Nutrition for Patients with Esophageal Cancer

Patients with esophageal cancer are often not getting the nutrition they need and may become malnourished prior to starting treatment. Nutrition issues can be worse during treatment. Side effects can include loss or change in taste, esophagitis (esophagus sores), xerostomia (dry mouth), fatigue, nausea, vomiting, and constipation. Managing side effects and treating nutrition problems early will help you feel better, improve your energy levels and heal faster after treatment.

You may need to change the texture of the food you eat. The dietitian will help find the type, amount, temperature, and texture of foods that will work best during and after esophageal cancer treatment. For example, when you are on a full liquid diet, you may be able to progress to a pureed diet or if you are still having trouble meeting nutrition needs, you may be switched to a diet that includes nutritional supplements. Each diet is detailed below.

Swallowing Problems

Your healthcare team will determine the reason for swallowing issues and will work with you on how to manage it. Changes in diet may help with difficulty swallowing. You may be referred to a Speech and Language Pathologist (SLP) for a swallow study. If so, please follow your SLP’s recommendations and guidelines.

Change Your Diet

Try foods with different textures to find ones that are easier to swallow. Foods that are soft or have a smooth texture, like mashed potatoes, are often easier to swallow. Try cutting food into small, bite-sized pieces. Use a blender or food processor to chop foods that are difficult to chew. Use fruit or vegetable juices, broth or milk to blend the foods together.

Take small bites. Completely swallow each bite before taking another. Sip liquids in between bites of food.

Make sure to include plenty of fluids every day, especially water, to help prevent dehydration. Other sources of fluids include juices, soups, milk, popsicles, pudding, jello, yogurt, and ice cream. Thickening liquids may make them easier to swallow.

You may find cold foods soothing, or you may prefer room temperature. Limit spices such as chili powder, pepper or curry, and spicy foods. These can irritate the lining of the mouth, throat, and esophagus. Avoid alcohol and tobacco.

Make every mouthful count by choosing foods that are high in protein and high in calories. Sit upright when eating meals.

During your treatment, you may need to alter your diet to maintain your weight. Below are suggestions to help you transition your diet from regular to soft or even pureed. If you have been evaluated by an SLP, please follow diet texture guidelines per SLP recommendations. Some individuals who are having great difficulty taking in the required calories and protein prior to treatment may benefit from a feeding tube.

Regular Diet as Tolerated

A regular diet consists of a variety of foods from all of the food groups including vegetables, fresh fruits, whole grains, lean proteins, and low-fat dairy products. The USDA has more information about what a typical meal should look like to help maintain proper nutrition. During cancer treatment, you may want to include some high calorie and high protein foods to maintain your weight. Dip dry, crisp foods, such as cookies, into milk, coffee or tea to make them softer if needed. Avoid hard and dry foods, such as potato chips or pretzels if these foods cause discomfort when swallowing.

Soft Diet

A soft diet consists of foods that can be easily mashed with a fork. These foods are easier to chew and swallow. Examples include:
- Tender-cooked chicken, turkey, or pork, cut into small pieces or ground meat moistened with gravy
- Flaky fish
- Tuna in oil, chicken or egg salad, finely chopped and well moistened
- Mashed lentils or legumes, such as mashed chickpeas, soft tofu
- Soft cooked or canned vegetables cut into small pieces
- Ripened banana and avocados or soft canned/frozen fruit
- Well cooked pasta or macaroni well moistened with gravy or sauce

**Pureed or Blenderized Diet**

Most foods can be pureed or put into a blender and made into a consistency that is even easier to swallow. After a food is pureed it does not need to be chewed, only swallowed. They should still be able to hold their shape on a spoon. Examples include:

- Mashed white or sweet potatoes
- Smooth apple sauce or other pureed fruits (smooth, no chunks)
- Pureed vegetables (smooth, no chunks)
- Pureed chicken, turkey, pork, red meat, or fish. Use broth or gravy to easily puree these foods into a palatable consistency.
- Pureed eggs or egg substitutes
- Pureed tofu, tempeh, moistened meat alternatives (i.e. veggie burgers)
- Soaked, drained, and pureed nuts or thinned nut butters
- Strained and blended cheese like cottage or ricotta
- Blenderized dips like sour cream dips, guacamole, or hummus

**Full Liquid Diet**

A full liquid diet consists of foods that are smooth, pourable liquids. Examples include:

- All beverages including water, milk, milk substitutes, juice, coffee, and tea
- Smoothies and milkshakes, drinkable yogurt
- Blenderized and strained soups (may use broth to make smoother)
- Blenderized and strained fruits and vegetables (may need juice, yogurt or milk substitute to make thinner)
- Oral Nutrition Supplement shakes

**Nutritional Supplements Appropriate for Your Diet**

If you are still unable to meet your nutrition needs, your dietitian may suggest adding oral nutrition supplements to your daily diet. There are a number of products, both prescribed and available over-the-counter in pharmacies/grocery stores, that can provide nutrition in a small amount of food or liquid. Popular supplements include protein powders that can be added to smoothies, milkshakes, some cooked items, and high calorie and high protein drinks such as Ensure® and Boost® products. Speak to your dietitian about what products are best for you. Some products advertised to be healthy supplements may contain a large quantity of sugar, which may not be appropriate for your needs.

**Eating Food as Tolerated Along with a Feeding Tube**

Despite your best efforts, you may not be able to meet your nutritional needs by eating food and supplements. The side effects of cancer and treatments may be so severe that you will require a feeding tube to supplement the food you eat. There are several types of tubes that can be placed and your provider will determine which is best for you. These tubes can be temporary or permanent. You will be prescribed liquid nutrition that can be infused through the tube into your stomach either by a pump or manually. This liquid nutrition will replace the nutrients you are unable to eat and drink.

Keep in mind that these diets are likely temporary. It is important to maintain open and honest communication with your dietitian and providers so that together you can determine the best course of action to maintain proper nutritional status through the course of your treatment.
Meeting Protein Needs

An estimate of protein needs:

To come up with a quick estimate of your protein requirement:

1. Divide your weight in pounds by 2
2. The result is the approximate grams of protein you need per day (example: 180 lb ÷ 2 = 90 grams of protein)

If you are undergoing chemotherapy, radiation, or surgery, the number of grams of protein needed each day may be higher. Please check with your Registered Dietitian and Medical Provider for individualized recommendations.

Food Sources of Protein

Protein is found in both animal and plant foods. Animal sources of protein include meat, poultry, fish, eggs, and dairy products. Plant sources of protein include nuts, seeds, tofu, and legumes (dried beans, peas, and lentils). Grains (cereals, bread, and rice) and vegetables contain a small amount of protein. Fruits and fats do not provide any protein. The amount of protein in milk alternative products such as soy, rice, coconut, and almond milk is variable so check the label of your product.

Protein Supplements

A low-cost and convenient protein supplement is dry skim milk powder. Add dry milk powder to any creamy foods such as smoothies, yogurt, milkshakes, coffee, ice cream, mash potatoes, casseroles, scrambled eggs, and creamed soups or add to the batter for cakes, cookies, pancakes, muffins, and puddings. Use pasteurized eggs substitute in shakes and recipes as a protein supplement, however, never use raw eggs due to the risk of salmonella contamination.

Products such as double-strength milk, whey protein powder, pea protein isolate, soy protein, or hemp protein powders are good options to supplement your meals. A Registered Dietitian can assist with determining which protein supplement may best meet your needs.

Lactose Intolerance

Low lactose milk such as Lactaid, cheeses, and ice cream are available. Individuals who are mildly lactose intolerant can often tolerate yogurt and cheese. Milk alternates can be substituted for milk but it is important to note that the protein content of these products varies and may not be comparable to the protein content of cow’s milk. Lactaid pills, which contain the enzyme that digests milk, can also be taken before eating dairy food and are available at most pharmacies.

Ways to Add Protein to Food

- Shredded cheese - sprinkle over vegetables, potatoes, noodles, casseroles, soups, or salads
- Milk or high protein milk alternative- use in place of water when making soups, pudding, cocoa, or cooked cereals instead of water
- Make double-strength milk - add 1 cup of nonfat instant dry milk powder to 1 quart (4 cups) of whole milk
- Ice cream, yogurt, and frozen yogurt - add to cereals, fruits, gelatin, pies, or milkshakes
- Hard-cooked eggs - chop and add to salads, vegetables, or casseroles
- Left-over meat, chicken, or fish - add to soups, salads, or omelets
- Nut butter, nuts, and seeds - sprinkle or drizzle over vegetables, fruits, salads, yogurt, cereal, and pasta
- Beans and hummus - add to salads, pasta, or soups

ORAL NUTRITION SUPPLEMENTS

There are many brands of supplements, your dietitian can help you choose what is best for you. The table below shows big box stores that carry these brands, but you may also be able to get them at your local pharmacy.

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<th>Name</th>
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<th>Protein</th>
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<tr>
<td>Plant-Based Shakes</td>
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<td>Orgain Shake</td>
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<td>Ensure-Plant Based</td>
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<tr>
<td>Xtracal</td>
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<td>14 g protein</td>
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Some Financial Tips
Insurance companies often do not cover nutritional supplements unless it is your only form of food/nutrition. The cost can be an unexpected financial stress for some patients. Ask your dietitian or social worker if samples and coupons are available.

- **The Oley Foundation** - This organization has an equipment and supply exchange that includes supplements.
  [http://www.oley.org](http://www.oley.org)

Smoothie Recipes

**High Calorie**
Peanut Butter Smoothie
- ½ cup whole milk
- 3 Tbsp. smooth peanut butter
- 3 Tbsp. chocolate syrup
- ½ cup vanilla ice cream
Add to blender and mix well.
Nutrition (calories: 625, protein: 19 grams)

Recipe courtesy of the Maine Coast Memorial Hospital Nutrition Services

Vegan Avocado-Spinach Smoothie
• ½ cup spinach
• half of an avocado
• 2 tsp cacao powder
• 2 tsp cinnamon
• 1/2 tsp salt
• 1 Tbsp. olive oil
• ¼ cup walnuts
• ¼ cup dark chocolate nibs
• ¼ cup coconut flakes
• ½ cup coconut milk
• ½ cup water
• 1 Tbsp. agave

Will need to use a high speed blender, add to blender and mix well.


High Calorie/High Protein/High Fiber/Vegan

White Bean Smoothie
• ¼ can great northern beans
• 1 cup skim milk
• ¼ cup almonds
• ½ banana
• ¼ avocado

Add to blender and mix well.

Nutrition (calories: 394.1, fat: 16.4 grams, carbohydrates: 47.2 grams, fiber 11.1 grams, protein: 19.9 grams)


Low Acid

Nuts and Grains Breakfast Smoothie
• 1/3 cup ice cubes
• 1 banana
• 1 Tbsp. peanut butter
• 1 tsp honey
• 1 Tbsp. old fashioned rolled oats
• 1 cup sweetened rice milk

Will need to use a high speed blender, add to blender and mix well.

Nutrition (calories: 480, fat: 16 grams, carbohydrates: 75 grams, fiber: 7 grams, protein: 7 grams)


Low Acid: Vegan
Pumpkin Spice Smoothie
• 1 cup non-dairy milk
• ½ cup banana
• ½ cup canned pumpkin
• ½ tsp maple syrup
• ½ tsp vanilla extract
• ¼ tsp ground cinnamon
• 1/8 tsp ground ginger
• pinch of ground nutmeg
• pinch ground cloves
• pinch all spice

Add to blender and mix well.

Nutrition (calories: 212, fat: 10.4 grams, carbohydrates: 29.5 grams, fiber: 7.2 grams, protein 3.8 grams.