

Oncology Nutrition

**Educational Handouts
and Resources**

Oncology Nutrition Dietetic Practice Group



Academy of Nutrition and Dietetics

Academy of Nutrition and Dietetics
120 S. Riverside Plaza, Suite 2190
Chicago, IL 60606

Oncology Nutrition: Educational Handouts and Resources

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Preface

Written and reviewed by members of the Oncology Nutrition Dietetic Practice Group of the Academy of Nutrition and Dietetics, *Oncology Nutrition: Educational Handouts and Resources* provides teaching tools to help registered dietitian nutritionists (RDNs) and other oncology health care professionals counsel their patients and clients who are undergoing cancer treatment. This updated resource replaces *The Complete Resource Kit for Oncology Nutrition* and is intended to be used in conjunction with the second edition of *Oncology Nutrition for Clinical Practice*, a comprehensive professional resource on providing nutrition care for the oncology patient.

Based on feedback from users of the previous *Complete Resource Kit for Oncology Nutrition*, this new product focuses on the educational needs of oncology patients, with an expanded set of downloadable handouts and resources. Additions include new and updated postsurgery and nutrition impact symptom handouts, detailed food lists, updated recipes, and answers to common patient questions. Also included are links to websites with evidence-based suggestions and recommendations for additional information for the oncology clinical professional.



Contributors

Heather Bell-Temin, MS, RDN, CSO, LD, FAND
Clinical Oncology Dietitian, American Oncology Network
FORT MYERS, FL

Caitlin Benda, MBA, MS, RDN, CSO
Oncology Dietitian Clinical Specialist II, Life with Cancer, Inova Schar Cancer Institute
FAIRFAX, VA

Lauren Fay, RD, CSO, CNSC
Oncology Dietitian Clinical Specialist, Life with Cancer, Inova Schar Cancer Institute
FAIRFAX, VA

Maureen S. Gardner, MA, RDN, CSO, LDN, FAND
Clinical Oncology Dietitian, Florida Cancer Specialists & Research Institute
FORT MYERS, FL

Annette M. Goldberg, MBA, MS, RDN
Oncology Dietitian, Dana Farber Cancer Institute
BOSTON, MA

Lindsay Malone, MS, RD, CSO, LD
Owner, Malone Nutrition Consulting
UNIVERSITY HEIGHTS, OH

Erin Williams, RD, CSO, CNSC
Clinical Dietitian II, University of Colorado Cancer Center
DENVER, CO

Reviewers

Tiffany Barrett, MS, RD, CSO, LD
Clinical Dietitian, Winship Cancer Institute of Emory University
ATLANTA, GA

Michelle Bratton, RDN, CSO
Clinical Nutritionist, University of Arizona Cancer Center
TUCSON, AZ

Marianne Galang, RD, CSO, LD
Clinical Dietitian, Cleveland Clinic
CLEVELAND, OH

Heidi Ganzer, DCN, RDN, CSO, LD
Allina Health Cancer Institute
MINNEAPOLIS, MN

Erin Gilfillan, MS, RD, CDN
Clinical Dietitian, Memorial Sloan Kettering Cancer Center
NEW YORK, NY

Gretchen Gruender, MS, RDN, CD, CSO
Clinical Oncology Dietitian, Integrating Nutrition
SEATTLE, WA

Barbara Jordan, MS, RDN, CDN
Clinical Nutrition Manager, Memorial Sloan Kettering Cancer Center
NEW YORK, NY

Sydney Kaufman, MS, RD, CDN
Clinical Dietitian Nutritionist, Memorial Sloan Kettering Cancer Center
NEW YORK, NY

Laura Kelly, MS, RD, CSO, CDN
Clinical Dietitian, Memorial Sloan Kettering Cancer Center
NEW YORK, NY

Elissa Meditz, MS, RD, CSO, CDN
Clinical Outpatient Dietitian, Memorial Sloan Kettering Cancer Center
NEW YORK, NY

Heidi Pinsky, MS, RD, CDN
Clinical Dietitian Nutritionist, Memorial Sloan Kettering Cancer Center
NEW YORK, NY

Ariella Weinstein, MS, RDN, CDN
Clinical Dietitian, Memorial Sloan Kettering Cancer Center
NEW YORK, NY



High-Calorie, High-Protein Diet

Cancer and cancer treatment may lessen your appetite and interest in food. When you don't have much of an appetite, you can make every bite count by eating foods that have a lot of calories and protein.

Meal Planning Tips

- Plan to eat a small meal within 1 hour of waking and then every 2 to 3 hours throughout the day. Try not to skip planned meals and snacks.
- Snack as often as possible on foods that have a lot of calories and a lot of protein.
- Eat your largest meal when your appetite is best.
- Try high-calorie, high-protein nutritional drinks (made at home or bought at a store) between meals to get in extra calories.
 - If you buy the drink at a store, read the label to look for products with 200 to 400 calories per serving. Ask your registered dietitian nutritionist (RDN) for recommendations. Look for fruit-flavored high-calorie, high-protein nutritional drinks if you prefer noncreamy drinks.
 - If you make the drink at home, add ingredients like whole milk, powdered milk, protein powder, peanut butter, ice cream, or yogurt to add calories and protein.
- Try snacking on protein bars, puddings, milkshakes, and smoothies.
- Try eating a small bedtime snack, as this will not affect your appetite for your next meal.

High-Protein Food Choices

Good choices to add more protein to your meals and snacks include:

- Milk and dairy foods
- Eggs
- Meat, poultry, and fish
- Legumes (beans and peas), nuts, and seeds

Here are some ideas to try:

Milk and Dairy Foods

- Eat cheese on toast or with crackers.
- Add grated cheese to baked potatoes, vegetables, soups, pasta, meat, or casseroles.
- Use whole milk in place of water when making hot cereal and cream soups.
- Choose Greek yogurt, which has more protein than regular yogurt.
- Add dried milk (powdered milk) to cream soups and mashed potatoes.

Eggs

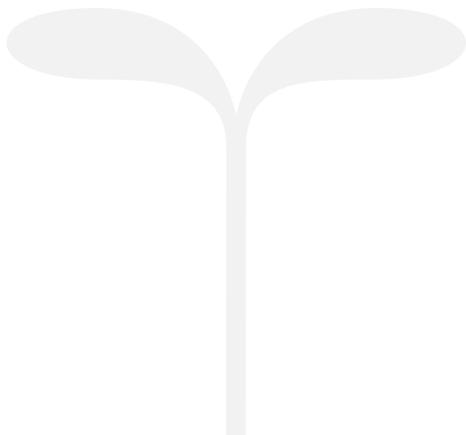
- Keep hard-boiled eggs in the refrigerator. You can eat them “as is” or use them to make a quick egg salad. Or, you can chop the eggs and add them to salads, casseroles, soups, and vegetables.

Meats, Poultry, and Fish

- Add leftover cooked meats to soups, casseroles, salads, and omelets.
- Mix diced and flaked meat with sour cream or mayonnaise and spices to make a dip or sandwich spread.

Legumes (Beans, Peas, and Peanuts), Nuts, and Seeds

- Add beans and peas to salads, soups, casseroles, and vegetable dishes.
- Spread peanut butter on toast or fruit. Or blend it in a milkshake.
- Try other nut butters, such as cashew, almond, or sunflower seed.
- Sprinkle sunflower seeds or nuts on vegetables, salads, pasta, and desserts like fruit, ice cream, pudding, and custard.



High-Calorie Food Choices

To add more calories to your meals and snacks, focus on high-calorie foods like milk and dairy foods, butter and margarine, and condiments with a lot of calories.

Milk and Dairy Foods

- Whole milk and reduced-fat (2%) milk have more calories than fat-free (skim) milk.
- Add heavy whipping cream to desserts, fruit, hot chocolate, soups, and casseroles.
- Add regular sour cream (not light) to scrambled eggs, baked potatoes, and vegetables.
- Drink milkshakes or high-calorie, high-protein nutritional drinks with the highest calories.

Sweets

- Add jelly, marmalade, or honey to bread and crackers.
- Top ice cream and cake with fruit jam or dried fruits.

Butter, Oils, and Condiments

- Try avocados in a salad, as a dip, or as a spread on sandwiches. Snack on guacamole or add avocado slices to sandwiches or salads.
- Snack on olives or hummus.
- Add butter or oil to potatoes, rice, pasta, cooked vegetables, sauces, soups, or casseroles.
- Spread butter or oil on bread for sandwiches.
- Use regular (not reduced-fat) mayonnaise or salad dressing on sandwiches and in dips or sauces.
- Add gravy or buttery sauces to meats and vegetables.
- Cook with olive oil or canola oil. Drizzle oils over cooked vegetables and pastas.

Sample High-Calorie, High-Protein Menu

Breakfast	Omelet with cheese and veggies
Snack	Graham cracker with peanut butter Whole milk
Lunch	Chicken or tuna salad sandwich (or on crackers)
Snack	Muffin with butter
Dinner	Chicken pot pie Peaches
Snack	Ice cream or frozen yogurt with nuts or fruit (or both)

Diet to Prevent Bowel Obstruction

People who have had a bowel blockage in the past, bowel surgery, or a cancer diagnosis that involves the area near the digestive system may be at risk of developing a bowel obstruction, or blockage. Symptoms of a bowel obstruction often include not feeling hungry, quickly feeling full when eating, nausea, throwing up, liquid stools, and major abdominal swelling, pain, and cramping.

Ways to Lower Your Risk of Bowel Obstruction

- Chew your food very well.
- Choose foods that are low in fiber. A low-fiber diet can help by limiting the amount of food waste that needs to move through your intestine. Dietary fiber is found in plants and is not completely digested.
- Cooking and pureeing breaks down the fiber in food. This may be a way to help you add more foods into your diet without feeling bad.
- Drink at least 8 to 10 cups of liquids per day. Sip small amounts frequently throughout the day.
- Read the Nutrition Facts label to identify the amount of fiber in 1 serving. Choose foods with less than 1 gram of fiber per serving.
- Your doctor or registered dietitian nutritionist (RDN) may ask you to follow a liquid diet if you are having symptoms of a bowel obstruction. This diet may help treat bloating, nausea, and vomiting.

Food Choices to Prevent Bowel Obstruction

Food group	Foods to choose	Foods to avoid (or limit)
Grains	Grain foods with less than 2 grams of fiber per serving: <ul style="list-style-type: none"> ■ Bread, bagels, rolls, crackers, and pasta made from white or refined flour (without seeds or nuts) ■ White rice, well cooked ■ White flour tortillas, corn tortillas ■ Cold or hot cereals made from white or refined flour, such as corn flakes, puffed rice, cream of wheat, cream of rice, or refined grits (fine ground) 	Grain foods with more than 2 grams of fiber per serving: <ul style="list-style-type: none"> ■ Whole wheat or whole grain breads, bagels, and rolls ■ Breads or cereals made with seeds, nuts, or dried fruits ■ Brown or wild rice ■ Barley, oats, and other whole grains, such as quinoa ■ Whole wheat pasta ■ Whole grain and high-fiber cereals, including oatmeal, bran flakes, and shredded wheat ■ Popcorn
Protein foods	Well-cooked and tender meats, fish, poultry, and shellfish Lean luncheon meats Well-cooked eggs Smooth nut butters, such as peanut, almond, or sunflower butter Tofu	Tough, chewy meats Fried meat, poultry, or fish Luncheon meats, such as bologna or salami Sausage, bacon, or hot dogs Dried beans, peas, or lentils Hummus Nuts and seeds (coconut, chia seeds, flaxseeds) Crunchy nut butters
Dairy	Milk Lactose-free milk Buttermilk Powdered milk and evaporated milk Fortified non-dairy milks (soy, almond, cashew, coconut, or rice milk) Yogurt or lactose-free yogurt (without fruit, granola, or nuts) Kefir (most are 99% lactose-free) Cheeses like cheddar, Swiss, or Parmesan (low-fat, block, hard, and aged cheeses are usually lower in lactose) Cottage cheese or lactose-free cottage cheese Ice cream, lactose-free ice cream, or non-dairy ice cream Sherbet (it is usually low in lactose)	Yogurt with added fruit, nuts, or granola
Vegetables	Well-cooked and canned vegetables without skins, seeds, or hulls Potatoes without skins (white, red, yellow, or sweet potatoes) Strained vegetable juice	All raw vegetables All fried vegetables Cooked vegetables known to cause gas (beets, broccoli, brussels sprouts, cabbage, cauliflower, collard greens, mustard greens, turnip greens, corn, kale, lima beans, mushrooms, okra, onions, potato skins, and spinach)



Food Choices to Prevent Bowel Obstruction *(continued)*

Food group	Foods to choose	Foods to avoid (or limit)
Fruits	Ripe bananas Melons (cantaloupe, honeydew, or watermelon) Canned soft fruits in juice (peaches, pears, or applesauce) Well-cooked fruits without seeds, skins, or membranes Fruit juice without pulp (except for prune juice)	All fresh fruits, except fruits from the “Foods to choose” list All dried fruits (like raisins, prunes, and apricots) Canned fruit with mandarin oranges, papaya, or pineapple Canned fruit in heavy syrup Fruit juice with pulp Prune juice
Oils, fats, and salad dressings	Oils, butter, or margarine Mayonnaise Salad dressings without seeds	Salad dressings with seeds (like coleslaw dressing with caraway seeds)
Desserts and sweets	Plain cakes, cookies, ice cream, sherbet, fruit ice, and candy Honey, seedless jam, jelly, marshmallows	Desserts and sweets with nuts or seeds, coconut, dried fruit, or whole grains Marmalade, jam, and preserves
Other foods	High-calorie, high-protein nutritional drinks with less than 2 grams of fiber Soups made from allowed ingredients Plain gravy Salt, pepper Ketchup	

Sample Menu to Prevent Bowel Obstruction

Breakfast	¾ cup rice cereal ½ banana 4 ounces low-fat (1%) milk 8 ounces tea
Snack	High-calorie, high-protein nutritional drink
Lunch	Turkey sandwich on white bread with mayonnaise 2 canned peach halves 12 ounces sports drink
Dinner	3 or 4 ounces grilled, skinless chicken ½ cup mashed potatoes (without skins) ½ cup tender cooked carrots 1 teaspoon butter or margarine 10 ounces water



WORD OF CAUTION

Bowel obstructions need immediate attention. If you are worried about your bowel habits, contact a member of your health care team right away.

Call your doctor if:

- You haven't had a bowel movement for 3 days.
- You feel nauseous, you have thrown up, or your stomach hurts.
- You have trouble eating any foods other than clear liquids for more than 2 days.
- You have infrequent, liquid stools.



Dry Mouth or Thick Saliva

Dry mouth can be caused by certain cancers and their treatments. Radiation therapy to the mouth can decrease the amount of saliva your body makes, or it can make the saliva thick and stringy. Dry mouth can sometimes cause problems with eating, talking, and sleeping. Dry mouth can also raise your risk for dental cavities and mouth infections.

Oral Care Tips

- Brush your teeth with toothpaste and a soft-bristle toothbrush after each meal and snack. If your gums are inflamed, talk to your dentist about antibacterial toothpastes to try.
- Rinse your mouth before and after meals with plain water or a mild homemade mouth rinse (1 quart of water mixed with $\frac{3}{4}$ teaspoon of salt and 1 teaspoon of baking soda).
- Swish and spit with club soda, lemon-lime soda, or carbonated water to help loosen and remove dry or thick saliva.
- Alcohol can make dryness worse, so use alcohol-free mouthwashes.
- Floss your teeth every day to help prevent cavities.
- Talk to your doctor about using oral moisturizers, saliva substitutes, and saliva-stimulating medications.
- Chew sugar-free gum to help reduce inflammation and help keep the mouth moist.
- Avoid smoking and chewing tobacco.
- Keep your lips moist with petroleum jelly, cocoa butter, or a mild lip balm.

Food and Drink Choices to Manage Dry Mouth and Thick Saliva

- Drink 8 to 10 cups of fluid a day to keep your mouth moist and loosen thick saliva.
- Limit alcoholic beverages.
- Carry a water bottle with you and sip from it regularly.
- Eat soft, bland foods that are cold or at room temperature. Puree fruits and vegetables in a blender. Try well-cooked, tender beef, chicken, or fish. Or try thinned, moist cereals, yogurt, or cottage cheese.
- Moistening foods in broth, soups, sauces, gravy, oils, or butter. You can also use these foods as dips.
- To increase saliva, try tart foods and drinks, such as lemonade, lemon sorbet, or cranberry juice. Sweet foods and drinks may also help.
- Avoid hot, spicy, and acidic foods and drinks if you have a sore or tender mouth.
- Enjoy soothing frozen fruits, such as frozen whole grapes, banana pieces, melon balls, peach slices, or mandarin orange slices.
- Suck on frozen fruit, ice pops, fruit ices, sorbets, ice chips, or other cold foods.
- Chew sugar-free gum or suck on sugar-free candy to stimulate saliva. Citrus-flavored candies like lemon drops work best.

QUICK TIP

Use a cool-mist humidifier to moisten air, especially at night. Keep the humidifier clean to avoid spreading bacteria or mold in the air.

Nutrition for Cancer Survivors

Cancer survivors are encouraged to follow recommendations for cancer prevention to reduce the risk of recurrence and the risk for other cancers. In addition, these guidelines also can help to prevent other chronic conditions like diabetes and heart disease.

Diet and Lifestyle Changes

The following are guidelines that may help to reduce your risk for cancer and other health concerns.

- Eat a diet rich in whole grains, vegetables, fruits, and beans. Aim for meals made up of $\frac{2}{3}$ (or more) vegetables, fruits, whole grains, or beans and $\frac{1}{3}$ (or less) animal-based protein rich foods like seafood, poultry, and dairy foods, occasionally with lean red meat.
- If you choose to eat red meat, limit portions and eat no more than 12 to 18 ounces per week.
- Avoid processed meats, such as bacon, sausage, smoked meats, lunch meats, and hot dogs.
- Limit “fast foods” and other processed foods that are high in fat, starches, or sugars. Skip chips, cookies, candy bars, and baked goods, and choose more nutritious snacks like nuts and fruit.
- Limit drinks that are sweetened with sugar. Drink mostly water and unsweetened drinks.
- Avoid alcohol. For cancer prevention, it is best not to drink.
- Aim for a healthy weight by eating a healthy diet and exercising.
- Get at least 150 minutes (2 hours) of moderately intense physical activity per week. That’s about 30 minutes a day, 5 days a week. You can break up a day’s goal into a few minutes here, a few minutes there, if you need to. Talk with your health care team about the types of activities that are best for you.

More Information

To learn more about healthy choices to prevent cancer, talk to your registered dietitian nutritionist (RDN). Check these websites for more information about nutrition and cancer prevention:

- American Cancer Society: www.cancer.org
- American Institute for Cancer Research: www.aicr.org



Recipes for Shakes Without Dairy

To make each of these shakes, combine all ingredients in a blender and blend until smooth.

Banana Nut Shake

- 1 frozen banana
- 2 tablespoons peanut butter
- 2 tablespoons nondairy protein powder of your choice
- 1 cup soy milk or plant milk of choice

Yield: One 12-ounce serving

Nutrition information per serving: 510 calories, 35 grams protein

Blueberry Blast Shake

- 1 medium banana
- $\frac{3}{4}$ cup frozen blueberries
- 2 tablespoons non-dairy protein powder of your choice
- 1 cup soy milk or plant milk of your choice (almond, coconut, etc)
- $\frac{1}{2}$ cup apple juice
- 1 cup ice cubes

Yield: One 12-ounce serving

Nutrition information per serving: 377 calories, 19 grams protein

Mango Madness Shake

- 1 medium frozen banana
- 1 cup frozen or fresh mango
- 2 tablespoons nondairy protein powder
- $\frac{1}{2}$ cup apple juice
- 1 cup soy milk or plant milk of choice

Yield: One 12-ounce serving

Nutrition information per serving: 425 calories, 20 grams of protein

Morning Sunshine

- 1 frozen banana
- 2 tablespoons nondairy protein powder
- $\frac{1}{2}$ cup orange juice
- 1 cup soy yogurt

Yield: One 12-ounce serving

Nutrition information per serving: 420 calories, 20 grams of protein

Phytochemical Super Shake

- $\frac{1}{3}$ cup silken tofu
- 4 to 6 baby carrots
- $\frac{3}{4}$ cup to 1 cup fresh or frozen mixed berries
- 1 tablespoon oat bran
- 1 tablespoon ground flaxseed
- $\frac{3}{4}$ cup fortified plant-based milk (such as soy)
- $\frac{1}{2}$ cup to 1 cup orange juice or blueberry juice

Yield: One 12-ounce serving

Nutrition information per serving: 400 calories, 18 grams of protein

