



Nutritional Considerations for Radiation to the Head, Neck, and/or Esophagus

Achieving adequate nutritional status in people with cancer means getting enough calories and protein to prevent weight loss, regain strength, and rebuild healthy tissues. Important nutrients are highlighted below:

Protein

- Helps repair body tissue and maintain a healthy immune system.
- Cancer patients usually need additional protein, especially following surgery, chemotherapy, and radiation therapy.
- Good sources of protein include: lean meat, fish, poultry, dairy products (cheese, Greek yogurt, milk, cottage cheese), eggs, nuts, beans & lentils, soyfoods (tofu, soy milk, tempeh, edamame), commercial nutrition beverages (like Ensure[®], Boost[®], or Orgain[™], Enu[™]) and protein powders.

Carbohydrates and Fat

- Helps supply the body with the bulk of calories that it needs to maintain weight.
- Good sources of carbohydrate include: all fruits, starchy vegetables (corn, potatoes, sweet potatoes), grains (rice, quinoa, oatmeal, etc), pastas, cereals, beans, peas, certain dairy products (including yogurt, kefir, and milk), honey, maple syrup, and jelly/jam.
- Good sources of fat include: olive oil and other oils, nuts, seeds, avocado, butter, mayonnaise, gravy, full fat dairy products (whole milk, sour cream, cream cheese, full fat yogurt, ice cream, cheese), foods made with oil or butter (like pastries, chips, tuna canned in oil, etc).

Vitamins and Minerals

- Helps to ensure proper growth and development of our body's cells.
- Allows the body to use the energy in foods.
- Eating a *well-balanced* diet with enough protein and calories usually contains plenty of vitamins and minerals. Eat a variety and choose foods from the many colors of the rainbow! Like tomatoes, watermelon, cherries, melon, carrots, sweet potatoes, oranges, apples, pears, broccoli, brussel sprouts, edamame, garlic, onions, plums, blueberries, grapes, green tea, oatmeal, quinoa, barley, walnuts, almonds, etc.

Nutritional Considerations

Head and neck cancers and esophageal cancers can change your eating ability and compromise your nutrition status from the side effects of surgery, radiation, and chemotherapy. See below for nutrition tips and strategies.

Practice good oral hygiene as recommended by your radiation team.

Clinical Feature	Nutritional Consideration	Example Foods & Strategies
Dry Mouth (xerostomia)	Increase fluid intake	Water, decaffeinated teas, juices, Gatorade, milk, Ensure or Boost.
	Limit spicy or hot foods	Like peppers, chili, and very hot temperature foods.
	Try taking sugar-free mints or candies throughout the day	Citrus-flavored candies such as lemon drops often work best.
	Try cooler foods and beverages	Try freezing fruits like whole grapes, bananas, melon balls, mandarin orange slices.
	Minimize amount/frequency of sweet, sticky foods	Like sticky candies, fruit leathers, caramels, gummy candy.
	Modify food's consistency	Cut foods into smaller pieces, use a blender to puree foods.
	Modify food's moisture	Mix foods with extra sauces and gravies.
Sore Mouth and Throat	Increase your fluid intake	Water, decaffeinated teas, juices, Gatorade, milk, Ensure, Boost.
	Modify food's consistency	Cut foods into smaller pieces, use a blender to puree foods; avoid rough, dry, or coarse foods, which can scratch an irritated mouth.
	Modify food's moisture	Add broth, soup, sauces, gravy, butter, or margarine to moisten foods. Dip or soak food in whatever you are drinking. Try to coat/lubricate your mouth and throat by swallowing a teaspoon or two of oil before meals.
	Limit acidic and spicy foods	Limit: oranges, grapefruit, limes, lemons; pepper, chili powder, cloves, nutmeg, salsa, pepper sauces, and horseradish.
	Try room temperature or lukewarm foods	Hot foods and beverage may burn your mouth.
Taste Changes	Avoid putting metal in your mouth	Try using plastic utensils and plastic or glass cups.
	Season foods with tart flavors	Use lemon, limes, vinegar (unless you have a sore mouth or throat).
	Use extra flavorings	Try onions, garlic, BBQ sauce, herbs and spices.
	Use a little sugar or salt to modify and enhance flavors	Add a little sugar to salty food to enhance flavor. Add a little salt to decrease the sweetness of sugary foods.
	Modify the foods temperature	Try cool or room temperature foods.
Difficulty Chewing or Swallowing	Modify a food's consistency for ease	Try chopping or grinding foods. If needed, puree or blenderize foods.
	Modify a food's moisture	Add broth, olive oil, milk, butter, gravy, sauces. Soak dry foods in liquid to make them softer.

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Nausea and Vomiting	Eat smaller meals/snacks, but more frequently	Instead of 2 or 3 large meals, choose 5 or 6 smaller meals/snacks
	Keep dry foods on hand for snacking	Try dry cereal, saltines, toast, pretzels, etc
	Avoid foods with strong odors	Choose less fragrant foods, ventilate the eating environment, cool foods down to reduce odor
	Avoid or limit very rich foods	Choose less sweet foods; choose non-fried and less greasy foods; choose bland and less spicy foods
	Keep a pleasant taste in your mouth	Try taking sugar-free mints, sugar-free candies or lemon drops, ginger candies or gum
	Avoid dehydration	Sip on clear liquids like Gatorade, G2, Powerade, coconut water, broth, ginger tea, gingerale
Poor Appetite	Eat smaller meals/snacks, but more frequently	Instead of 2 or 3 large meals, choose 5 or 6 smaller meals/snacks
	Try not to fill up on liquids only	Separate liquids from solids at mealtimes
	Choose foods that are energy and protein dense	See the page one for good sources of protein, calories, and fats
	Consider trying an oral nutrition beverage	Ensure Plus, Ensure Clinical Strength, Boost Plus, ScandiShake, Orgain, etc.

If you are experiencing any of these conditions and would like to meet with a dietitian, please notify your doctor or nurse. To make a nutrition appointment, you may call 650-498-6000.

Notes: