

Enteral Feeding and the Oncology Patient

*Nathan Schober MS, RD, LD, CNSC, CET, Lead Clinical Oncology Dietitian,
Comprehensive Care and Research Center - Atlanta, Newnan, GA*

GASPEN Board Member

Disclosures

- I have nothing to disclose

Learning Objectives

- 1. Identify indications for initiating EN in outpatient oncology patients.
- 2. Describe contraindications for initiating EN in outpatient oncology patients.
- 3. Identify the type of tube selection and how to troubleshoot feeding tubes in outpatient oncology patients.

Before we get started...

- How tubes are offered to patients matters
 - Don't use as punishment or ultimatum
 - “if you don't eat then we are going to have to put a tube in you”

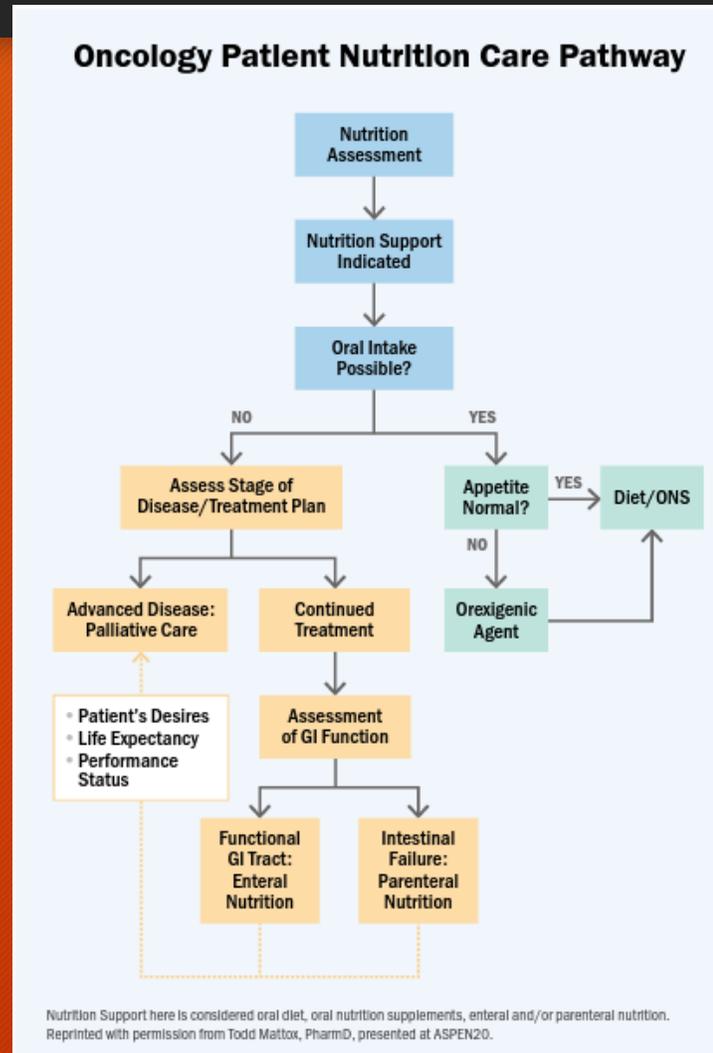
ASPEN Cancer Fact Sheet: Why Nutrition is important in Adult Patient with Cancer

- Up to 80% of patients with cancer have a prevalence with some level of malnutrition
- “Up to 20% of cancer patients die from malnutrition and not the underlying disease”
- Aspen Value Project showed a possible \$242 million dollar saving for Medicare patients with GI cancers with early oral nutritional supplements and early enteral nutrition

Oncology Evidence-Based Nutrition Practice Guidelines for Adults from the Academy of Nutrition and Dietetics

- “The studies provide strong evidence that poor nutritional status in adult cancer patients is associated with higher rates of hospital admissions or readmissions (six studies^{33,36,45,50,55,58}), increased LOS (11 studies^{17,32,33,35,46-49,51,63,70}), lower QoL (14 studies^{25,34,37,38,41,44,47,49,54,56,64-66,69}), and mortality (17 studies ^{29,36,39,41-44,47,52,53,63,67,70,71}), and with decreased tolerance to CT (11 studies^{31,36,40,45,55,57,59,61,62,67,68}) and RT (six studies^{36,45,55,64,66}).”

ASPEN Cancer Fact Sheet: Why Nutrition is important in Adult Patient with Cancer



Guidelines from ASPEN

- 2009 Nutrition Support Therapy During Adult Anticancer Treatment and in Hematopoietic Cell Transplantation J PEN 2009, Vol 33, Issue 5, pp. 472 – 500

Table 2. Nutrition Support Guideline Recommendations During Adult Anticancer Treatment and in Hematopoietic Cell Transplantation

Guideline Recommendations	Grade
A. Nutrition Support Therapy During Anticancer Treatment	
1. Patients with cancer are nutritionally-at-risk and should undergo nutrition screening to identify those who require formal nutrition assessment with development of a nutrition care plan.	D
2. Nutrition support therapy should not be used <i>routinely</i> in patients undergoing major cancer operations.	A
3. Perioperative nutrition support therapy may be beneficial in moderately or severely malnourished patients if administered for 7-14 days preoperatively, but the potential benefits of nutrition support must be weighed against the potential risks of the nutrition support therapy itself and of delaying the operation.	A
4. Nutrition support therapy should not be used <i>routinely</i> as an adjunct to chemotherapy.	B
5. Nutrition support therapy should not be used <i>routinely</i> in patients undergoing head and neck, abdominal, or pelvic irradiation.	B
6. Nutrition support therapy is appropriate in patients receiving active anticancer treatment who are malnourished and who are anticipated to be unable to ingest and/or absorb adequate nutrients for a prolonged period of time (see Guideline 6 Rationale for discussion of “prolonged period of time”).	B
7. The palliative use of nutrition support therapy in terminally ill cancer patients is rarely indicated.	B
8. ω -3 Fatty acid supplementation may help stabilize weight in cancer patients on oral diets experiencing progressive, unintentional weight loss.	B
9. Patients should not use therapeutic diets to treat cancer.	E
10. Immune-enhancing enteral formulas containing mixtures of arginine, nucleic acids, and essential fatty acids may be beneficial in malnourished patients undergoing major cancer operations.	A

Other Guidelines

M. Muscaritoli, J. Arends, P. Bachmann et al.

Clinical Nutrition 40 (2021) 2898–2913

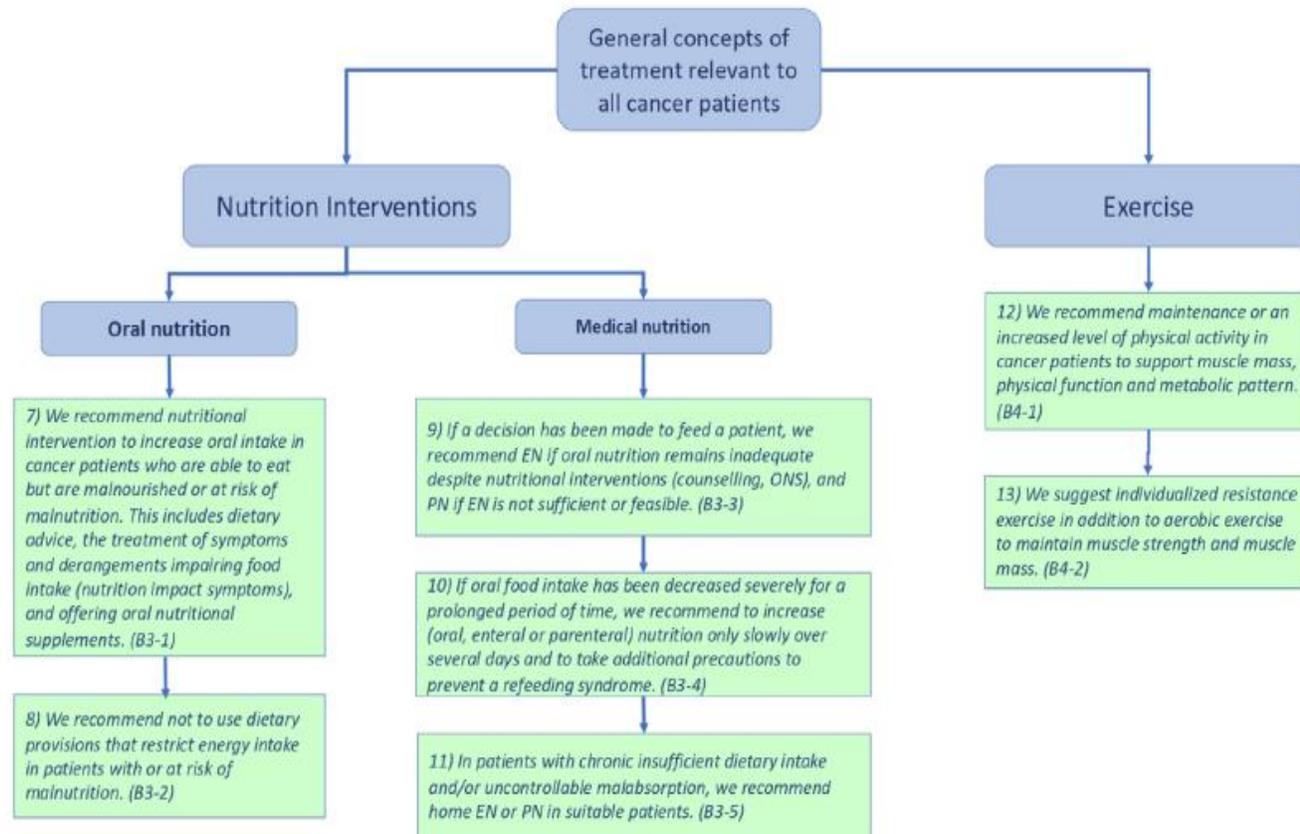


Fig. 3. General concepts of treatment relevant to all cancer patients: types of nutrition intervention; exercise.

- ESPEN practical guideline: Clinical Nutrition in cancer; Clinical Nutrition 40 (2021) 2898-2913
 - Recommend if not directly tested metabolism a calorie range between 25-30 cal/kg and protein above 1g/kg and optimally 1.5 g/kg

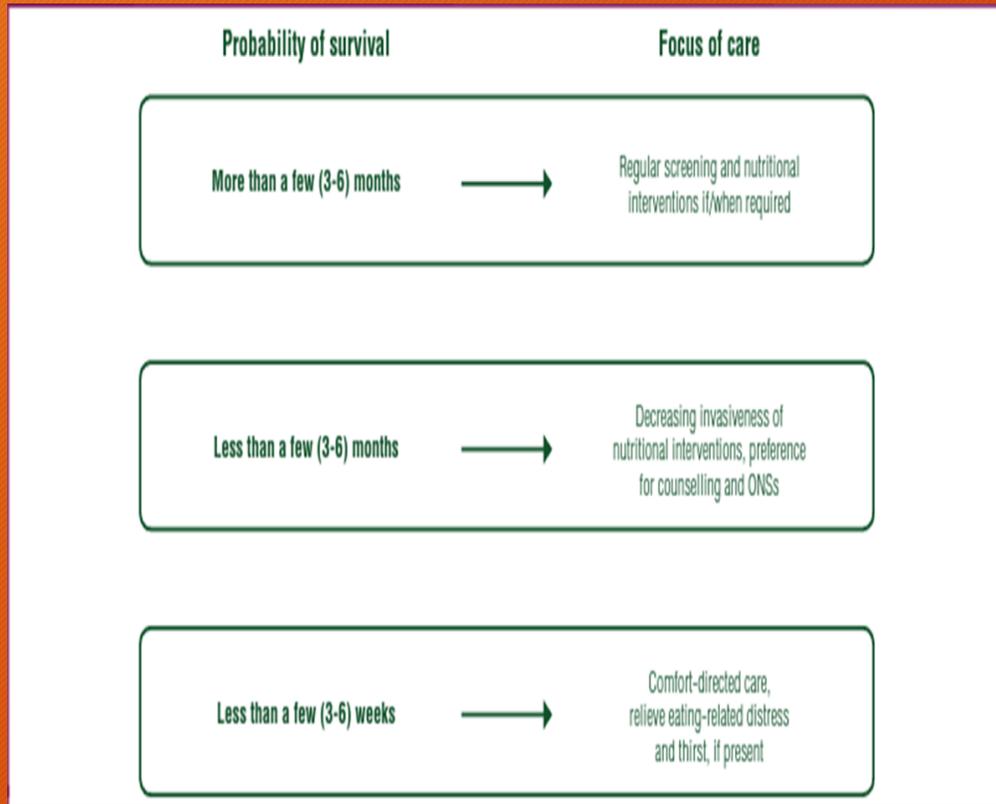
They note in this paper that there are benefits of home EN/PN in cancer patients even with advanced cancer as long as there is a survival of more than a few weeks

Other guidelines cont.

- National Comprehensive Cancer Network (NCCN)
 - Both site specific and palliative care refer to nutrition support recommendations
 - Guidelines from the National Comprehensive Cancer Network (NCCN) suggest consideration of nutritional support, as appropriate, in patients who have an estimated life expectancy of months to years, but not those with a life expectancy measured in weeks to months. (https://www.nccn.org/professionals/physician_gls/pdf/palliative.pdf) (PAL-13 and 14)
- American Society of Clinical Oncology
 - Management of Cancer Cachexia 2020 (<https://www.asco.org/practice-patients/guidelines/supportive-care-and-treatment-related-issues#/143853>)
 - “Recommendation 1.1. Clinicians may refer patients with advanced cancer and loss of appetite and/or body weight to a registered dietitian for assessment and counseling, with the goals of providing patients and caregivers with practical and safe advice for feeding; education regarding high-protein, high-calorie, nutrient-dense food; and advice against fad diets and other unproven or extreme diets (Type of recommendation: informal consensus; Evidence quality: low; Strength of recommendation: moderate).”
 - “Recommendation 1.2. Outside the context of a clinical trial, clinicians should not routinely offer enteral tube feeding or parenteral nutrition to manage cachexia in patients with advanced cancer. A short-term trial of parenteral nutrition may be offered to a very select group of patients, such as patients who have a reversible bowel obstruction, short bowel syndrome, or other issues contributing to malabsorption, but otherwise are reasonably fit. Discontinuation of previously initiated enteral or parenteral nutrition near the end of life is appropriate (Type of recommendation: informal consensus; Evidence quality: low; Strength of recommendation: moderate).”
 - Of note the discussion in this paper relies on a few meta-analysis conducted between 1990 and 2018. Most of which focus on body composition and survival with little focus put on QOL and is focused only on cachexia
 - Exercise, Diet, and Weight Management During Cancer Treatment 2022 (<https://www.asco.org/practice-patients/guidelines/supportive-care-and-treatment-related-issues#/169005>)
 - Purposefully does not address enteral nutrition but does discuss nutrition in general and need for more research to make good guidelines in future.

Other Guidelines cont.

European Society for Medical Oncology “Cancer cachexia in adult patients: ESMO Clinical Practice Guideline” 2021 ([https://www.esmoopen.com/article/S2059-7029\(21\)00049-1/pdf](https://www.esmoopen.com/article/S2059-7029(21)00049-1/pdf))

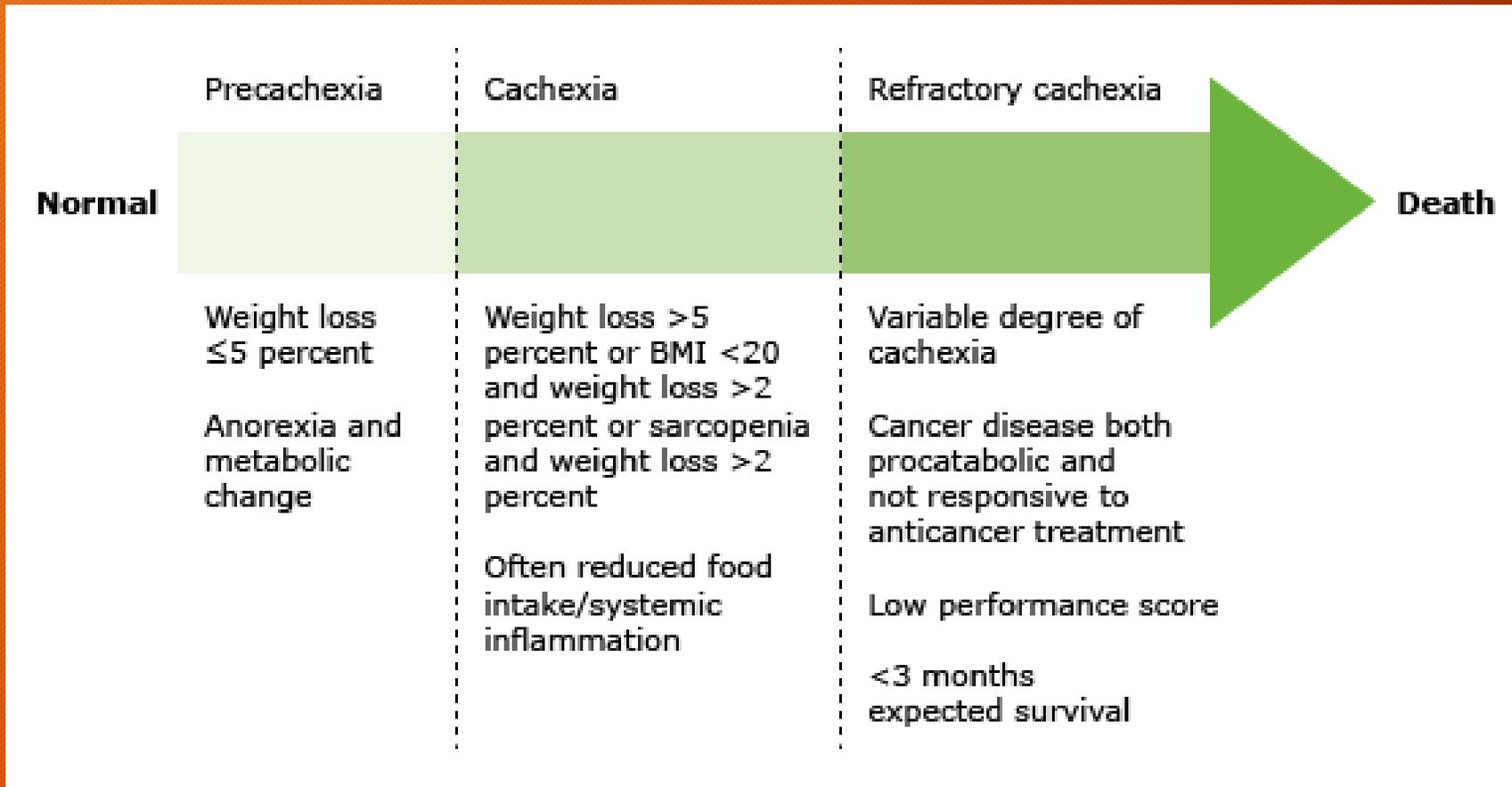


Regular nutritional screening and nutritional support, including (if necessary) enteral nutrition or PN, is recommended in all patients receiving anticancer treatment and in those with an expected survival of more than a few months [V, B]. In patients with an expected survival of less than a few months, a decrease in the invasiveness of nutritional interventions is recommended, with dietary counselling and oral supplements preferred, if possible [V, B]. In patients with an expected survival of less than a few weeks, comfort-directed care is the recommended approach, including alleviating thirst, eating-related distress and other debilitating symptoms [V, B].

Other guidelines cont.

- National Cancer institute
 - “The use of enteral and parenteral nutrition in the oncology population may be indicated when oral nutrition strategies are not possible or fail because of tumor location or severe side effects. Although nutrition support is not recommended as standard treatment, it may be beneficial for patients who are malnourished and expected to become unable to take in adequate nutrition by mouth for an extended period of time.”
 - “There are concerns that use of nutrition support will stimulate tumor growth and metastasis, but studies in humans are limited and show mixed results. However, if nutrition support is clinically indicated, it should not be withheld because of concerns about tumor promotion.”
 - Indications for nutrition support include the following:
 - “Patient is moderately to severely malnourished, will undergo major surgery, and is anticipated to not achieve adequate oral nutrition for at least 7 to 14 days post surgery.”
 - “Patient is malnourished and anticipated to have inadequate ingestion or absorption for 7 to 14 days or longer.”
 - “Patient has a mechanical obstruction preventing food from reaching the small bowel for proper digestion and absorption.”
 - “Although aggressive nutrition support has been shown to improve quality of life in patients with advanced cancer, it is generally not recommended if life expectancy is shorter than 40 to 60 days.”

Cachexia- Definition and Timing Interventions



Assessment Question:

- Nutrition support via enteral nutrition in refractory cancer cachexia has been shown to benefit QOL of patients?
 - True?
 - False?

Timing is key

- Inadequate Nutrition Coverage in Outpatient Cancer Centers: Results of a National Survey
- Showed average of 1 dietitian to 2,308 cancer patients in staffing in the united states (with the average RD seeing between 7.4 patients per day +/- 4.3).

ASPEN Public Policy Advocacy

- Medical Nutrition Therapy (MNT), Bills S.1536/H.R.3108
 - “Companion bill S.1536/ H.R.3108 introduced in the 117th Congress in May 2021, expands Medicare coverage of medical nutrition therapy (MNT) services. Currently, Medicare covers MNT only for individuals with diagnosed diabetes or kidney disease and post-kidney transplant and requires a physician referral. The bill extends coverage to individuals with other diseases and conditions, including malnutrition, prediabetes, obesity, eating disorders, cancer, and HIV/AIDS, hypertension, dyslipidemia, gastrointestinal diseases, cardiovascular disease, and other conditions causing unintended weight loss. This legislation also allows nurse practitioners, physician assistants, clinical nurse specialists, and psychologists to refer patients for MNT.”

Summary of those with curable disease

- If patient is planned to have curative intent and not likely to be able to prevent malnutrition development with po intake or if malnutrition has already developed; EN is advisable to support patient

Summary of those without curable disease

- Patient wishes should be taken into consideration but with education of expected outcomes from such interventions
- Most would agree if patient is expected to live no more than 3 months/refractory cachexia or no longer seeking aggressive anti-cancer treatment that EN nutrition support should not be recommended
- Otherwise, EN should not be routinely used but is recommended in those who do not have contraindications for feeding tube and developing malnutrition and/or expected to have inadequate intake for >7-14 days.

- Summary of solid tumor oncology recommendations for non-head and neck cancer patients:
 - A. As soon as feasible, use EN in adult oncology patients who have solid tumors, are unable to receive oral intake or >60-75% of goal nutrient intake and present with moderate/severe malnutrition
 - B. Use EN in patients unable to or expected to be able to tolerate >60% of energy and protein needs by mouth despite education and pharmacologic and oral supplementation for >7-14 days if previously well nourished
 - C. Consider post-pyloric short-term access or jejunal tube in those with refractory nausea and vomiting or intolerance of adequate gastric intake
 - D. Consider early aggressive EN therapy for patients in pre-cachexia/cachexia if intake is inadequate
 - E. Consider symptom management and maximization of oral intake for patients with refractory cachexia, life expectancy <3months or Karnofsky performance status score <50 or who do not wish to continue anticancer treatment
 - F. More recommendations on stem cell transplant patients and EN

When is enteral nutrition indicated- Consensus Statement ASPEN Enteral Nutrition Committee

Karnofsky Performance Status

100	Normal with no complaints; no evidence of disease.
90	Able to carry on normal activity; minor signs or symptoms of disease.
80	Normal activity with effort; some signs and symptoms of disease.
70	Cares for self; unable to carry on normal activity or do active work.
60	Requires occasional assistance, but able to care for most of his/her personal needs.
50	Requires considerable assistance and frequent medical care.
40	Disabled; requires special care and assistance.
30	Severely disabled; hospital admission is indicated although death is not imminent.
20	Very sick; hospital admission necessary; active supportive treatment necessary.
10	Moribund; fatal processes progressing rapidly.
0	Dead

Don't forget Physical activity after establishing a nutritional basis

Effects of Exercise on Health-Related Outcomes in Those with Cancer

What can exercise do?

- **Prevention of 7 common cancers***
Dose: 2018 Physical Activity Guidelines for Americans: 150-300 min/week moderate or 75-150 min/week vigorous aerobic exercise
 - **Survival of 3 common cancers****
Dose: Exact dose of physical activity needed to reduce cancer-specific or all-cause mortality is not yet known; Overall more activity appears to lead to better risk reduction
- *bladder, breast, colon, endometrial, esophageal, kidney and stomach cancers
**breast, colon and prostate cancers

Overall, avoid inactivity, and to improve general health, aim to achieve the current physical activity guidelines for health (150 min/week aerobic exercise and 2x/week strength training).

Outcome	Aerobic Only	Resistance Only	Combination (Aerobic + Resistance)
Strong Evidence	Dose	Dose	Dose
 Cancer-related fatigue	3x/week for 30 min per session of moderate intensity	2x/week of 2 sets of 12-15 reps for major muscle groups at moderate intensity	3x/week for 30 min per session of moderate aerobic exercise, plus 2x/week of resistance training 2 sets of 12-15 reps for major muscle groups at moderate intensity
 Health-related quality of life	2-3x/week for 30-60 min per session of moderate to vigorous	2x/week of 2 sets of 8-15 reps for major muscle groups at a moderate to vigorous intensity	2-3x/week for 20-30 min per session of moderate aerobic exercise plus 2x/week of resistance training 2 sets of 8-15 reps for major muscle groups at moderate to vigorous intensity
 Physical Function	3x/week for 30-60 min per session of moderate to vigorous	2-3x/week of 2 sets of 8-12 reps for major muscle groups at moderate to vigorous intensity	3x/week for 20-40 min per session of moderate to vigorous aerobic exercise, plus 2-3x/week of resistance training 2 sets of 8-12 reps for major muscle group at moderate to vigorous intensity
 Anxiety	3x/week for 30-60 min per session of moderate to vigorous	Insufficient evidence	2-3x/week for 20-40 min of moderate to vigorous aerobic exercise plus 2x/week of resistance training of 2 sets, 8-12 reps for major muscle groups at moderate to vigorous intensity
 Depression	3x/week for 30-60 min per session of moderate to vigorous	Insufficient evidence	2-3x/week for 20-40 min of moderate to vigorous aerobic exercise plus 2x/week of resistance training of 2 sets, 8-12 reps for major muscle groups at moderate to vigorous intensity
 Lymphedema	Insufficient evidence	2-3x/week of progressive, supervised, program for major muscle groups does not exacerbate lymphedema	Insufficient evidence
Moderate Evidence			
 Bone health	Insufficient evidence	2-3x/week of moderate to vigorous resistance training plus high impact training (sufficient to generate ground reaction force of 3-4 times body weight) for at least 12 months	Insufficient evidence
 Sleep	3-4x/week for 30-40 min per session of moderate intensity	Insufficient evidence	Insufficient evidence

Citation: bit.ly/cancer-exercise-guidelines

Moderate Intensity (40%-59% heart rate reserve or VO₂R) to vigorous Intensity (60%-89% heart rate reserve or VO₂R) is recommended.

Head and neck cancer

- National Comprehensive Care Network Head and Neck specific guidelines recommendations
- <https://www.nccn.org/guidelines/guidelines-detail?category=1&id=1437>
- Nutra-A 1-2 (page 113-114)

Assessment Question:

- Head and neck cancer patients should routinely prophylactically get a feeding tube prior to head and neck radiation for curative intent?
 - True?
 - False?

ASPEN Head and neck resources

- <https://www.nutritioncare.org/clinicalguidelines/>
- Under development new guidelines: Nutrition support in head and neck cancer
- Fact Sheet: A Consumer Guide for Cancer Patients: Tube Feeding and Head and Neck Cancer
 - Focus on lowering health care costs and preventing treatment interruptions which can lead to better outcomes
- Fact Sheet: Blenderized Tube Feeding for Patients with Head and Neck Cancer
 - Recommend 25-30 cal/kg and 1-1.5 g/kg protein
 - Consider EN if oral intake is <60% estimated energy needs for >10 days
 - Prophylactic and reactive feedings tubes if the above condition is met
 - Large emphasis in considering blenderized EN to help with weight gain, N/V, bowel regularity, improving oral intake and preventing reflux

Surgery and cancer from ESPEN

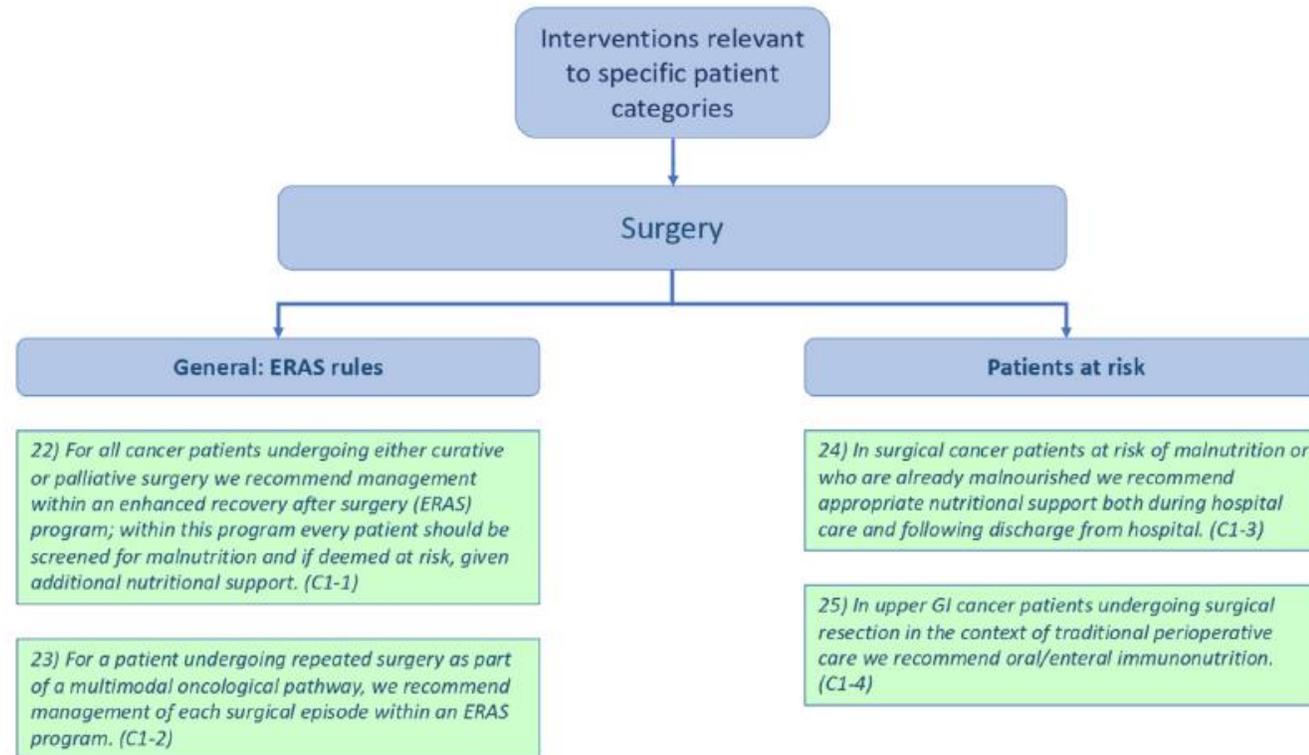


Fig. 5. Interventions relevant to specific patient categories: surgery.

Surgery and cancer from ASPEN

- "The US Summit on Immune-Enhancing Enteral Therapy recommends that malnourished patients undergoing GI or major head and neck surgery receive 5 to 7 days of immune-enriched enteral feedings preoperatively. ASPEN echoes these recommendations and suggests that immune-modulating enteral formulas containing mixtures of arginine, nucleic acids, and essential fatty acids may be beneficial in malnourished cancer patients undergoing major operations."

Contraindications for feeding tubes/other considerations

- Cancer related conditions that would usually prohibit feeding tube placement: peritoneal carcinomatosis and Chemotherapy/radiation induced enteritis
- Malignant ascites may also prevent the placement of long-term feeding tubes
- Planning may be needed if possibility of using a Bevacizumab type Vascular Endothelial Growth Factor-directed Antibody as usually wont place feeding tubes within 4 weeks of having this drug, may have to bridge with NG/NJ feeding tubes
- Platelets typically must be >50k for placement of long-term feeding tubes
- Many patients will need to be able to hold/be able to hold anti-coagulation therapy for at least 48hrs before and 48hrs after placement of long-term feeding tube
- Inability to get clear window for placement due to hepatomegaly, other tumor masses or previous surgeries

Types of tubes

- Typical selection criteria exists for choosing tubes for cancer patients, but some considerations can be helpful in choosing
- H/N cancer it is allowable by guidelines to use NG/NJ tubes, however, many find this worsens their discomfort in treatment but can be very useful in patients unable to tolerate the procedure for long-term EN access device
- ASPEN Enteral Nutrition Handbook second edition 2019; p. 121
 - IR placed feeding tubes may reduce risk of tumor seeding as opposed to a pull peg tube placed in endoscopic approach in patients with upper aerodigestive tract cancers
- Many times, a J tube is more appropriate for those needing feeding tube preoperative if possibility of Ivor Lewis Esophagectomy type surgery for esophageal cancers
- G-J tubes for patients with intractable N/V/aspiration risk/Gastroparesis like conditions maybe beneficial, if concern for retraction of J arm, separate G and J tubes maybe placed

Trouble shooting feeding tubes in outpatient oncology patients- clinic experience

- Many times, cancer patients are immunocompromised and provided antibiotics multiple times in their treatments. With redness/irritations around tube site appears to be infectious, we tend to treat with powder form of nystatin
- Patients continue to cover wound with gauze between flange and skin, causing irritation
- Leakage can be from bumper being too tight and too loose, ideally no more than 1 finger width between flange and skin. Educated patient on cm marking on tube with correct width. Educate on a securement device and prevention of a pressure wound/tape wound.
- Treat the hype granulation tissue prior to removing tube to help with easier healing in immune compromised patients
- Nasal bridles can be useful in patients who are going home with short term nasal feeding tube in preventing malposition and ER visits

Summary

- In curative intent enteral nutrition should be used if diet counseling, orexigenic agents and symptom management have failed to improve oral intake and poor oral intake is planned to continue for the next 7-14 days
- In palliative cases if the patient is not in the refractory cachexia period where death is imminent, and malnutrition is developing, and poor oral intake is continuing it is permissible to offer feeding tubes to help with tolerance of treatment and possibly QOL if consistent with patient wishes particularly if they have a survival expectancy >3months with support.
- If patient is within weeks of death or refractory cachexia it should be very rare to offer or place a feeding tube and can be allowed to withdraw previous enteral support initiated prior to this development
- Different types of feeding tubes may be beneficial pending type of cancer and symptoms that EN is being used to help with
- Trouble shooting feeding tubes can be challenging in the cancer patient, but education and prevention are key to preventing long term issues

Thank you

- Questions?