRIERS TO  
APPETITE AND EATING**



**THIS CAN IMPROVE  
TREATMENT TOLERANCE  
AND QUALITY OF LIFE**



Nutrition is an important part of cancer care.

Talk with your healthcare team, including a registered dietitian, about strategies to manage side effects and support your nutrition.





# MOVEMENT MATTERS: EXERCISE IS THERAPEUTIC



Regular physical activity is a powerful part of cancer care—before, during, and after treatment.



## PHYSICAL ACTIVITY GUIDELINES

### BEFORE & AFTER TREATMENT



**≥150** minutes per week  
of moderate aerobic activity



**2–3** sessions per week  
of strength training

AND

### DURING ACTIVE TREATMENT



**≥90** minutes per week  
of aerobic activity  
(as tolerated)



**2–3** days per week  
of strength training  
(as tolerated)



Even at reduced  
levels, maintaining  
some degree of  
physical activity is  
incredibly important.

## WHY IT MATTERS: EXERCISE IS LINKED TO BETTER CLINICAL OUTCOMES



### 1. IMPROVES TREATMENT TOLERANCE & SYMPTOM MANAGEMENT

Reduces fatigue, improves  
physical function, and  
enhances overall tolerance  
during therapy.



### 2. ENHANCES QUALITY OF LIFE

Patients who remain active  
often report better energy  
levels, mood, and  
independence.



### 3. REDUCES UNPLANNED HEALTHCARE UTILIZATION

Associated with fewer  
hospitalizations and  
shorter lengths of stay.



### 4. LOWERS RISK OF CANCER RECURRENCE

Regular physical activity is  
associated with a lower risk  
of cancer recurrence.



### 5. IMPROVES OVERALL SURVIVAL

Associated with improved  
overall survival across  
multiple cancer types.

**LIVESTRONG**

AT THE YMCA

Evidence-based exercise  
programs for cancer survivors.

*Maple Tree*  
CANCER ALLIANCE

Connecting, supporting, and  
empowering people impacted  
by cancer in our community.



**KEY TAKEAWAY:** Exercise is not just supportive—**IT IS THERAPEUTIC.**

Campbell et al. *Med Sci Sports Exerc.* 2019; Filis et al. *Crit Rev Oncol Hematol.* 2025.



# NUTRITION SUPPORT ACROSS THE CANCER JOURNEY

*When eating becomes difficult,  
nutrition care doesn't stop.*

Patients may require different levels of nutrition support depending on their symptoms, nutritional status, and ability to meet their needs by mouth.

- ✓ Manage nutrition-impact **symptoms** early
- ✓ Promote **safe food practices** during treatment
- ✓ Optimize **oral intake** whenever possible
- ✓ Utilize **enteral** or **parenteral** nutrition when clinically indicated
- ✓ Connect patients with reliable nutrition **resources** and expert **guidance**



The right nutrition intervention *at the right time*  
can help support treatment tolerance, recovery, and quality of life.



# Neutropenia: Shift from Food Restriction to Food Safety

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## No benefit to neutropenic diet

- No ↓ infection risk vs. food safety (RCTs, meta-analyses)
- Not recommended by American Society of Clinical Oncology, Infectious Diseases Society of America, Pediatric Oncology Group of Ontario



## Preferred Approach: Food Safety

- Avoid high-risk foods (unpasteurized, raw/undercooked, deli meats, sprouts, mold)
- Follow: Clean • Separate • Cook • Chill



Clean



Separate



Cook



Chill



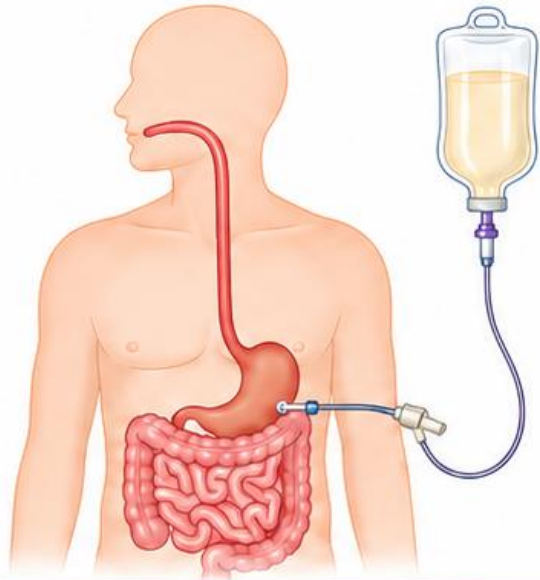
# Enteral vs. Parenteral Nutrition



**Goal:** Provide adequate nutrition to support healing, recovery, and overall health

## Enteral Nutrition (EN)

Nutrition delivered via GI tract (e.g., G-tube)



**Preferred when**  
GI tract is functional



**Supports gut integrity,**  
lower infection risk,  
more physiologic



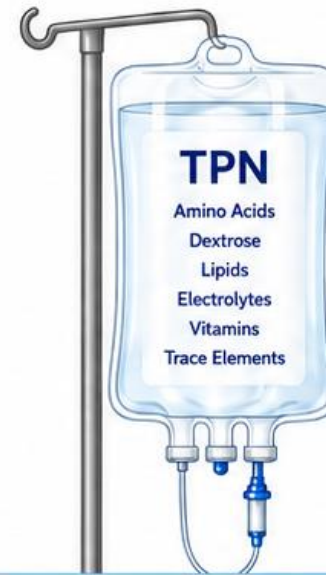
Maintains gut mucosal  
integrity and normal  
hormonal responses

### Examples:

G-tube, J-tube, NG/NJ tube, oral supplements

## Parenteral Nutrition (PN/TPN)

Nutrition delivered intravenously



**Indicated when**  
GI tract is non-functional

- Bowel obstruction
- Severe malabsorption
- Prolonged ileus
- High-output fistula



**Higher risk: infection,  
metabolic complications**  
→ requires close monitoring

### Examples:

Central PN (TPN), Peripheral PN (PPN)



### Key Considerations



Assess patient's  
GI function,  
nutrition needs,  
and clinical status



Use the GI tract  
when possible



Monitor for tolerance,  
complications, and  
nutritional adequacy



Interdisciplinary  
collaboration is  
essential







# EVIDENCE-BASED NUTRITION INFORMATION & DOWNLOADABLE HANDOUTS

*Reliable. Evidence-Based. Patient-Focused.*



American Institute  
for Cancer Research  
(AICR)

[www.aicr.org](http://www.aicr.org)



National Cancer  
Institute (NCI) –  
Nutrition in Cancer Care

[www.cancer.gov](http://www.cancer.gov)



American  
Cancer Society (ACS)

[www.cancer.org](http://www.cancer.org)



Oncology Nutrition  
Dietetic Practice Group  
(Oncology DPG)

[www.oncologynutrition.org](http://www.oncologynutrition.org)



Academy of  
Nutrition and Dietetics –  
EatRight.org

[www.eatright.org](http://www.eatright.org)



University of California  
San Francisco (UCSF)  
Nutrition & Cancer  
Resources

[osher.ucsf.edu](http://osher.ucsf.edu)



Memorial Sloan  
Kettering  
Cancer Center

Memorial Sloan Kettering  
Cancer Center (MSKCC)  
Patient Education Library

[www.mskcc.org](http://www.mskcc.org)



Fred Hutch  
Cancer Center –  
Nutrition Resources

[www.fredhutch.org](http://www.fredhutch.org)



MD Anderson  
Cancer Center –  
Nutrition Resources

[www.mdanderson.org](http://www.mdanderson.org)



Dana-Farber  
Cancer Institute

Dana-Farber  
Cancer Institute –  
Nutrition Services  
Resources

[www.dana-farber.org](http://www.dana-farber.org)





# NUTRITION: AN ESSENTIAL COMPONENT OF CANCER CARE



Nutrition is often viewed as supportive care,  
*but it is an essential component of  
comprehensive cancer care.*

Nutrition affects a patient's ability to:



Tolerate  
Treatment



Maintain  
Strength &  
Function



Preserve  
Quality of  
Life



Recover  
Throughout  
the Journey



## OUR ROLE AS HEALTHCARE PROFESSIONALS

We each play an important role in **identifying nutrition concerns early**,  
providing **evidence-based guidance**, and connecting  
patients with the **appropriate resources and support services**  
when needed.



Good nutrition supports better care,  
stronger patients, and **better outcomes.**

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# NUTRITION ACTIONS THAT MAKE A DIFFERENCE

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Our actions can have a **meaningful** impact on patient outcomes.

## KEY ACTIONS WE CAN TAKE



**Screen for malnutrition**  
and identify concerns early.



**Reinforce healthy eating**  
recommendations.



**Manage treatment-related**  
side effects that impact  
appetite and intake.



**Refer to an oncology dietitian**  
and other support services.



These interventions  
can improve treatment tolerance,  
maintain strength and function,  
and enhance quality of life.



**CANCER CARE IS TRULY MULTIDISCIPLINARY.**  
Nutrition is one piece of that larger puzzle.



By working together and ensuring patients have access to evidence-based resources and nutrition support, **we can help optimize care** from diagnosis through treatment, survivorship, and beyond.





# THANK YOU!



We appreciate your time and participation.



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