Nutrition for Head and Neck Patients Receiving Radiation Therapy

All head and neck radiation patients are asked to meet with the dietitian before the treatment course begins or during the first week of treatment. Ask your doctor or nurse how to make an appointment.

What are the goals of nutrition during therapy?
- Prevent weight loss.
- Preserve muscle mass.
- Support a healthy immune function.
- Get adequate calories, protein, vitamins, and minerals.
- Change dietary intake and/or consistency as needed.
- Continue to be active and exercise.

What is the diet?
- High calorie
- High protein
- Adequate fluid

Can I eat regular food?
Yes. Most patients eat regular food in the beginning of treatment and gradually move toward a soft and liquid diet as the treatment progresses.
Should I worry about the quality of my diet during treatment?

The course of radiation is over a short period of time. Changes in the diet are intended to prevent weight loss, preserve lean muscle mass, and support immune function. While fat or added sugars in the diet are generally not restricted during treatment there are many nutritious ways suggested to increase calories and prevent losing too much weight. When treatment is over, you will gradually move back to a regular diet that follows the protective and preventative guidelines for cancer survivors. If you have concerns or questions, speak with your dietitian and/or doctor.

Are there any foods I should avoid?

Some foods can be irritating to the mouth and throat and may need to be avoided. These foods include citrus juice (orange, grapefruit) and other citrus fruits, pineapple and pineapple juice, tomatoes and tomato sauce, salsa, spicy foods, coffee, soda, and berries with seeds. Avoid alcohol during radiation treatment and during the healing phase. Take care if you eat foods with tough texture (Example: French bread crust).

What are the benefits of a soft and liquid diet?

- Less energy is needed for chewing
- Provides needed fluid
- Adding extra calories and protein is easy
- Easier and more soothing for a sore mouth and throat

If side effects of the radiation treatment make it hard to chew or swallow, shift toward a soft and liquid diet. However, if tolerated, maintain a diet with a variety of textures and consistencies to keep the strength and integrity of your swallow.

Can I take vitamin and mineral supplements?

You can take a standard multivitamin that meets about 100% of your daily needs for vitamins and minerals. Dietary supplements, such as Ensure, Boost, and Orgain, contain 25% of daily recommended needs for vitamins and minerals. Do not take extra supplementation of Vitamin C, Vitamin A/Beta Carotene, Vitamin E, Selenium, or any other antioxidant. Please ask your doctor or dietitian if you have any questions. Note: You may find that a liquid or powdered multivitamin is easier to take.

Examples of liquid/powdered forms: Liquid Multivitamin without Iron (Vitamin Shoppe®), Liquid Centrum, All One™ Original formula (Nutritech)

Why shouldn’t I lose weight during treatment?

When people lose weight during cancer treatments, often more muscle tissue is lost than fat tissue. Even if you are overweight, weight loss should be prevented.
Why is loss of muscle tissue not desired?

Loss of muscle tissue can result in:

- Possible decreased effectiveness of treatment.
- Reduced ability to tolerate treatment.
- Increased severity of side effects.
- Possible break in treatment.
- Severe loss of muscle may require a feeding tube.
- Increased risk of delayed wound healing.
- Longer recovery after treatment.
- Increased fatigue.
- Possible nutrient deficiencies.

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**Nutrition Tip**

Stay well hydrated.

Adequate fluid intake is very important during treatment. Try to get about 64 ounces or 8 servings of fluid a day.

Anything that melts at room temperature is considered fluid such as ice, popsicles, ice cream or anything that is made with fluid such as soup, milkshakes, smoothies, or supplemental drinks.

Of course, don’t forget water. Carry a water bottle with you at all times.

Make a chart to mark off the ounces you drink. Fill up a two-liter bottle in the beginning of the day and finish it by the end of the day. Or use new 8-ounce size coffee mugs each time you drink; line the mugs up on the counter until you have finished eight glasses of liquid.

Drink most of your fluids in between meals. Large fluid intake may cause feelings of fullness resulting in a reduction of food intake at mealtimes.
How do I maintain my weight throughout treatment if my calorie and protein needs are higher than usual and it becomes hard to chew or swallow?

Eat Frequently – Small frequent meals

- Instead of eating three large meals a day, eat smaller amounts but frequently throughout the day.

Eat Calorie Dense Foods

- Pick foods that provide a lot of nutrition for every bite. Try to choose foods that contain some protein.

No Food Is Plain

- Before you eat or drink anything, you should look at it and ask yourself "What can I add to that to give it more calories or protein". Make each bite count.

Concentrate on Soft and Liquid Foods

- Soft and liquid foods are easier and less time consuming to eat, and easy to add extra calories and protein.

Use Supplemental Nutrition

- Supplements help increase your calorie and protein intake. They take no preparation and are easy to carry with you. See the table in this packet for product information or make your own shakes at home. Start now! Taste and order a supplement now and begin drinking one or two a day.

Weigh yourself daily

- At home or at the hospital. Keep a weight log. If your weight goes down, you need more calories and protein. A more accurate measurement can be followed if you use the same scale.

Have a good attitude

- Side effects from treatment may happen. Be prepared. Despite the side effects that may make it hard to eat, you must obtain adequate nutrition. Follow the instructions given in the packet and meet with the dietitian. Losing weight can make the side effects more severe. The more severe the side effects, the longer the healing time after treatment is over. Severe weight loss can also make the radiation treatment less effective.

Report your side effects.

Tell one of your health care providers as soon as you start to experience any side effects. Do not wait until the pain or discomfort is severe.

Follow-up with your dietitian every week.

Talk to her/him in person, by phone, or email. Family members or care providers are encouraged to be involved and are welcome to contact the dietitian as well.
# What Do I Eat? A General Outline During Treatment

<table>
<thead>
<tr>
<th>Number of Meals</th>
<th>Types of Foods</th>
<th>Foods To Avoid</th>
<th>Notes</th>
<th>Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Week One</strong></td>
<td>5+</td>
<td>• Foods as tolerated</td>
<td>• Start to eat smaller and more frequent meals/snacks</td>
<td>• Weight maintenance or weight gain</td>
</tr>
<tr>
<td></td>
<td>• Focus on calorie and protein rich foods</td>
<td>• Avoid acidic foods such as tomato sauce, tomato or orange juice, citrus fruits, or spicy foods if mouth is sore</td>
<td>• Carry food and water with you</td>
<td>• Meet with dietitian for individualized plan</td>
</tr>
<tr>
<td></td>
<td>• Protein Supplement</td>
<td>• Start to eat smaller and more frequent meals/snacks</td>
<td>• Don’t go more than 4-5 hours without eating</td>
<td>• Daily weight check</td>
</tr>
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<td></td>
<td>• 64 ounces fluid a day</td>
<td>• Avoid acidic foods such as tomato sauce, tomato or orange juice, citrus fruits, or spicy foods if mouth is sore</td>
<td>• Use tart or sour hard sugar-free candy for dry mouth and taste changes (use caution if mouth is sore)</td>
<td>• Positive attitude and mental preparedness</td>
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<tr>
<td></td>
<td>• Fiber supplement</td>
<td>• Avoid acidic foods such as tomato sauce, tomato or orange juice, citrus fruits, or spicy foods if mouth is sore</td>
<td>• Use tart or sour hard sugar-free candy for dry mouth and taste changes (use caution if mouth is sore)</td>
<td>• Understanding of role of good nutrition and weight maintenance for health during treatment</td>
</tr>
<tr>
<td></td>
<td><strong>Notes</strong></td>
<td>• Weight maintenance or weight gain</td>
<td>• Meet with dietitian for individualized plan if not already done</td>
<td>• Exercise</td>
</tr>
<tr>
<td></td>
<td>• Start to eat smaller and more frequent meals/snacks</td>
<td>• Carry food and water with you</td>
<td>• Daily weight check</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Don’t go more than 4-5 hours without eating</td>
<td>• Don’t go more than 4-5 hours without eating</td>
<td>• Positive attitude and mental preparedness</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Weight maintenance or weight gain</td>
<td>• Use tart or sour hard sugar-free candy for dry mouth and taste changes (use caution if mouth is sore)</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>• Focus on calorie and protein rich foods</td>
<td>• Weight maintenance or weight gain</td>
<td>• Meet with dietitian for individualized plan if not already done</td>
<td>• Exercise</td>
</tr>
<tr>
<td><strong>Week Two</strong></td>
<td>5+</td>
<td>• Start to eat smaller and more frequent meals/snacks</td>
<td>• Carry food and water with you</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Foods as tolerated</td>
<td>• Don’t go more than 4-5 hours without eating</td>
<td>• Daily weight check</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Start choosing more soft and liquid foods</td>
<td>• Use tart or sour hard sugar-free candy for dry mouth and taste changes (use caution if mouth is sore)</td>
<td>• Positive attitude and mental preparedness</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Start making milkshakes or smoothies</td>
<td>• Understanding of role of good nutrition and weight maintenance for health during treatment</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>• Focus on calorie and protein rich foods</td>
<td>• Exercise</td>
<td></td>
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<tr>
<td></td>
<td>• Protein Supplement</td>
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<tr>
<td></td>
<td>• 64 ounces fluid a day</td>
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</tr>
<tr>
<td></td>
<td>• Fiber supplement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Supplement drink: 1 a day</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Number of Meals</td>
<td>Types of Foods</td>
<td>Foods To Avoid</td>
<td>Notes</td>
<td>Goal</td>
</tr>
<tr>
<td>-----------------</td>
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</tr>
</tbody>
</table>
| **Week Three**  | 5+             | Foods as tolerated | Avoid acidic foods such as tomato sauce, tomato or orange juice, citrus fruits, or spicy foods if mouth is sore | • Weight maintenance or weight gain  
• Meet with dietitian for individualized plan  
• Daily weight check  
• Positive attitude and mental preparedness  
• Good oral hygiene  
• Exercise |
|                 |                | Focus on calorie and protein rich foods |  
• Protein Supplement  
• 64 ounces fluid a day  
• Fiber supplement  
• Supplement drink: 1 a day |  
• Start to eat smaller and more frequent meals/snacks  
• Carry food and water with you  
• Don’t go more than 4-5 hours without eating  
• Use tart or sour hard sugar-free candy for dry mouth and taste changes |
| **Week Four**   | 6+             | Choose mostly soft and liquid foods | Avoid acidic foods such as tomato sauce, tomato or orange juice, citrus fruits, or spicy foods if mouth is sore | • Weight maintenance or weight gain  
• Follow-up with dietitian in person or by phone or email  
• Daily weight check  
• Positive attitude and mental preparedness  
• Good oral hygiene  
• Exercise |
|                 |                | Supplement drink: 2+ a day  
• Protein rich foods/drinks/supplement at each meal  
• Calorie concentration  
• 64 ounces fluid a day  
| Avoid hard to chew or rough foods like crackers, chips, nuts, seeds  
Avoid foods that take a lot of effort or time to eat | Avoid hard to chew or rough foods like crackers, chips, nuts, seeds  
Avoid foods that take a lot of effort or time to eat |  
• Start to eat smaller and more frequent meals/snacks  
• Carry food and water with you  
• Don’t go more than 3-4 hours without eating  
• Use tart or sour hard sugar-free candy for dry mouth and taste changes (Use caution if mouth is sore) |
<table>
<thead>
<tr>
<th>Number of Meals</th>
<th>Types of Foods</th>
<th>Foods To Avoid</th>
<th>Notes</th>
<th>Goal</th>
</tr>
</thead>
</table>
| Week Five      | 6+             | • Soft and liquid foods  
• High calorie high protein choices  
• Supplement drink: varies, 2+ a day  
• Protein at each meal/protein supplement  
• 64 ounces fluid a day  
• Fiber supplement  

|               |                | Avoid acidic foods such as tomato sauce, tomato or orange juice, citrus fruits, or spicy foods if mouth is sore  
Avoid hard to chew or rough foods like crackers, chips, nuts, seeds  
Avoid foods that take a lot of effort or time to eat | • Small frequent meals. Sizes may be smaller so increase frequency of eating  
• Carry food and water with you  
• Don’t go more than 2-3 hours without eating  
• Use tart or sour hard sugar-free candy for dry mouth and taste changes (Use caution if mouth is sore) | • Weight maintenance or weight gain  
• Follow-up with dietitian in person, by phone or email  
• Daily weight check  
• Positive attitude and mental preparedness  
• Good oral hygiene  
• Exercise |
| Weeks Six & Seven | 6+         |            |       | All of the same goals as the previous weeks |
High Calorie High Protein Diet

Calorie and protein needs are increased when you are receiving treatments for cancer. With head and neck radiation treatment, there are potential side effects that make it difficult to eat. Despite these difficulties, it is very important that you maintain your weight during treatment. A soft and liquid diet is encouraged and often needed during treatment. This type of diet is useful because it takes less effort and time than chewing, is less painful than chewing, easier to swallow, can have extra calories and protein added easily, and can contribute to fluid needs. Use the following information for ideas.

Examples of soft and liquid high calorie and/or high protein choices

<table>
<thead>
<tr>
<th>Milk</th>
<th>Yogurt</th>
<th>Cottage cheese</th>
<th>Eggs</th>
<th>Tofu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cream soup</td>
<td>Oatmeal with milk</td>
<td>Tuna fish</td>
<td>Egg salad</td>
<td>Pureed meats</td>
</tr>
<tr>
<td>Milkshakes</td>
<td>Mashed potatoes and gravy</td>
<td>Hot chocolate made with milk</td>
<td>Supplemental drinks</td>
<td>Smoothies</td>
</tr>
<tr>
<td>Melted cheese</td>
<td>Pudding</td>
<td>Custard</td>
<td>Mashed beans</td>
<td>Meatloaf</td>
</tr>
</tbody>
</table>
Meal and snack ideas for a soft diet

- Fresh or canned fruit with cottage cheese or yogurt
- Sliced banana and nut butter (natural peanut butter, almond or cashew butter) in yogurt
- Hot cereal (Oatmeal, cream of rice or cream of wheat) cooked in regular milk or almond milk with nut butter added
- Super milk – add powdered milk or protein powder to regular milk to drink and use in recipes
- Hard-boiled egg or deviled egg with mayonnaise
- Scrambled eggs cooked with oil or butter with added avocado and/or cheese
- Refried bean with melted cheese, sour cream and avocado
- Mashed potatoes made with liberal amounts of whole milk and butter or olive oil and topped with gravy
- Mashed sweet potatoes made with walnut oil or butter and honey
- Polenta made with butter and parmesan cheese
- Fresh or canned fruit with cashew cream (blenderized cashews with maple syrup and vanilla)
- Tuna or canned salmon with liberal amounts of mayonnaise or olive oil – alone or in a sandwich on soft bread
- Pureed vegetables – available in squeeze pouches in the baby food section of the grocery store
- Turkey pasta – cook noodles, add 1-2 tbsp oil, add cooked ground turkey and top with parmesan cheese
- Noodles with alfredo or pesto sauce
- Mild soups such as chicken and rice soup, butternut squash or carrot soup, cream and potato based soups
- Bean soups blenderized with oil
- Custard, flan or pudding made with whole milk
- Milkshakes or smoothies (buy or make)
- Rice porridge (jook) with an added egg and/or tofu. Drizzle in 1 tbsp of oil
- Glass of soy milk
- Mashed banana
- Smooth applesauce
- Yogurt or Kefir drinks, smoothies made with soft fruit, yogurt and added protein powder

Nutrition Tip

Give yourself a break
- Let others grocery shop and cook for you.
- Make shopping lists for others to follow.
- Cook big batches of foods and then separate into individual size containers for an easy quick snack.
- Take advantage of pre-made foods and drinks.
- Keep the pot and pan use to a minimum so there is less clean up.
Healthy ways to increase calories and protein

The following are some ways to increase calories and protein. Any of these suggestions can be started before treatment starts or during the first few weeks of treatment. Some of the following suggestions may not be appropriate for a soft and liquid diet or a sore mouth and throat. The soft and liquid diet suggestions are starred (*).

Add extra oil such as olive, canola, avocado oil to your foods.

❑ Toss pasta with oil before adding sauce*
❑ Drizzle oil into soup*
❑ Add extra oil when cooking lean meats, vegetables or stir-fry
❑ Dip bread in olive oil
❑ Drizzle olive oil onto freshly popped popcorn
❑ Use oil based dressings on salads, vegetables, pasta or other grains

Boost calorie intake with nuts and seeds.

❑ Have ¼ - ½ cup nuts or trail mix for a snack
❑ Carry nuts with you at all times, have at your desk or sitting next to the couch
❑ Sprinkle nuts and seeds into yogurt, cereal, oatmeal, salads, soups or stir-fry
❑ Use nuts in muffin and bread recipes

Add creamy nut butters such as natural peanut butter, almond or cashew butter to dishes.

❑ Dissolve nut butters in soups, hot cereals and smoothies*
❑ Use nut butters on sandwiches, with fruit, on crackers
❑ Carry single serving nut butter packets with you to snack on anytime*

Increase calories with avocados.

❑ Add avocado chunks to soups and blend into smoothies*
❑ Add avocado slices to a sandwich or salad
❑ Add guacamole to Mexican food
❑ Snack on ½ an avocado right out of the shell*

More ideas:

❑ Eat fatty fish 2-3 times per week (for example salmon, halibut, sardines, herring, mackerel)
❑ Snack on olives or add them to soups, salads or grains such as pasta or rice
❑ Snack on dips such as olive spread (tapenade), humus, or pesto or add them to potatoes, pasta or rice
❑ Blend silken style tofu into soups or smoothies*
❑ Use milk (cow’s, almond, soy, coconut) instead of water to make hot cereal*
❑ Add powdered milk or unflavored protein powder to mashed potatoes, sweet potatoes or casseroles*
❑ Add powdered milk or protein powder to a glass of milk or a smoothie*
These food additives can dramatically increase your calorie intake!

<table>
<thead>
<tr>
<th>Food</th>
<th>Calories</th>
<th>Food</th>
<th>Calories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Added fats</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Butter - 1 Tbsp</td>
<td>100</td>
<td>Cream Cheese - 2 Tbsp</td>
<td>100</td>
</tr>
<tr>
<td>Mayonnaise - 1 Tbsp</td>
<td>100</td>
<td>Cheese - 1 oz</td>
<td>~100</td>
</tr>
<tr>
<td>Salad Dressing - 2 Tbsp</td>
<td>170</td>
<td>Ricotta Cheese - ½ cup</td>
<td>215</td>
</tr>
<tr>
<td>Olive Oil - 1 Tbsp</td>
<td>120</td>
<td>Whipping Cream, heavy - 2 Tbsp</td>
<td>50</td>
</tr>
<tr>
<td>Coconut Oil - 1 Tbsp</td>
<td>120</td>
<td>Sour Cream - 2 Tbsp</td>
<td>40</td>
</tr>
<tr>
<td>Vegetable Oil - 1 Tbsp</td>
<td>120</td>
<td>Powdered milk - 4 Tbsp</td>
<td>90</td>
</tr>
<tr>
<td>Avocado - ¼ medium</td>
<td>90</td>
<td>Flaxseed – Ground - 2 Tbsp</td>
<td>80</td>
</tr>
<tr>
<td>Guacamole - 2 Tbsp</td>
<td>40</td>
<td>Hempseeds - 2 Tbsp</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chia Seeds - 1 Tbsp</td>
<td>60</td>
</tr>
<tr>
<td>Nut butters</td>
<td></td>
<td>Protein powder - 4 Tbsp</td>
<td>~100</td>
</tr>
<tr>
<td>Peanut butter - 1 Tbsp</td>
<td>100</td>
<td>Added sugars**</td>
<td></td>
</tr>
<tr>
<td>Almond butter - 1 Tbsp</td>
<td>100</td>
<td>• Syrup, maple - 2 Tbsp</td>
<td>100</td>
</tr>
<tr>
<td>Cashew Butter - 1 Tbsp</td>
<td>100</td>
<td>• Honey - 1 Tbsp</td>
<td>64</td>
</tr>
<tr>
<td>Coconut Milk - 2 Tbsp</td>
<td>50</td>
<td>• Sugar - 1 Tbsp</td>
<td>45</td>
</tr>
<tr>
<td>Pesto Sauce - 2 Tbsp</td>
<td>50</td>
<td>• Chocolate Syrup - 2 Tbsp</td>
<td>100</td>
</tr>
<tr>
<td>Alfredo Sauce - 2 Tbsp</td>
<td>50</td>
<td>• Caramel Sauce - 1 Tbsp</td>
<td>60</td>
</tr>
</tbody>
</table>

**If you are losing too much weight during treatment added sugars can be a short-term way to get extra calories. To prevent spikes in blood sugar it is best to add extra sugar to a meal instead of eating it by itself.**

**Bolded foods** are nutrient dense sources of additional calories.

**Protein, Protein, Protein**
Choose foods or liquids high in protein at each meal and snack during the day. Protein is the body’s building block. You need protein to help rebuild healthy tissue and prevent severe side effects.

**Nutrition Tip**

**Foods Rich in Protein:**
- Cottage Cheese/Ricotta Cheese, Yogurt, Milk, Cheese, Powdered milk, Pudding/Custard, Eggs,
- Chicken/Turkey, Fish/seafood, Pork, Beef/steak/ground beef, Tofu
- Texturized vegetable protein
- Beans/Peas/Lentils/Nuts and Nut butters
Coping With Radiation Treatment Related Side Effects

Loss of Appetite

Loss of appetite is common during treatment. Side effects from treatment, decreased activity level, stress, anxiety, and depression can all decrease your interest in eating. If your appetite is no longer motivating you to eat, here are some suggestions to help ensure that you are getting the nutrition that you need.

- Eat by the clock rather than by your hunger mechanism. Eat because it is 9am, noon, 3pm, 6pm, or whatever fits your daily pattern.
- Snack between meals.
- Plan for special circumstances. If you have to miss or delay a meal for a test or therapy, bring a snack or supplemental drink.
- Choose high-calorie high-protein foods at this time.
- Plan your daily menu in advance. Make a shopping list of your favorite foods and beverages and have the food available. You may want to portion out snacks and keep them in the refrigerator in Ziploc bags so that they are readily available.
- Request help in preparing your meals. A friend or relative is often happy to help out by preparing food for you. Some grocery stores have shopping services that may be accessed through your computer. You are very important – ask for help when you need it, and ideally before you anticipate that you will need it.
- Fix several portions of your favorite foods and freeze them. This can make it easier to decide what to eat when your appetite is poor or you do not feel like cooking.
- Make food visually appealing. Eye appeal is often the first step in eating. Attractive colors and garnishes such as parsley, olives, and cherry tomatoes help to enliven the appetite.
- Appeal to your sense of smell. Certain smells can often stimulate your appetite, such as the smell of fresh bread baking. If, however, you find that you are overwhelmed by smells at this time, stay away from the kitchen, and have someone else do the cooking.
- Make your mealtimes pleasant. Your mealtime atmosphere is important to encourage eating. Set the table, perhaps adding candles or dimmed lights. Whenever possible, eat with family or friends.
- If you are finding it difficult to cook due to the symptoms of treatment, consider calling organizations such as Project Open Hand at (415) 447-2300 or, if you are 60 years or older, Meals on Wheels at (415) 920-1111 that deliver meals directly to your house. Contact the Cancer Resource Center at (415) 885-3693 for private companies that prepare and deliver healthy meals.
Mouth Sores/Chewing or Swallowing Difficulties

Soreness and tenderness in the mouth and throat may happen during treatment. The following suggestions may make chewing and swallowing easier. Work with your dietitian to develop a plan to meet your needs. Medications are also available to make eating less painful.

- Eat frequent small meals and snacks to ensure that you are getting enough calories.
- Cut foods into bite-sized pieces or grind them so that less chewing is required.
- Choose soft foods or foods that can be cooked until tender such as mashed potatoes, sweet potatoes, winter squashes (butternut and acorn), carrots, applesauce, lean ground beef or turkey, and tofu.
- Add protein powder (whey, soy, etc.) to foods, such as smoothies, soups, oatmeal, and applesauce.
- Use liquid supplements such as Ensure Plus, Boost Plus, Orgain, Enu, or shakes that can be made in your blender.
- Consider using a blender to puree the foods your family is eating. When adding liquid to process the foods, remember to add high-calorie liquids – such as milk, or soymilk– instead of water.
- Use nutritious liquids with meals.
- Be adventurous. Try new sauces, gravies, or different oils on foods to make swallowing easier.
- Try apple, cranberry, or grape juices or fruit nectars if you are sensitive to citrus juices.
- Try sucking on frozen fruit. Frozen grapes, wedges of cantaloupe, peach slices, and watermelon work well.
- Keep some baby food on hand for something quick and tasty.
- Try drinking liquids through a straw or as recommended by your swallow therapist.
- Glutamine and probiotics have been shown to help with mouth sores during radiation therapy. Please discuss the use of these supplements with a dietitian to determine if they are appropriate for you.
- Honey has also been shown to help with mouth sores during radiation therapy. Please discuss the use of honey with a dietitian to determine if honey is appropriate for you.
- Papaya and/or papaya juice has been shown to be helpful for mucositis. Papain, the enzyme found in papaya, thins the mucous enabling patients to eat more comfortably.
- Rinse your mouth often with baking soda and salt solution (Made with 1 quart water, 1 teaspoon kosher salt, 1 teaspoon baking soda)


**Constipation**

Chemotherapy, certain medications, change in diet, inadequate fluid intake, or lack of exercise may cause constipation. Adding more fiber and fluid to your diet may help. The following are suggestions to help promote bowel regularity.

- Begin a fiber supplement at the beginning of treatment to promote regularity. Follow package instructions for initiation and advancement. Examples of supplements are “Benefiber”, “Metamucil”, or “Citrucel”.
- Include some fiber in each of your meals.
- Start your day eating oatmeal, bran cereals or shredded wheat, or foods made with whole grains such as bulgur or wheat berries. Allow to soak in milk for ease in chewing and swallowing.
- Aim for a cereal with at least 5 grams of fiber per serving.
- Add unprocessed wheat bran or freshly ground flaxseed to hot cereals and yogurt.
- Include kidney beans, chickpeas, lentils, fresh fruit and vegetables, and dried fruit in your diet.
- Reduce your caffeine intake, as caffeine may promote constipation by causing you to lose fluids.
- Drink a hot, non-caffeinated beverage such as lemon water or warm prune juice in the morning upon awakening.
- If you’re not used to eating a lot of fiber, slowly increase your intake. Adding a large amount of fiber all at once can cause increased flatulence (gas) until your body gets used to more fiber in the diet.
- You can reduce flatulence from eating beans by soaking beans first in water and discarding the water. If using canned beans, rinse under water before using.
- Drink plenty of liquids. A high-fiber diet requires plenty of fluids to work effectively.
- Add exercise to your daily routine. Check with your doctor first.

**Dry Mouth, Taste, or Smell Changes**

- Use sugar free hard candies to take away bad taste between or right before meals. Try tart or sour flavors to help stimulate saliva production. Monitor for gas and diarrhea as sugar alcohols used in sugar free candies may cause gastrointestinal upset in some individuals.
- Maintain good oral hygiene.
- Avoid red meats if they taste metallic. Eat more chicken, turkey, dairy products, and casseroles.
- When foods have less taste, try tart foods such as yogurt, lemon or orange Jello-O, or lemonade.
- If foods taste or smell strange or unappealing try cold or room temperature foods.
- Try marinated or spicy foods such as enchiladas, herbed chicken, or spaghetti if you do not have nausea, vomiting or mouth sores.
**Nausea**

Nausea is a common side effect of chemotherapy and can also occur during radiation therapy. Here are some practical tips to help with nausea:

- Eat small, frequent meals every few hours. Having some food in your stomach may help you feel better.
- Try foods that are easy on your stomach, such as:
  - Dry saltine crackers, toast, baked potato chips or pretzels
  - Oatmeal, Cream of Wheat, or Cream of Rice Cereal
  - Boiled potatoes or noodles
  - Lean protein sources such as skinned chicken or tofu that is baked or broiled, not fried
  - Peaches or other soft, mild-tasting fruits and vegetables
  - Clear liquids such as apple and cranberry juice, low-salt broth, and carbonated drinks without caffeine
  - Teas such as ginger and peppermint, served lukewarm or cold
- Slowly drink or sip fluids throughout the day. A straw may help.
- Avoid fried, greasy, and rich foods.
- Stay away from odors. Have someone else cook if possible. Eat in a room other than the kitchen.
- Try colder foods and main dish salads. Avoid hot foods and hot liquids.
- Don’t force yourself to eat your favorite foods when you feel nauseated, as you may develop a dislike for these foods.
- Track your nausea by taking note of any particular food or events that trigger it. See if there is a pattern, and if so, try to change the pattern.
- Inform your nurse or doctor about your nausea and ask about medications to control this side effect.
- Relax after meals. Try to rest while sitting up for about an hour – you can watch TV, read a magazine, talk with a loved one, or enjoy the company of your pet.

**Vomiting**

Vomiting may follow nausea and be brought on by treatment or food odors. If vomiting is severe or last for more than a day or two, contact your doctor.

- Do not eat or drink anything until you have the vomiting under control.
- Try tiny amounts of clear liquids such as water or bouillon, apple or cranberry juice, fruit ices without fruit pieces, ginger ale or 7 up, plain gelatin desserts, popsicles, coconut water, sports drinks such as Gatorade, vegetable broth and teas.
- Begin with 1 teaspoon every 10 minutes, gradually increasing the amount to 1 tablespoon every 20 minutes, and then try 2 tablespoons every 30 minutes or as tolerated.
• Once these liquids are tolerated, try a softer diet with bland foods such as mashed potatoes, rice, pureed fruits, smoothies, fruit nectars, yogurts, and cereals.

• Drink and eat more potassium and magnesium rich foods when feeling better. Potassium rich foods include bananas, potatoes, melons and apricots. Spinach, avocadoes, and soymilk are good sources of magnesium.
Dietary Supplements

Supplement drinks can be added, when diet alone is insufficient to meet daily nutritional requirements. There are a wide range of products available. The table below lists the premade drinks and mixes frequently used by patients undergoing head and neck cancer treatment. Certain products may not be appropriate for you depending on your health history or if you have food allergies. Please ask the dietitian for recommendations.

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Calories</th>
<th>Protein (grams)</th>
<th>Fiber</th>
<th>Buy/Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naked Protein Odwalla® Protein Shakes</td>
<td>Refrigerated liquid drinks - 15 ounces bottle</td>
<td>420</td>
<td>30</td>
<td>0</td>
<td>Find in refrigerator case in grocery or drug stores</td>
</tr>
<tr>
<td></td>
<td></td>
<td>380</td>
<td>25</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Soylent</td>
<td>Liquid drink - 14 ounce bottle</td>
<td>400</td>
<td>20</td>
<td>3</td>
<td>Soylent: <a href="http://www.soylent.com">www.soylent.com</a></td>
</tr>
<tr>
<td>Orgain Nutritional Shake</td>
<td>Liquid drink - 11 ounce carton</td>
<td>250</td>
<td>16</td>
<td>2</td>
<td>Orgain: <a href="http://www.orgain.com">www.orgain.com</a> Find in grocery or drug stores</td>
</tr>
<tr>
<td>Kate Farms 1.0 Standard</td>
<td>Liquid drink - 11 ounce carton</td>
<td>325</td>
<td>16</td>
<td>5</td>
<td>Kate Farms: <a href="http://www.katefarms.com">www.katefarms.com</a></td>
</tr>
<tr>
<td>ENU</td>
<td>Liquid drink - 8.4 ounce carton</td>
<td>340</td>
<td>17</td>
<td>2</td>
<td>ENU: <a href="http://www.enu-nutrition.com">www.enu-nutrition.com</a></td>
</tr>
<tr>
<td>Ensure®/Boost® Plus</td>
<td>Liquid drink - 8 ounce bottle</td>
<td>350/360</td>
<td>13/14</td>
<td>0</td>
<td>Boost – Nestle Nutrition Ensure – Abbott Find in grocery or drug stores</td>
</tr>
<tr>
<td>Ensure®/Boost® High Protein</td>
<td>Liquid drink - 8 ounce bottle</td>
<td>160/240</td>
<td>16/15</td>
<td>0</td>
<td>Boost – Nestle Nutrition Ensure – Abbott Find in grocery or drug stores</td>
</tr>
<tr>
<td>Ensure®/Boost® Regular</td>
<td>Liquid drink - 8 ounce bottle</td>
<td>220/240</td>
<td>9/10</td>
<td>0</td>
<td>Boost – Nestle Nutrition Ensure – Abbott Find in grocery or drug stores</td>
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<tr>
<td>Two Cal® Boost® Very High Calorie</td>
<td>Liquid drink - 8 ounce carton</td>
<td>480</td>
<td>20</td>
<td>22</td>
<td>Abbott</td>
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<td></td>
<td></td>
<td>530</td>
<td></td>
<td>0</td>
<td>Nestle Nutrition</td>
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<tr>
<td>Ensure® Compact</td>
<td>Liquid drink - 4 ounce bottle</td>
<td>220</td>
<td>9</td>
<td>0</td>
<td>Ensure – Abbott Find in grocery or drug stores</td>
</tr>
<tr>
<td>Optimum Nutrition Serious Mass</td>
<td>Powder - 1 scoop (167 gms). Mix with 12 ounces of milk or water</td>
<td>625</td>
<td>25</td>
<td>0</td>
<td>General Nutrition Center (GNC): Find in store or <a href="http://www.gnc.com">www.gnc.com</a></td>
</tr>
<tr>
<td>GNC Pro Performance® Weight Gainer</td>
<td>Powder – 4 scoops (182 gms). Mix with 16 ounces of milk or water</td>
<td>700</td>
<td>50</td>
<td>3</td>
<td>General Nutrition Center (GNC): Find in store or <a href="http://www.gnc.com">www.gnc.com</a></td>
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<tr>
<td>Benecalorie®</td>
<td>Liquid calorie and protein additive - 1 ½ Tbsp</td>
<td>330</td>
<td>7</td>
<td>0</td>
<td>Nestle Nutrition</td>
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<tr>
<td>Carnation Instant Breakfast&lt;sup&gt;®&lt;/sup&gt;</td>
<td>Powder packet. Mix with 8 ounces of milk</td>
<td>130</td>
<td>5</td>
<td>0</td>
<td>Find in grocery or drug stores</td>
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<td>---</td>
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</tr>
<tr>
<td>Ensure&lt;sup&gt;®&lt;/sup&gt; Clear Boost&lt;sup&gt;®&lt;/sup&gt; Breeze Isopure&lt;sup&gt;®&lt;/sup&gt; Plus</td>
<td>Clear liquid drinks – 8 ounce bottle or carton</td>
<td>180</td>
<td>8</td>
<td>0</td>
<td>Abbott or Find in drug stores Nestle Nutrition Isopure</td>
</tr>
<tr>
<td>Diabetic Supplements</td>
<td>Liquid drink – 8 ounce carton</td>
<td>190</td>
<td>16</td>
<td>3</td>
<td>Find in grocery or drug stores Boost – Nestle Nutrition Glucerna – Abbott</td>
</tr>
<tr>
<td>Boost&lt;sup&gt;®&lt;/sup&gt; Glucose Control Glucerna&lt;sup&gt;®&lt;/sup&gt;</td>
<td></td>
<td>180</td>
<td>10</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Protein Supplements</td>
<td>Powder. Mix into smoothies, soft foods or liquids. Add chicken soup flavor to savory blends or warm water.</td>
<td>100</td>
<td>20 - 25</td>
<td>0</td>
<td>Unjury: <a href="http://www.unjury.com">www.unjury.com</a></td>
</tr>
<tr>
<td>Unjury&lt;sup&gt;®&lt;/sup&gt; Protein Flavored and unflavored - Whey protein Isolate - Planted™ Vegan pea protein</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Isopure&lt;sup&gt;®&lt;/sup&gt; Whey Protein Isolate - Unflavored</td>
<td>Powder Mix in smoothies, soft foods or liquid</td>
<td>100</td>
<td>25</td>
<td>0</td>
<td>Isopure General Nutrition Center (GNC) <a href="http://www.gnc.com">www.gnc.com</a></td>
</tr>
</tbody>
</table>

**Ordering Information**

Check generic or store brands for equivalent products.

Soylent: www.soylent.com
ENU: www.enu-nutrition.com OR 855-266-6733
Orgain: www.orgain.com
Kate Farms: www.katefarms.com
Abbott Nutrition: www.abbottstore.com OR 800-258-7677
Nestle Nutrition: www.nestlenutritionstore.com OR 800-240-2713
Isopure: www.theisopurecompany.com
Unjury: www.unjury.com or 800-517-5111
General Nutrition Center (GNC): www.gnc.com
Sample Menu #1

Adjust portions up or down based on your individual calorie and protein needs

*Breakfast*
1 cup cooked oatmeal or cream of wheat made with 8 ounces milk instead of water. Stir in ½ cup applesauce and 2 Tbsp natural, creamy peanut butter
Blend if a smoother texture is needed
(500 calories, 22 grams protein)

*Snack*
Blueberry Banana Smoothie – 1 serving (see recipe section)
Refrigerate the 2nd serving and have as an afternoon snack.
(300 calories, 21 grams protein)

*Lunch*
Salmon Pasta Toss
5 ounce canned salmon or tuna (in oil, do not drain) (225 calories, 32 grams protein)
½ cup cauliflower, chopped and steamed soft (25 calories)
1 Tbsp mayonnaise or olive oil (100-120 calories)
1 cup cooked macaroni noodles (220 calories, 8 grams protein)
(590 calories, 38 grams protein)

*Snack*
Blueberry Banana Smoothie – 1 serving (see recipe section)
(300 calories, 21 grams protein)

*Dinner*
Avocado Chicken Soup – 1 serving (see recipe section) (280 calories, 8 grams protein)
1 medium sweet potato, baked and mashed with 1 Tbsp olive oil or butter (320 calories, 3 grams protein)
(600 calories, 11 grams of protein)

*Snack*
½ cup cottage cheese (100 calories, 14 grams protein)
½ cup canned peaches with the juice (60 calories)
Blend if a smoother texture is needed
(160 calories, 14 grams protein)

*Sample Menu #1 Totals:*
 Calories: 2450 calories
 Protein: 127 grams protein
Sample Menu #2

Adjust portions up or down based on your individual calorie and protein needs

**Breakfast**
Rice and Tofu Porridge – Simmer 1 cup cooked rice in 2 cups broth for 10 minutes, stir in 3 ounces of soft tofu and heat until warm, stir in 1 Tbsp olive or sesame oil.
Blend after cooking if a smoother texture is needed (450 calories, 18 grams of protein)
½ cup canned pears with the juice (60 calories)
(510 calories, 18 grams of protein)

**Snack**
8 oz High Calorie Supplement Drink (Enu/BoostPlus/Ensure Plus - ~360 calories, ~14 grams of protein)

**Lunch**
2 eggs + 2 egg whites and ½ - 1 cup chopped vegetables (mushrooms, spinach, kale or chard) scrambled in 1 Tbsp butter or olive oil served with 1 medium avocado, smashed.
Blend after cooking if a smoother texture is needed
(550 calories, 27 grams of protein)

**Snack**
8 oz High Calorie Supplement Drink (Enu/BoostPlus/Ensure Plus - ~360 calories, ~14 grams of protein)

**Dinner**
1 cup of Split Pea or Lentil soup blended with ½ cup cooked carrots or zucchini and 1 Tbsp olive oil, top with 2 Tbsp of sour cream (350 calories, 10 grams of protein)
Yogurt Parfait: ½ cup plain Greek yogurt mixed with 2 Tbsp protein powder topped with ½ mashed banana or ½ cup applesauce and 1 tablespoon honey (250 calories, 20 grams of protein)
(600 calories, 30 grams of protein)

**Snack**
8 oz High Calorie Supplement Drink (Enu/BoostPlus/Ensure Plus - ~360 calories, ~14 grams of protein)

Sample Menu #2 Totals:
Calories: 2740 calories
Protein: 117 grams protein

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Nutrition Tip

Don't forget the fiber.
- Brown rice
- Oatmeal
- Mashed beans
- Lentil soup
- Vegetables
- Fruits
- All bran cereal or wheat bran – add 1 Tbsp to foods
- Smoothies with fruit
- Supplemental drinks with fiber
- Fiber supplements
Smoothies and Blenderized Foods can be a main source of nutrients, protein, calories and fluid when your mouth and throat are sore or if you are having difficulty chewing or swallowing. You will need a blender or food processor. A wire strainer with very small holes may also be useful to remove any small seeds or leftover fruit or vegetables skins after blending.

### Smoothie Making Simplified

<table>
<thead>
<tr>
<th>Steps</th>
<th>Food Source</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Choose a liquid&lt;br&gt;Start with 1 cup liquid</td>
<td>Milk (cow or goat), soy milk, almond milk, rice milk, coconut milk, buttermilk, kefir, supplement drink, vegetable and/or fruit juice, coconut water, water</td>
<td></td>
</tr>
<tr>
<td>2: Add protein&lt;br&gt;Add a protein rich food. Start with 2 tablespoons and increase gradually as desired.</td>
<td>Skim milk powder, yogurt, soft or silken style tofu, nuts and seeds, protein powder, cottage cheese, almond butter, natural peanut butter, egg substitute</td>
<td>NEVER use raw eggs in a smoothie.&lt;br&gt;NEVER use raw eggs in a smoothie. If using a protein powder (whey, pea, rice or soy) use one with minimal additives.</td>
</tr>
<tr>
<td>3: Add extra calories&lt;br&gt;Add a high calorie food&lt;br&gt;Start with 1 tablespoon and increase gradually to desired taste</td>
<td>Cream, ice cream, condensed milk, avocado, coconut oil, avocado oil, nut butter</td>
<td></td>
</tr>
<tr>
<td>4: Add fruit and/or vegetables&lt;br&gt;Add ½ - 1 cup of fruits and/or vegetables</td>
<td>Fresh or frozen fruit such as berries, banana, peaches, applesauce, mango, spinach, kale, cooked pumpkin or sweet potato</td>
<td>Thoroughly wash all raw fruits and vegetables before using them in a smoothie.&lt;br&gt;Frozen fruit will make a thicker smoothie.&lt;br&gt;When your mouth is sore, skip citrus fruit and fruit that contains small seeds, such as berries or strain after blending. These tiny seeds can irritate a sore mouth.</td>
</tr>
<tr>
<td>5: Add 1 tablespoon of a fiber rich food as tolerated</td>
<td>Ground flax seeds, oat bran, wheat germ, chia seeds, hemp hearts</td>
<td>Adding fiber will make a smoothie thicker so leave out if you desire a thinner liquid</td>
</tr>
<tr>
<td>6. Add ingredients to the blender. Blend together to desired consistency, adding additional liquid if needed. Depending on the strength of your blender, you may need more or less liquid to make the mixture blend. Strain liquid if necessary.</td>
<td>If you can’t finish your smoothie, store unused portion in the refrigerator or freezer. Re-blend later that same day to enjoy the rest of the smoothie (Do not store in the refrigerator for more than a day).</td>
<td></td>
</tr>
</tbody>
</table>
Smoothie Recipes

**Almond Banana Smoothie**
- 1 cup unsweetened soymilk
- ½ cup plain yogurt
- 4 tablespoons protein powder
- 1 tablespoon creamy almond butter
- 1 tablespoon neutral flavored oil such as avocado or canola oil
- 1 banana (small – medium sized)
(Makes 1 – 16 ounce serving - 550 calories, 35 grams protein)

**Mango Coconut Shake**
- ½ cup coconut milk (Full fat)
- ½ cup mango nectar
- ½ cup mango chunks
- ¼ medium avocado
- 4 tablespoons protein powder
(Makes 1 – 12 ounce serving - 550 calories; 20 grams of protein)

**Blueberry Banana Smoothie**
- 1 cup milk or unsweetened soymilk
- 1 cup plain yogurt
- 1 cup blueberries
- ½ banana
- 1 cup spinach
- 4 tablespoons protein powder
- 1 tablespoon neutral flavored oil such as avocado or canola oil
(Makes 2 - 12 ounces servings – Each serving has 300 calories, 21 grams of protein)

**Cucumber Melon Soother**
- 1 cup chopped melon (watermelon, honeydew or cantaloupe)
- ½ cup peeled, seeded and chopped cucumber
- ¼ - ½ cup coconut water or water to thin the mixture
(Makes 12 – 16 ounce serving – 72 calories)

**Nutrition Tip**

*Prepare and store food safely.*

- Do not cross contaminate – use separate cutting boards and knives for raw meat.
- Do not eat raw eggs.
- Do not defrost frozen foods on the counter.
- Keep refrigerated foods cold until right before they need to be served.
- Wash hands immediately after handling raw meat.
- Keep refrigerated meats < 41° F.
- Keep frozen foods at 0 ° F.
Use the blender.

Make homemade milkshakes or smoothies. Use supplement drinks or milk as the base. Add ingredients such as yogurt, ice cream, fruit, protein powder, and flavoring extracts.

Use the blender to make hard to eat foods easier to eat.

- Blend meats by adding meat or vegetable broth.
- Blend chunky protein rich soups like beef and vegetable or split pea.
- Even soft foods can be easier after 30-60 seconds in the blender. Blend macaroni and cheese, mashed potatoes, cooked beans, creamed vegetables, hot cereals, meatloaf, and shredded chicken or turkey in gravy.
- Add 1 TBSP of oil or nut butter for every 4–8 ounces of blended food to increase calorie content. Add protein powder, tofu or cooked ground meat to increase protein content.

Savory Blends

Avocado Chicken Soup

1 cup cream of chicken soup (homemade or store bought)
1 cup chicken broth or water
1 ripe avocado, mashed
½ cup spinach, finely chopped
1 tablespoon olive oil

Mix cream of chicken soup with chicken broth or water in a saucepan. Add all other ingredients and heat until warm. Blend until smooth.

(Makes 2 servings - Each serving has 280 calories, 8 grams protein)

Smooth Vegetable Beef Soup – No Blender Required

1 cup mashed potatoes
1 cup milk
1 cup beef or vegetable broth
1 tablespoon olive oil
4½ ounce jar of baby food carrots (strained)*
3½ ounce jar of baby food beef (strained)*
Salt, pepper to taste

Heat all ingredients in a pan. Stir until smooth.
* Cooked, pureed carrots and beef can replace baby food

(Makes 2 servings - Each serving has 300 calories, 18 grams protein)
Cauliflower Puree
5 cups (about 1 pound) fresh or frozen cauliflower
¼ cup milk or soy milk
2 tablespoons olive oil
3 tablespoons regular sour cream or non-dairy sour cream substitute
Dash of salt

Cook cauliflower in a microwave or steamer until soft. This should take about 8 minutes. Add all ingredients to the blender and puree until smooth. Try adding ½ teaspoon dried dill or parsley for flavor.
(Makes 2 servings – 1 cup each - Each serving has 180 calories, 8 grams protein)

Lentil and Carrot Stew
6 ounces of dry lentils
3 cups of water
4 medium carrots, peeled, quartered lengthwise, and cut into 1-inch pieces (2 ½ cups)
1 onion, diced
1 small stalk of washed, trimmed, and chopped celery (¼ cup)
3 bay leaves
1 teaspoon of salt (optional)
1 bunch of fresh cilantro or parsley, washed
1 tablespoon of olive oil

Sort the lentils and discard any stones or damaged lentils. Wash them in a sieve under cold water. Drain. Place the lentils in a large pot. Add the water, carrots, onions, celery, bay leaves, and salt. Remove the cilantro or parsley leaves from the stems and roots and set them aside as a garnish. Chop the stems and roots; add them to the pot. Bring the mixture to a boil over high heat. Reduce the heat to low, cover, and cook at a very gentle boil for 55 minutes. Let the mixture cool. Place it in a blender, add olive oil and process until smooth. Garnish with the cilantro or parsley leaves when serving. (Makes 4 servings - each serving has 200 calories, 10 grams of protein)

Butternut Squash Purée
1 large butternut squash
1 tablespoon of maple syrup
1 teaspoon of butter

Peel the squash and cut it into small pieces. Boil until tender. Mash the squash with a fork and mix it with the maple syrup and butter. (Makes 2 servings - each serving has 220 calories, 4 grams of protein)
**Medications**

There are some prescription medications that can help make chewing and swallowing easier. Talk to your doctor to see if any are appropriate for you.

**Nutrition After Treatment**

*What can I eat once radiation treatment is over?*

Most patients remain on a soft and liquid diet for 2–4 weeks after treatment, depending on side effects. Gradually as chewing solids becomes easier, exchange one small soft and liquid meal with a solid one. Monitor weight daily. Go slowly. Continue to follow a high calorie high protein diet for at least one month after treatment or if weight continues to drop. Once weight is stable and no chewing or swallowing problems remain, a cancer prevention diet for cancer survivors is recommended.

*What is the diet for cancer survivors?*

The American Institute for Cancer Research recommends the following diet and lifestyle guidelines:

1. **Choose a diet rich in a variety of plant-based foods.**

   This means you should base your diet on vegetables, fruits, beans, and grains. For most Americans it means decreasing the intake of meats and other animal food sources. It does not mean you need to stop eating meat and animal protein, but begin to think of it as a condiment to your plant based meal. Try to make your plate ¾ full with vegetables, whole grains, beans, and fruits. The rest fill with lean meats or plant based proteins like beans/legumes or tofu. A servings size of meat is 3 ounces of cooked meat; this is about the size of a woman’s palm. Choose whole grain such as whole wheat bread, wheat pasta, tortillas, and crackers. Try grains such as amaranth and quinoa. Eat beans three to four times a week and have a meatless meal at least one or two times each week.

2. **Eat plenty of vegetables and fruits.**

   The minimum goal is “5 a Day” which means 5 servings of fruits and/or vegetables a day. For better health, try for 8-10 servings a day. A serving size is small: ½ cup cooked or raw vegetable, 1 cup raw leafy vegetable, ½ cup cooked/fresh/canned/or frozen fruit, 1 small-medium piece of fruit, ¼ cup dried fruit, or ½ – ¾ cup 100% fruit juice. Choose a variety of vegetables and fruits. Fruits and vegetables contain a wide variety of nutrients in different amounts. Eat different kinds of fruits and vegetables because all provide your body with different cancer fighting components. Try to choose dark rich colors such as broccoli, kale, and spinach, winter squash, berries, sweet potatoes, and carrots.

3. **Maintain a healthy weight and be physically active.**

   Being overweight or obese can increase the risk of coronary heart disease, stroke, diabetes, high blood pressure, sleep apnea, and osteoarthritis as well as increasing the risk for certain kinds of cancer. Exercise also has anti-cancer benefits, especially for colon, and probably breast and lung.
4. **Drink alcohol only in moderation, if at all.**

Alcohol consumption is linked to increased risk of cancers of the mouth, pharynx, larynx, esophagus, and liver. For drinkers who smoke (in any form – cigarettes, pipe, cigar), the risk is much higher of developing cancer. Alcohol also probably increases the risk of cancers of the colon, rectum, and breast. Moderation means no more than one drink a day for women and no more than 2 drinks a day for men.

5. **Select foods low in fat and added sugars.**

High fat, high sugars diets over long periods of time may increase the risk of cancers of the lung, colon, rectum, breast, uterus, and prostate. It is most important to decrease the intake of saturated fat and trans fat or hydrogenated fats. Saturated fat is primarily found in foods from an animal such as red meats, skin of poultry, sausage, bacon, cheese, milk, butter, and eggs. It is also found in tropical oils such as coconut oil. Trans fats or hydrogenated fats are created in the process of hydrogenating oils. This means that a liquid oil has been hardened. Trans fats or hydrogenated fats affect are similar to saturated fat in how they affect the body. Examples of foods with trans fat are hard margarine, processed peanut butter, snack foods such as chips, cupcakes and other prepackaged snack foods. Check the food ingredient label for ‘partially hydrogenated vegetable oils’ and avoid these items. Choose trans fat free margarine and ‘natural’ peanut butter.

Use healthier fat sources such as olive oil, canola oil, nuts, seeds and avocados. Include good sources of omega-3 fatty acids like fatty fish (salmon, herring, trout and sardines), walnuts, and ground flaxseed. Use less oil when cooking. Baking, broiling and steaming are healthier cooking methods than frying.

Processed foods and foods high in sugar such as baked goods, desserts, candies, sodas, sugary drinks and products made with refined grains such as white bread, crackers and cereals are usually low in nutrients and fiber. Additionally, these foods promote weight gain and insulin resistance, which are associated with an increased risk of many chronic diseases, including diabetes, cardiovascular disease, and various types of cancer. As a cancer survivor it is important to limit or avoid these foods. Instead choose nutritious foods including vegetables, fruits, beans, nuts, seeds, whole grains and lean proteins such as poultry and fish.