

National Cancer Institute

Eating Hints

FOR CANCER PATIENTS

Before, During & After Treatment



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
National Institutes of Health



Acknowledgments

The National Cancer Institute would like to thank the numerous health professionals and patients nationwide who have assisted with and contributed to the development and review of this publication.

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About This Booklet

Your diet is an important part of your treatment for cancer. Eating the right kinds of foods before, during, and after your treatment can help you feel better and stay stronger.

The National Cancer Institute (NCI) has prepared this booklet to help you learn about your diet needs during treatment and to help you cope with side effects that may affect eating. It is designed for cancer patients and their families and other caregivers. The information here has been gathered from many sources and reflects the tried-and-true experience of cancer patients and the doctors, nurses, and dietitians who work with them.

How *Eating Hints for Cancer Patients* Is Organized

People experience many different emotions and physical reactions before, during, and after cancer treatment. Their desire for information varies greatly, too. Some may want to read everything they can get their hands on and talk to everyone they can. Others may not.

People also find that their need for information changes over time. Many of the patients we talked to said that in the beginning, general information about cancer and cancer treatment was the most helpful, or was all they could handle. Later, during their treatment, they found that they wanted more detailed information about their treatment and how it was going to affect them.

As a result, *Eating Hints for Cancer Patients* is organized in separate sections that relate to specific stages of cancer treatment. Each section can stand alone, so read as much or as little of the book as you need.

BEFORE TREATMENT BEGINS—This section briefly describes eating-related side effects that may occur with different types of cancer treatments. It also gives some tips to help you prepare physically and mentally for your treatment. See pages 4 to 7.

MANAGING EATING PROBLEMS DURING TREATMENT—This section provides more detailed information on specific eating-related side effects that people experience with their treatment. While many side effects are described, they may or may not happen to you. There is a wide variation in what patients experience. This section includes lots of suggestions for coping, as well as some recipes that patients and caregivers have found to be especially helpful. See pages 8 to 35.

AFTER TREATMENT ENDS—This section deals with the time period after your treatment ends. It gives you suggestions for getting back to a normal eating routine and provides tips for healthy eating. See pages 37 to 38.

Eating Hints for Cancer Patients also includes three other sections:

SPECIAL NOTES FOR CAREGIVERS, which gives tips and suggestions for family members and other caregivers. See page 36.

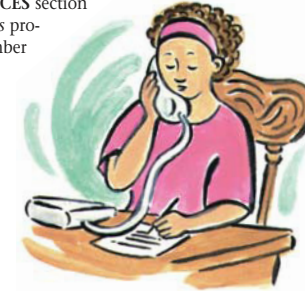
A **GLOSSARY**, which lists and explains words that relate to diet, nutrition, and other aspects of cancer care. Words appearing in **bold** throughout this booklet are defined in the Glossary. See pages 52 to 55.

RESOURCES, which includes information on other NCI publications about cancer, its treatment, and coping with the illness. We have also listed NCI's **Cancer Information Service (CIS)** at 1-800-4-CANCER. The CIS provides information about cancer, cancer treatment, research studies, and living with cancer to patients, their families, health professionals, and the public. In addition, this section includes information about nutrition publications published by NCI and the U.S. Departments of Agriculture and of Health and Human Services. See pages 56 to 58.

How To Use This Booklet

You may not want to read all of this booklet at one time. Flip through it and read the section that fits your situation now. Later, you can go back and read other sections as you need them. For example, many patients do not have eating-related side effects or these side effects may be mild. If you find that eating-related side effects are not an issue for you, then the “Before” and “After” sections of this booklet will be most useful. On the other hand, if you are bothered by one or more eating related side effects, the suggestions and recipes in “Managing Eating Problems During Treatment” may help you.

A **registered dietitian** is your best source of information about your diet. The information here will add to what the dietitian can tell you. Feel free to ask for help or advice when you need it. Writing down your questions in advance will help you make sure you get the information you need. Ask the dietitian to repeat or explain anything that is not clear. She or he can also explain anything in this book if you have a question and can give you more detailed information. Your doctor or nurse can also give you helpful advice and can refer you to a registered dietitian. If you cannot get a referral, call the American Dietetic Association's (ADA) toll-free nutrition hotline. The information specialist you talk to can help you find a registered dietitian in your area. The **RESOURCES** section at the end of *Eating Hints* provides the telephone number and other contact information for the ADA.



Before Treatment Begins

When your cancer was first diagnosed, your doctor talked to you about a treatment plan. This may have involved **surgery, radiation therapy, chemotherapy, hormone therapy, and biologic (immunotherapy)**, or some combination of those treatments.

All of these methods of treating cancer kill **cells**. In the process of killing the cancer cells, some healthy cells are also damaged. That is what causes the side effects of cancer treatment. Side effects that can affect your ability to eat include:

- loss of appetite
- changes in weight (either losing or gaining weight)
- sore mouth or throat
- dry mouth
- dental and gum problems
- changes in sense of taste or smell
- nausea/vomiting
- diarrhea
- lactose intolerance
- constipation
- fatigue and/or depression

You may or may not have any of these side effects. Many factors determine whether you will have any and how severe they will be. These factors include the type of cancer you have, the part of your body being treated, the type and length of treatment, and the dose of treatment. The good news is that if you do have side effects they can often be well-controlled. Most side effects also go away after treatment ends. Your doctor or nurse can tell you more about your chances of having side effects and what they might be like.

Nutrition Recommendations Can Be Different for Cancer Patients

Recommendations about food and eating for cancer patients can be very different from the usual suggestions for healthful eating. This can be confusing for many patients because these new suggestions may seem to be the opposite of what they've always heard. **Nutrition** recommendations usually stress eating lots of fruits, vegetables, and whole grain breads and cereals; including a moderate amount of meat and dairy products; and cutting back on fat, sugar, alcohol, and salt. More information and tips on these recommendations are covered in the section **AFTER TREATMENT ENDS**.

Nutrition recommendations for cancer patients may focus on helping you eat more higher **calorie** foods that emphasize **protein**. Recommendations might include eating or drinking more milk, cream, cheese, and cooked eggs. Other suggestions might include increasing your use of sauces and gravies, or changing your cooking methods to include more butter, margarine, or oil. Sometimes, nutrition recommendations for cancer patients suggest that you eat less of certain high-**fiber** foods because these foods can aggravate problems such as diarrhea or a sore mouth.

Nutrition recommendations for cancer patients are different because they are designed to help build up your strength and help you withstand the effects of your cancer and its treatment. When you are healthy, eating enough food to get the **nutrients** you need is usually not a problem. During cancer treatment, however, this can become a challenge, especially if you have side effects or simply don't feel well.

Preparing Yourself for Cancer Treatment

Until your treatment actually starts, you won't know exactly what, if any, side effects you may have or how you'll feel. One way to prepare is to think of your treatment as a time for you to concentrate on yourself and on getting well. Here are some other ways to get ready:

Think Positively

- ◆ Many people have few or no eating-related side effects. Even if you do, they may be mild, and most go away after cancer treatment ends. Also, there are new drugs now that can work well to control side effects.
- ◆ Having a positive attitude, talking out your feelings, becoming well-informed about your cancer and treatment, and planning ways to cope can all help reduce worry and anxiety, make you feel more in control, and help you keep your appetite.
- ◆ Give food a chance. Even if you do have eating problems, you'll have days when eating is a pleasure.

Eat a Healthy Diet

- ◆ A healthy diet is vital for a person's body to work its best. This is even more important for cancer patients.
- ◆ If you've been eating a healthy diet, you'll go into treatment with reserves to help keep up your strength, prevent body **tissue** from breaking down, rebuild tissue, and maintain your defenses against **infection**.
- ◆ People who eat well are better able to cope with side effects. You may even be able to handle higher doses of certain treatments. For example, we know that some cancer treatments are actually much more effective if the patient is well-nourished and getting enough calories and protein in his or her diet.

- ◆ Don't be afraid to try new foods. Some things you may never have liked before may taste good to you during treatment.

Plan Ahead

- ◆ Stock the pantry and freezer with favorite foods so that you won't need to shop as often. Include foods you know you can eat even when you are sick.
- ◆ Keep foods handy that need little or no preparation, for example, pudding, peanut butter, tuna fish, cheese, and eggs.
- ◆ Do some cooking in advance and freeze in meal-sized portions.
- ◆ Talk to friends or family members about helping with shopping and cooking. Or, ask a friend or family member to manage that job for you.
- ◆ Talk to a registered dietitian about your concerns and what you might expect. She or he can give you ideas and help you plan meals. Ask for help in developing a grocery list with foods that might help with potential side effects, such as constipation or nausea. Ask about what has worked for other patients.



Managing Eating Problems During Treatment

All the methods of treating cancer — surgery, radiation therapy, chemotherapy, hormone therapy, and biological therapy (immunotherapy) — are very powerful. Although these treatments target the fast-growing cancer cells in your body, healthy cells can also be damaged. Healthy cells that normally grow and divide rapidly, such as those in the mouth, **digestive tract**, and hair, are often affected by cancer treatments. The damage to healthy cells is what produces the unpleasant side effects that cause eating problems. *Table 1* (pages 40-41) shows some of the effects that can occur as a result of cancer treatment.

Side effects of cancer treatment vary from patient to patient. The part of the body being treated, the type and length of treatment, and the dose of treatment determine whether side effects will occur.

The good news is that not everyone has side effects during treatment, and most side effects go away when treatment ends. Side effects can also be well-controlled with new drugs. Talk to your doctor about possible side effects from your treatment and what can be done about them.

Some eating problems are caused by the treatment itself. Other times, patients may have trouble eating because they are upset, worried, or afraid. Losing your appetite and nausea are two normal responses to feeling nervous or fearful. Once you get into your treatment period and have a better sense of what to expect and how you will react, these anxiety-related eating problems should get better.

While you are in the hospital or undergoing treatment, talk to your doctor, nurse, or a registered dietitian. They can answer your questions and give you suggestions for specific meals, snacks, and foods, and for dealing with any eating problems you

may have. They can also help with dietary preferences that reflect various cultural and ethnic backgrounds. Feel free to talk to them if problems arise during your recovery as well. Ask them what has worked for other patients.

Remember, there aren't any hard and fast nutrition rules during cancer treatment. Some patients may continue to enjoy eating and have a normal appetite throughout most of their cancer treatment. Others may have days when they don't feel like eating at all; even the thought of food may make them feel sick. Here are some things to keep in mind:

- ◆ When you can eat, try to eat meals and snacks with sufficient protein and calories; they will help you keep up your strength, prevent body tissues from breaking down, and rebuild tissues that cancer treatment may harm.
- ◆ Many people find their appetite is better in the morning. Take advantage of this and eat more then. Consider having your main meal of the day early, and have liquid meal replacements later on if you don't feel so interested in eating (*see page 11 for more information on liquid meal replacements*).
- ◆ If you don't feel well and can eat only one or two things, stick with them until you are able to eat other foods. Try a liquid meal replacement for extra calories and protein.
- ◆ On those days when you can't eat at all, don't worry about it. Do what you can to make yourself feel better. Come back to eating as soon as you can, and let your doctor know if this problem doesn't get better within a couple of days.
- ◆ Try to drink plenty of **fluids**, especially on those days when you don't feel like eating. Water is essential to your body's proper functioning, so getting enough fluids will ensure that your body has the water it needs. For most adults, 6-8 cups of fluid a day are a good target. Try carrying a water bottle with you during the day. That may help you get into the habit of drinking plenty of fluids. *Tables 2 and 3* (pages 42 and 43) include many examples of fluids you can try.

Coping with Side Effects

This section offers practical hints for coping with treatment side effects that may affect your eating. These suggestions have helped other patients manage the same eating problems that you may have. Try all the ideas to find what works best for you. Share your needs and concerns with your family and friends, particularly those who prepare meals for you.

Let them know that you appreciate their support. Tell them about *Special Notes for Caregivers* (see page 36).

At the end of *Eating Hints*, on pages 51 and 59, you will find two items that may be especially useful as you go through treatment and use this booklet. The first, "Keeping Track of Side Effects," is a chart that you copy and use to monitor how you feel as you go through treatment. Use the second, "Notes," to jot down questions or concerns that you want to discuss with your health care team.

Loss of Appetite

Loss of appetite or poor appetite is one of the most common problems that occurs with cancer and its treatment. No one knows exactly what causes loss of appetite. It may be caused by the treatments or by the cancer itself. Emotions such as fear or depression can also take away a person's appetite. Ask a nurse or social worker about ways to lessen these emotional difficulties. Sometimes it is the side effects of treatment such as nausea, vomiting, or changes in food's taste or smell that make a person feel like not eating. If this is the cause, work with your doctor or nurse to get the side effects under better control.

For some people, loss of appetite happens for just a day or two; for others, it's an ongoing concern. Whatever the reason, here are some suggestions that might help:

- ◆ Try liquid or powdered meal replacements, such as "instant breakfast," during times when it is hard for you to eat food.
- ◆ Try frequent small meals throughout the day, rather than fewer big ones. It may be easier to eat more that way, and you won't get so full.

Commercial Products to Improve Nutrition

If you cannot get enough calories and protein from your diet, commercial meal replacements such as drinks, "shakes," and "instant breakfast" powders may help. Other products also can be added to any food or beverage. These supplements are high in protein and calories and have extra **vitamins** and **minerals**. They come in liquid, pudding, and powder forms. Most commercial meal replacements contain little or no **lactose**. However, it is important to check the label if you are sensitive to lactose. Your nurse or a registered dietitian can tell you which products are best for you and which ones are available in your area.

Most of these products need no refrigeration until you open them. That means you can carry them with you and have them whenever you feel hungry or thirsty. They are also good chilled as between-meal or bedtime snacks. You may want to take a can with you when you go for treatments or other times when you may have a long wait.

Many supermarkets and drugstores carry a variety of commercial liquid meal replacements. If you don't see these products on the shelf, ask the store manager if they can be ordered.

- ◆ Keep snacks within easy reach so you can have something whenever you feel like it. Cheese and crackers, muffins, ice cream, peanut butter, fruit, and pudding are good possibilities. Take a portable snack with you when you go out, such as peanut butter crackers or small boxes of raisins. You can find more snack ideas in *Table 4* on page 44.
- ◆ Even if you don't feel like eating solid foods, try to drink beverages during the day. Juice, soup, and other fluids like them can give you important calories and nutrients. Milk-based drinks also provide protein. *Tables 2 and 3* (pages 42 and 43) give lots of examples of fluids.

- ◆ If possible, try having something at bedtime. It won't affect your appetite for the next meal.
- ◆ Sometimes, changing the form of a food will make it more appetizing and help you eat better. For example, if eating whole, fresh fruit is a problem, try mixing fruit into a milkshake. Here's a sample:

Banana Milkshake

1 whole ripe banana, sliced
Vanilla extract (few drops)
1 cup milk

Place all ingredients into a blender.
Blend at high speed until smooth.



Yield: 1 serving

Serving size: Approximately 2 cups

If made with whole milk:

Calories per serving: 255 calories

Protein per serving: 9 grams

If made with 2% milk:

Calories per serving: 226 calories

Protein per serving: 9 grams

If made with skim milk:

Calories per serving: 190 calories

Protein per serving: 9 grams

- ◆ Try softer, cool, or frozen foods, such as yogurt, milkshakes, or popsicles.
- ◆ Take advantage of times when you do feel well, and have a larger meal then. Many people have a better appetite first thing in the morning, when they are well rested.
- ◆ During meals, sip only small amounts because drinking may make you feel full. If you want to have more than just a small amount to drink, have it 30-60 minutes before or after a meal.
- ◆ Make mealtimes as relaxed and pleasant as possible. Presenting food or meals in an attractive way may also help.
- ◆ If your doctor allows, have a small glass of wine or beer during a meal. It may help to stimulate your appetite.
- ◆ Regular exercise may help your appetite. Check with your doctor to see what options are open to you.

Weight Loss

Many cancer patients lose weight during their cancer treatment. This is partly due to the effects of the cancer itself on the body. Also, if you've lost your appetite and are eating less than usual because of your treatment or emotional worries, you may lose weight. Table 5: **How to Increase Calories** and Table 6: **How to Increase Protein** (pages 45 and 48) will give you some ideas for slowing weight loss or even gaining a few pounds. The tips under *Loss of Appetite* (page 10) may help, too.

On the next three pages are three simple recipes that show you how to increase the calories and protein of familiar foods:

Fortified Milk

- 1 quart whole milk
- 1 cup nonfat instant dry milk

Pour liquid milk into a deep bowl.
Add dry milk and beat slowly with beater until dry milk is dissolved (usually less than five minutes).
Refrigerate and serve cold.
Note: If it tastes too strong, start with 1/2 cup of dry milk powder and gradually work up to 1 cup.



Yield: 1 quart
Serving size: 1 cup
Calories per serving: 211 calories
Protein per serving: 14 grams

Use fortified milk when making:

- ◆ macaroni and cheese
- ◆ puddings and custards
- ◆ cream sauces for vegetables
- ◆ mashed potatoes
- ◆ cocoa
- ◆ French toast or pancake batter
- ◆ soup



High-Protein Milkshake

- 1 cup fortified milk
- 2 tbsp butterscotch, chocolate, or your favorite fruit syrup or sauce
- 1/2 cup ice cream
- 1/2 tsp vanilla extract

Put all ingredients in a blender.
Blend at low speed for 10 seconds.

Yield: 1 serving
Serving size: Approximately 1-1/2 cups
Calories per serving: 425 calories
Protein per serving: 17 grams

Instant Dry Milk as a Protein Powder

For extra protein in dishes, consider adding a little nonfat instant dry milk to scrambled eggs, soup, cereal, sauces, and gravies.

Peanut Butter Snack Spread

1 tbsp nonfat instant dry milk
1 tbsp honey
1 tsp water
5 tbsp smooth peanut butter
1 tsp vanilla extract

Combine dry milk, water, and vanilla, stirring to moisten.

Add honey and peanut butter, stirring slowly until liquid blends with peanut butter.

Spread on crackers.

Mixture also can be formed into balls, chilled, and eaten as candy.

Keeps well in refrigerator but is difficult to spread when cold.

Yield: 6 tbsp

Serving size: 3 tbsp

Calories per serving: 279 calories

Protein per serving: 11 grams



Weight Gain

Some patients find their weight does not change during treatment. They may even gain weight. This is particularly true for breast, prostate, and ovarian cancer patients taking certain medications or who are on hormone therapy or chemotherapy.

*It is important **not** to go on a diet right away if you notice weight gain.* Instead, tell your doctor so you can find out what may be causing this change. Sometimes, weight gain happens because certain anticancer drugs can cause your body to hold on to excess fluid. This condition is called **edema**. The weight comes from the extra water. If this is the case, your doctor may ask you to talk with a registered dietitian for guidelines on limiting the amount of salt you eat. This is important because salt causes your body to hold extra water. Your doctor may also want to prescribe a **diuretic**. This is a medication that causes your body to get rid of excess fluid.

Breast cancer patients with a primary diagnosis of cancer may be different. Over half of them may actually gain weight rather than lose during treatment. Because of this, many of the recommendations for breast cancer patients do emphasize a lower fat, reduced calorie diet similar to those provided to patients after cancer treatment has been completed (see page 37).

Weight gain may also be the result of increased appetite and eating extra food and calories. If this is the case and you want to stop gaining weight, here are some tips that can help. Talk to a registered dietitian for more guidance:

- ◆ Emphasize fruits, vegetables, and breads and cereals.
- ◆ Choose lean meats (lean beef or pork trimmed of fat, chicken without skin) and low-fat dairy products (skim or 1% milk, light yogurt).
- ◆ Cut back on added butter, mayonnaise, sweets, and other extras.
- ◆ Choose low-fat and low-calorie cooking methods (broiling, steaming).

- ◆ Avoid eating high-calorie snacks between meals.
- ◆ If you feel up to it, increase the amount of exercise you get.

Sore Mouth or Throat

Mouth sores, tender gums, and a sore throat or esophagus often result from radiation therapy, chemotherapy, or infection. If you have a sore mouth or gums, see your doctor to be sure the soreness is a treatment side effect and not an unrelated dental problem. The doctor may be able to give you medicine that will control mouth and throat pain. Your dentist also can give you tips for the care of your mouth.

Certain foods will irritate an already tender mouth and make chewing and swallowing difficult. By carefully choosing the foods you eat and by taking good care of your mouth, teeth, and gums, you can usually make eating easier. Here are some suggestions that may help:

- ◆ Try soft foods that are easy to chew and swallow, such as:
 - milkshakes
 - bananas, applesauce, and other soft fruits
 - peach, pear, and apricot nectars
 - watermelon
 - cottage cheese, yogurt
 - mashed potatoes, noodles
 - macaroni and cheese
 - custards, puddings, and gelatin
 - scrambled eggs
 - oatmeal or other cooked cereals
 - pureed or mashed vegetables, such as peas and carrots
 - pureed meats

Here's a simple blender recipe that's easy on a sore mouth:

Fruit and Cream

- 1 cup whole milk
- 1 cup vanilla ice cream or frozen yogurt
- 1 cup canned fruit (heavy syrup), including juice (peaches, apricots, pears)
- Almond or vanilla extract to taste

Blend ingredients and chill well before serving.

Yield: 2 servings

Serving size: 1-1/2 cups

If made with ice cream:

Calories per serving: 302 calories

Protein per serving: 7 grams

If made with frozen yogurt:

Calories per serving: 268 calories

Protein per serving: 9 grams



- ◆ Avoid foods or liquids that can irritate your mouth. These include:
 - oranges, grapefruits, lemons, or other citrus fruit or juice
 - tomato sauces or juice
 - spicy or salty foods
 - raw vegetables, granola, toast, crackers, or other rough, coarse, or dry foods
 - commercial mouthwashes that contain alcohol
- ◆ Cook foods until they are soft and tender.
- ◆ Cut foods into small pieces.
- ◆ Use a blender or food processor to puree your food.
- ◆ Mix food with butter, margarine, thin gravy, or sauce to make it easier to swallow.
- ◆ Use a straw to drink liquids.
- ◆ Use a smaller-than-usual spoon, such as a baby spoon.
- ◆ Try foods cold or at room temperature. Hot foods can irritate a tender mouth and throat.
- ◆ Try drinking warm bouillon or salty broth; it can soothe throat pain.
- ◆ Try sucking on ice chips.
- ◆ If swallowing is hard, tilting your head back or moving it forward may help.
- ◆ If your teeth and gums are sore, your dentist may be able to recommend a special product for cleaning your teeth.
- ◆ Rinse your mouth often with water to remove food and bacteria and to promote healing.
- ◆ Ask your doctor about anesthetic lozenges and sprays that can numb your mouth and throat long enough for you to eat meals.

Dry Mouth

Chemotherapy and radiation therapy in the head or neck area can reduce the flow of saliva and cause dry mouth. When this happens, foods are harder to chew and swallow. Dry mouth also can change the way foods taste. Some of the ideas for sore mouth and throat may help. The suggestions below also may help you deal with dry mouth.

- ◆ Have a sip of water every few minutes to help you swallow and talk more easily. Consider carrying a water bottle with you so you always have some handy.
- ◆ Try very sweet or tart foods and beverages, such as lemonade; these foods may help your mouth make more saliva. (*Do not try this if you also have a tender mouth or sore throat and the sweet or tart foods make it worse.*)
- ◆ Suck on hard candy or popsicles or chew gum. These can help make more saliva.
- ◆ Eat soft and pureed foods, which may be easier to swallow.
- ◆ Keep your lips moist with lip salves.
- ◆ Moisten food with sauces, gravies, and salad dressings to make it easier to swallow.
- ◆ If your dry mouth problem is severe, ask your doctor or dentist about products that coat, protect, and moisten your mouth and throat. These are sometimes called “artificial saliva.”



Dental and Gum Problems

Cancer and cancer treatment can cause tooth decay and other problems for your teeth and gums. For example, radiation to the mouth can affect your salivary glands, making your mouth dry and increasing your risk of cavities. Changes in eating habits also may add to the problem. Your doctor and dentist should work closely together to fix any problems with your teeth before you start treatment. If you eat often or eat a lot of sweets, you may need to brush your teeth more often. Brushing after each meal or snack is a good idea. Here are some other ideas for preventing dental problems:

- ◆ Be sure to let your doctor know about any dental problems you are having.
- ◆ Be sure to see your dentist regularly. Patients who are receiving treatment that affects the mouth — for example, radiation to the head and neck — may need to see the dentist more often than usual.
- ◆ Use a soft toothbrush. Ask your doctor, nurse, or dentist to suggest a special kind of toothbrush and/or toothpaste if your gums are very sensitive.
- ◆ Rinse your mouth with warm water when your gums and mouth are sore.
- ◆ If you are eating foods high in sugar or foods that stick to your teeth, be sure to brush or rinse your mouth afterward so that the sugar won't damage your teeth, or use sugar-free varieties. *(Sorbitol, a sugar substitute that is contained in many sugar-free foods, can cause diarrhea in many people. If diarrhea is a problem for you, check the labels of sugar-free foods before you buy them and limit your use of them.)*

Changed Sense of Taste or Smell

Your sense of taste or smell may change during your illness or treatment. Foods, especially meat or other high-protein foods, can begin to have a bitter or metallic taste. Many foods

will have less taste. Chemotherapy, radiation therapy, or the cancer itself may cause these problems. Dental problems also can change the way foods taste. For most people, changes in taste and smell go away when their treatment is finished.

There is no foolproof way to prevent changes to your sense of taste or smell because each person is affected differently by illness and treatments. However, the tips below should help if you have this problem. *(If you also have a sore mouth, sore gums, or a sore throat, talk to your doctor, nurse, or registered dietitian. They can suggest ways to help you without hurting the sore areas.)*

- ◆ Choose and prepare foods that look and smell good to you.
- ◆ If red meat, such as beef, tastes or smells strange, try chicken, turkey, eggs, dairy products, or mild-tasting fish instead.
- ◆ Help the flavor of meat, chicken, or fish by marinating it in sweet fruit juices, sweet wine, Italian dressing, or sweet-and-sour sauce.
- ◆ Try using small amounts of flavorful seasonings, such as basil, oregano, or rosemary.
- ◆ Try tart foods, such as oranges or lemonade, that may have more taste. A tart lemon custard might taste good and will also provide needed protein and calories. *(If you have a sore mouth or throat, tart or citrus foods might cause pain or discomfort.)*
- ◆ If smells bother you, try serving foods at room temperature, turning on a kitchen fan, covering foods when cooking, and cooking outdoors in good weather.
- ◆ Try using bacon, ham, or onion to add flavor to vegetables.
- ◆ Visit your dentist to rule out dental problems that may affect the taste or smell of food.
- ◆ Ask your dentist or doctor about special mouthwashes and good mouth care.

Nausea

Nausea, with or without vomiting, is a common side effect of surgery, chemotherapy, radiation therapy, and biological therapy. The disease itself, or other conditions unrelated to your cancer or treatment, may also cause nausea. Some people have nausea or vomiting right after treatment; others don't have it until two or three days after a treatment. Many people never experience nausea. For those who do, nausea often goes away once the treatment is completed. Also, there are now drugs that can effectively control this side effect. These medications, called **antiemetics**, are often given at the beginning of a chemotherapy session to prevent nausea.

Whatever the cause, nausea can keep you from getting enough food and needed nutrients. Here are some ideas that can help:

- ◆ Ask your doctor about antiemetics that might help you control nausea and vomiting.
- ◆ Try foods that are easy on your stomach, such as:
 - toast, crackers, and pretzels
 - yogurt
 - sherbet
 - angel food cake
 - cream of wheat, rice, or oatmeal
 - boiled potatoes, rice, or noodles
 - skinned chicken that is baked or broiled, not fried
 - canned peaches or other soft, bland fruits and vegetables
 - clear liquids
 - ice chips
 - carbonated drinks



- ◆ Avoid foods that:
 - are fatty, greasy, or fried
 - are very sweet, such as candy, cookies, or cake
 - are spicy or hot
 - have strong odors
- ◆ Eat small amounts, often and slowly. Eat before you get hungry, because hunger can make feelings of nausea stronger.
- ◆ If nausea makes certain foods unappealing, then eat more of the foods you find easier to handle.
- ◆ Avoid eating in a room that's stuffy, too warm, or has cooking odors that might disagree with you.
- ◆ Drink fewer liquids with meals. Drinking liquids can cause a full, bloated feeling.
- ◆ Slowly drink or sip liquids throughout the day. A straw may help.
- ◆ Have foods and drinks at room temperature or cooler; hot foods may add to nausea.
- ◆ Don't force yourself to eat favorite foods when you feel nauseated. This may cause a permanent dislike for those foods.
- ◆ Rest after meals, because activity may slow digestion. It's best to rest sitting up for about an hour after meals.
- ◆ If nausea is a problem in the morning, try eating dry toast or crackers before getting up.
- ◆ Wear loose-fitting clothes.
- ◆ If nausea occurs during radiation therapy or chemotherapy, avoid eating for 1 to 2 hours before treatment.
- ◆ Try to keep track of when your nausea occurs and what causes it (specific foods, events, surroundings). (see chart on page 51) If possible and if it helps, change your diet or schedule. Share the information with your doctor or nurse.

Vomiting

Vomiting may follow nausea and may be brought on by treatment, food odors, gas in the stomach or bowel, or motion. In some people, certain associations or surroundings, such as the hospital, may cause vomiting. As with nausea, some people have vomiting right after treatment, while others don't have it until a day or more after treatment.

If vomiting is severe or lasts for more than a day or two, contact your doctor. He or she may give you an **antiemetic** medication to control nausea and vomiting.

Very often, if you can control nausea, you can prevent vomiting. At times, though, you may not be able to prevent either. Relaxation exercises or meditation may help you. These usually involve deep rhythmic breathing and quiet concentration, and can be done almost anywhere. If vomiting does occur, try these suggestions to help prevent further episodes:

- ◆ Do not eat or drink anything until you have the vomiting under control.
- ◆ Once the vomiting is under control, try small amounts of clear liquids, such as water or bouillon. **Table 2** (page 42) gives you more examples of clear liquids. Begin with 1 teaspoonful every 10 minutes, gradually increasing the amount to 1 tablespoon every 20 minutes. Finally, try 2 tablespoons every 30 minutes.
- ◆ When you are able to keep down clear liquids, try a full-liquid diet or a **soft diet**. **Table 3** (page 43) gives examples of full-liquid foods. Continue taking small amounts as often as you can keep them down. If you feel okay, gradually work up to your regular diet. If you have a hard time digesting milk, you may want to try a soft diet instead of a full-liquid diet, because a full-liquid diet includes a lot of milk products. Ask a registered dietitian for information about a soft diet.

Diarrhea

Diarrhea may have several causes, including chemotherapy, radiation therapy to the abdomen, infection, food sensitivities, and emotional upset. Work with your doctor to identify the cause of your diarrhea so that it can be successfully treated.

During diarrhea, food passes quickly through the bowel before your body has a chance to absorb enough vitamins, minerals, and water. This may cause **dehydration**, which means that your body does not have enough water to work well. Long-term or severe diarrhea may cause problems, so contact your doctor if the diarrhea is severe or lasts for more than a couple of days. Here are some ideas for coping with diarrhea:

- ◆ Drink plenty of fluids to replenish what you lose with the diarrhea. **Tables 2 and 3** (pages 42 and 43) give examples of fluids to try.
- ◆ Eat small amounts of food throughout the day instead of three large meals.
- ◆ Eat plenty of foods and liquids that contain **sodium** and **potassium**, two important minerals that help your body work properly. These minerals are often lost during diarrhea. Good high-sodium liquids include bouillon or fat-free broth. Foods high in potassium that don't cause diarrhea include bananas, peach and apricot nectar, and boiled or mashed potatoes. Sports drinks contain both sodium and potassium and have easily absorbable forms of carbohydrates.
- ◆ Try these foods:
 - yogurt, cottage cheese
 - rice, noodles, or potatoes
 - farina or cream of wheat
 - eggs (cooked until the whites are solid; not fried)
 - smooth peanut butter
 - white bread
 - canned, peeled fruits and well-cooked vegetables
 - skinned chicken or turkey, lean beef, or fish (broiled or baked, not fried)

- ◆ Avoid:
 - greasy, fatty, or fried foods if they make your diarrhea worse
 - raw vegetables and the skins, seeds, and stringy fibers of unpeeled fruits
 - high-fiber vegetables, such as broccoli, corn, dried beans, cabbage, peas, and cauliflower
- ◆ Avoid very hot or cold food or beverages. Drink liquids that are at room temperature.
- ◆ Limit foods and drinks that contain caffeine, such as coffee, some sodas, and chocolate.
- ◆ If you have a sudden, short-term attack of diarrhea, try having nothing but clear liquids for the next 12 to 14 hours. (see chart on page 51) This lets your bowel rest and replaces the important fluids lost during the diarrhea. Make sure your doctor or nurse knows about this problem.
- ◆ Be careful when using milk and milk products. The lactose they contain can make diarrhea worse. Most people, though, can handle small amounts (about 1-1/2 cups) of milk or milk products.



Special Diets for Special Needs

When you have special needs because of your cancer or treatment, your doctor or registered dietitian may prescribe a special diet. For example, a soft diet may be best if your mouth, throat, esophagus, or stomach is sore. Or, if your treatment makes it difficult for you to digest dairy products, you may need to follow a low-lactose diet. Other special diets include a clear-liquid diet, a full-liquid diet, and a fiber-restricted diet.

Some special diets are well balanced and can be followed for long periods of time. Others, however, should be followed for only a few days because they may not provide enough nutrients for the long term. If you think you need a special diet, talk with your doctor and a registered dietitian. Together, you can work out a plan. You also should work with your doctor and dietitian if you are already on a special diet for a disease such as diabetes, kidney, or heart disease.

Lactose Intolerance

Lactose intolerance means that your body can't digest or absorb the milk sugar called lactose. Milk, other milk-based dairy products (such as cheese and ice cream), and foods to which milk has been added (such as pudding) may contain lactose.

Lactose intolerance may occur after treatment with some antibiotics, with radiation to the stomach or with any treatment that affects the digestive tract. The part of your intestines that digests lactose may not work properly during treatment. For some people, the symptoms of lactose intolerance (gas, cramps, diarrhea) disappear a few weeks or months after the treatments end or when the intestine heals. For others, a permanent change in eating habits may be needed.

If you have this problem, your doctor may advise you to follow a diet that is low in foods that contain lactose. Talk to a registered dietitian to get advice and specific tips about how to

follow a low-lactose diet. Your supermarket should carry milk and other products that have been modified to reduce or eliminate the lactose. You can also make your own low-lactose or lactose free foods. Here's a simple recipe for a lactose-free pudding:

Lactose-Free Double Chocolate Pudding

2 squares baking chocolate (1 oz each)
1 cup nondairy creamer, soy formula or lactose-free milk
1 tbsp cornstarch
1/4 cup granulated sugar
1 tsp vanilla extract

Melt chocolate in small pan or on foil.
Measure cornstarch and sugar into saucepan.
Add part of the liquid and stir until cornstarch dissolves.
Add the remainder of the liquid.
Cook over medium heat until warm.
Stir in chocolate until mixture is thick and comes to a boil.
Remove from heat.
Blend in vanilla and cool.

Yield: 2 servings
Serving size: 3/4 cup
Calories per serving: 382 calories
Protein per serving: 1 gram



Constipation

Some anticancer drugs and other drugs, such as pain medications, may cause constipation. This problem also can occur if your diet lacks enough fluid or fiber, or if you've been in bed for a long time. Here are some suggestions for preventing and treating constipation:

- ◆ Drink plenty of liquids — at least eight 8-ounce glasses every day. This will help to keep your stools soft. Another way to think about fluids is to try to drink at least 1/2 oz. per pound of your body weight.
- ◆ Have a hot drink about one-half hour before your usual time for a bowel movement.
- ◆ Check with your doctor to see if you can increase the fiber in your diet (there are certain types of cancer for which a high-fiber diet is not recommended). If you can, try foods such as whole-grain breads and cereals, dried fruits, wheat bran, wheat germ; fresh fruits and vegetables; dried beans and peas. Eat the skin on potatoes. Make sure you also drink plenty of fluids to help the fiber work.

See the next page for an easy recipe that might help relieve constipation:

- ◆ Get some exercise every day. Talk to your doctors or a physical therapist about the amount and type of exercise that's right for you.

If these suggestions don't work, ask your doctor about medicine to ease constipation. *Be sure to check with your doctor before taking any laxatives or stool softeners.*

Apple/Prune Sauce

1/3 cup unprocessed bran
1/3 cup applesauce
1/3 cup mashed stewed prunes

Blend all ingredients and store in refrigerator.

Take 1-2 tablespoons of this mixture before bedtime, then drink 8 oz. of water.

Note: Make sure you drink the water, or else it will not work to relieve constipation.

Yield: 16 servings

Serving size: 1 tbsp

Calories per serving: 10 calories



Fatigue and Depression

All the methods of treating cancer treatment are powerful. Treatment may go on for weeks or months. It may even cause more illness or discomfort than the initial disease. Many patients say they feel exhausted and depressed, and unable to concentrate. Fatigue during cancer treatment can be related to a number of causes: not eating, inactivity, low blood counts, depression, poor sleep, and side effects of medicine. It is important for you to raise the issue with your health care team if you are having fatigue. Together, you can decide what is causing the problem, since many of the causes can be treated.

Fatigue and depression aren't eating problems in and of themselves, but they can affect your interest in food and your ability to shop and prepare healthy meals. Here are some suggestions that may help:

- ◆ Talk about your feelings and your fears. Being open about your emotions can make them seem more manageable. Consider talking with your nurse or social worker, who can help you find ways to lessen your worries and fears.
- ◆ Become familiar with your treatment, possible side effects, and ways of coping. Being knowledgeable and acting on that knowledge will help you feel more in control. Don't be afraid to talk with your doctor and ask questions.
- ◆ Make sure you get enough rest:
 - take several naps or rest breaks during the day, rather than one long rest
 - plan your day to include rest breaks
 - make rest time special with a good book in a comfortable chair or a favorite video with a friend
 - try easier or shorter versions of your usual activities; don't push yourself to do more than you can manage.
- ◆ Save your favorite foods for times that aren't associated with treatment sessions. That way, they won't be linked to an uncomfortable or distressing event.
- ◆ Take short walks or get regular exercise, if possible. Some people find this helps to lessen their fatigue and raise their spirits.

Preventing Food-Borne Illness

Cancer patients undergoing treatment can develop a weakened immune system because most anticancer drugs decrease the body's ability to make white blood cells, the cells that fight infection. That's why cancer patients should be especially careful to avoid infections and food-borne illnesses. Here are some tips to help you prevent food-borne illness:

- Wash all raw fruits and vegetables well. If it can't be well washed (as with raspberries), avoid it. Scrub rough surfaces, like the skin of melons, prior to cutting.
- Carefully wash your hands and food preparation surfaces (knives, cutting boards) before and after preparing food, especially after handling raw meat.
- Thaw meat in the refrigerator, not on the kitchen counter.
- Be sure to cook meat and eggs thoroughly.
- Avoid raw shellfish and use only pasteurized or processed ciders and juices and pasteurized milk and cheese.

The Food and Drug Administration has published a booklet that includes these and other tips for preventing food-borne illness. See the **RESOURCES** section for ordering information.

Extra Vitamins and Minerals — Will They Help?

Many cancer patients want to know whether vitamins, minerals, or other dietary supplements (such as phytochemicals) will help "build them up" or help fight their cancer. We know that patients who eat well during cancer treatment are better able to cope with their disease and any side

effects of treatment. *However, there is no scientific evidence that dietary supplements or herbal remedies can cure cancer or stop it from coming back.*

The NCI strongly urges you to depend on traditional, healthy foods for vitamins, minerals, and other nutrients. Talk to your doctor, nurse, registered dietitian, or a pharmacist before taking any vitamin or mineral supplements. Too much of some vitamins or minerals can be just as dangerous as too little. Large doses of some vitamins may even stop your cancer treatment from working the way it should. To avoid problems, don't take these products on your own. Follow your doctor's guidance.

What About Alternative Therapies?

You may hear or read about many different kinds of treatments people have tried to cure their disease. A therapy is called complementary when it is used in addition to conventional treatments; it is often called alternative when it is used instead of conventional treatment. A number of medical centers are evaluating the scientific aspects of complementary and alternative therapies and developing studies to test them. Many of these treatments have not been thoroughly studied, and we have no proof that they work or that they are safe. Other treatments have been studied, and we know they don't help or are harmful. It is important to talk with your doctor or nurse if you are considering trying any of these treatments, because some therapies may interfere with your standard treatment or may be harmful when used with conventional treatment. He or she can talk to you about any research that has been done and whether or not the treatment is safe or would interfere with your treatment. NCI strongly urges you to follow a treatment program prescribed by a doctor who uses accepted and proven methods or treatments. People who depend upon unconventional treatments alone may lose valuable treatment time and reduce their chances of controlling their cancer and getting well.

Special Notes for Caregivers

There is much that you can do to help your friend or loved one through the period of cancer treatment. Read over the tips and suggestions in “Managing Eating Problems During Cancer Treatment.” Many may be useful to you as you prepare food or meals for the patient.

In addition, here are some other things to remember that will help you cope:

- ◆ Be prepared for the patient’s tastes to change from day to day. Some days he or she won’t want favorite foods because they don’t taste good. Other times, he or she will be able to eat a dish that couldn’t be tolerated just the day before.
- ◆ Have food within easy reach at home. For example:
 - a snack-pack of applesauce or pudding and a spoon on the bedside table if the patient isn’t feeling well that day
 - a bag of cut-up carrots on the top shelf of the refrigerator
- ◆ Have meals and snacks ready so the patient can have something to eat when he or she is ready.
- ◆ Be prepared for times when the patient is able to eat only one or two foods for a few days in a row, until side effects diminish. Even if he or she can’t eat at all, still encourage plenty of fluids. *Tables 2 and 3* (pages 42 and 43) contain a variety of examples of fluids, and the section on “Coping with Side Effects” has lots of ideas for getting enough fluids.
- ◆ Talk to the patient about needs and concerns, and about ideas that might work best. A willingness to be flexible and supportive no matter what will help the patient feel in control of the situation.
- ◆ Try not to push the patient into eating and drinking. Encourage and support without being overwhelming.

After Cancer Treatment Ends

Most eating-related side effects associated with radiation, chemotherapy, or other treatments go away after cancer treatment ends. If you have had side effects, you should gradually begin to feel better, and your interest in food and mealtimes will come back. Sometimes, though, side effects persist, especially weight loss. If this happens to you, talk to your doctor and work out a plan together for how to address the problem.

After cancer treatment ends and you’re feeling better, you may want to think again about the traditional guidelines for healthy eating. Just as you wanted to go into treatment with all the reserves that such a diet could give you, you’ll want to do the best for yourself at this important time. There’s no current research that suggests that the foods you eat will prevent your cancer from recurring. But, we do know that eating right will help you regain your strength, rebuild tissue, and help you feel well. Here are the fundamentals:

- ◆ Focus on eating a variety of foods every day. No one food contains all the nutrients you need.
- ◆ Emphasize fruits and vegetables. Raw or cooked vegetables, fruits, and fruit juices provide the vitamins, minerals, and fiber you need.
- ◆ Emphasize breads and cereals, especially the whole grain varieties, such as whole wheat bread, oats, and brown rice. These foods are good sources of complex carbohydrates, vitamins and minerals, and fiber.
- ◆ Go easy on fat, salt, sugar, alcohol, and smoked or pickled foods. Choose low-fat milk products, and small portions (no more than 6-7 oz. a day) of lean meat and poultry without skin. Try lower-fat cooking methods, such as broiling, steaming, and poaching.

The U.S. Department of Agriculture and U.S. Department of Health and Human Services have published materials to help Americans learn how to choose a healthy diet. The **RESOURCES** section at the end of this booklet gives you information on how to get these materials. If you have any questions about guidelines for healthy eating, or whether such guidelines are right for you at this time, talk to a registered dietitian.

Some patients need to have treatments that last a long time. Others may have surgery to remove part of their stomach or intestines. These patients may have ongoing eating-related concerns. *If this is your situation, talk to your doctor and a registered dietitian. He or she can give you more information about the long-term issues that you will deal with and can help you develop an individual diet plan.*

Ways to Get Back Into Eating

Even if your treatment is over and you're feeling much better, you still may not feel completely back to your old self. Here are some ways to help you ease back to regular meals and mealtimes, without overdoing it:

- ◆ Make simple meals using familiar, easy-to-prepare recipes.
- ◆ Cook enough for two or three meals, then freeze the remainder for a later meal.
- ◆ Take advantage of the supermarket's salad bar and prepared foods to make cooking easier.
- ◆ Think about ways you used to make mealtime special and try them again.
- ◆ Don't be afraid to ask a friend or family member for help with cooking or shopping.



Table 1. How Cancer Treatments Can Affect Eating

Cancer Treatment	How It Can Affect Eating	What Sometimes Happens: Side Effects
Surgery	Increases the need for good nutrition. May slow digestion. May lessen the ability of the mouth, throat, and stomach to work properly. Adequate nutrition helps wound-healing and recovery.	Before surgery, a high-protein, high-calorie diet may be prescribed if a patient is underweight or weak. After surgery, some patients may not be able to eat normally at first. They may receive nutrients through a needle in their vein (such as in total parenteral nutrition), or through a tube in their nose or stomach.
Radiation Therapy	As it damages cancer cells, it also may affect healthy cells and healthy parts of the body.	<p>Treatment of head, neck, chest, or breast may cause:</p> <ul style="list-style-type: none"> • Dry mouth • Sore mouth • Sore throat • Difficulty swallowing (dysphagia) • Change in taste of food • Dental problems • Increased phlegm <p>Treatment of stomach or pelvis may cause:</p> <ul style="list-style-type: none"> • Nausea and vomiting • Diarrhea • Cramps, bloating
Chemotherapy	As it destroys cancer cells, it also may affect the digestive system and the desire or ability to eat.	<ul style="list-style-type: none"> • Nausea and vomiting • Loss of appetite • Diarrhea • Constipation • Sore mouth or throat • Weight gain or loss • Change in taste of food
Biological Therapy (Immunotherapy)	As it stimulates your immune system to fight cancer cells, it can affect the desire or ability to eat.	<ul style="list-style-type: none"> • Nausea and vomiting • Diarrhea • Sore mouth • Severe weight loss • Dry mouth • Change in taste of food • Muscle aches, fatigue, fever
Hormonal Therapy	Some types can increase appetite and change how the body handles fluids.	<ul style="list-style-type: none"> • Changes in appetite • Fluid retention

Table 2. Examples of Clear Liquids

Bouillon
Clear, fat-free broth
Clear carbonated beverages
Consomme
Cranberry/grape juice
Fruit-flavored drinks
Fruit ices without fruit pieces
Fruit ices without milk
Fruit punch
Honey
Jelly
Plain gelatin dessert
Popsicles
Sports drinks
Strained citrus juice
Strained lemonade/limeade
Strained vegetable broth
Tea
Water

Table 3. Examples of Full-Liquid Foods

All fruit juices and nectars
Bouillon, broth
Butter/cream/oil/margarine
Carbonated beverages
Cheese soup
Coffee/Tea
Fresh or frozen plain yogurt
Fruit drinks
Fruit punch
Honey/jelly/syrup
Ice milk
Liquid meal replacements
Milk, all types
Milkshakes
Pasteurized eggnog
Plain cornstarch pudding
Plain gelatin desserts
Potatoes pureed in soup
Refined/strained cooked cereal
Sherbet
Small amounts of strained meat in broth or gelatin
Smooth ice cream
Soft or baked custard
Strained lemonade/limeade
Strained or blenderized soup
Thin fruit purees
Tomato juice
Tomato puree for cream soup
Vegetable juice
Water

Table 4. Quick & Easy Snacks

Applesauce
Bread, muffins, and crackers
Buttered popcorn
Cakes and cookies made with whole grains, fruits, nuts,
wheat germ, or granola
Cereal
Cheese, hard or semisoft
Cheesecake
Chocolate milk
Crackers
Cream soups
Dips made with cheese, beans, or sour cream
Fruit (fresh, canned, dried)
Gelatin salads and desserts
Granola
Hard-boiled and deviled eggs
Ice cream frozen yogurt, popsicles
Juices
Milkshakes, “instant breakfast” drinks
Nuts
Peanut butter
Pita bread and hummus
Pizza
Puddings and custards
Sandwiches
Vegetables (raw or cooked)
Whole or 2% milk
Yogurt

Table 5. How to Increase Calories

- | | |
|-----------------------------|---|
| Butter and Margarine | <ul style="list-style-type: none">• Add to soups, mashed and baked potatoes, hot cereals, grits, rice, noodles, and cooked vegetables.• Stir into cream soups, sauces, and gravies.• Combine with herbs and seasonings, and spread on cooked meats, hamburgers, and fish and egg dishes.• Use melted butter or margarine as a dip for seafoods and raw vegetables, such as shrimp, scallops, crab, and lobster. |
| Whipped Cream | <ul style="list-style-type: none">• Use sweetened on hot chocolate, desserts, gelatin, puddings, fruits, pancakes, and waffles.• Fold unsweetened into mashed potatoes or vegetable purees. |
| Milk and Cream | <ul style="list-style-type: none">• Use in cream soups, sauces, egg dishes, batters, puddings, and custards.• Put on hot or cold cereal.• Mix with noodles, pasta, rice, and mashed potatoes.• Pour on chicken and fish while baking.• Use as a binder in hamburgers, meat-loaf, and croquettes.• Use whole milk instead of low-fat.• Use cream instead of milk in recipes.• Make hot chocolate with cream and add marshmallows. |
| Cheese | <ul style="list-style-type: none">• Melt on top of casseroles, potatoes, and vegetables.• Add to omelets.• Add to sandwiches. |

(continued on next page)

Table 5. How to Increase Calories *(continued)*

Cream Cheese	<ul style="list-style-type: none"> • Spread on breads, muffins, fruit slices, and crackers. • Add to vegetables. • Roll into balls and coat with chopped nuts, wheat germ, or granola.
Sour Cream	<ul style="list-style-type: none"> • Add to cream soups, baked potatoes, macaroni and cheese, vegetables, sauces, salad dressings, stews, baked meat, and fish. • Use as a topping for cakes, fruit, gelatin desserts, breads, and muffins. • Use as a dip for fresh fruits and vegetables. • For a good dessert, scoop it on fresh fruit, add brown sugar, and refrigerate until cold before eating.
Salad Dressings and Mayonnaise	<ul style="list-style-type: none"> • Use with sandwiches. • Combine with meat, fish, and egg or vegetable salads. • Use as a binder in croquettes. • Use in sauces and gelatin dishes.
Honey, Jam, and Sugar	<ul style="list-style-type: none"> • Add to bread, cereal, milk drinks, and fruit and yogurt desserts. • Use as a glaze for meats, such as chicken.
Granola	<ul style="list-style-type: none"> • Use in cookie, muffin, and bread batters. • Sprinkle on vegetables, yogurt, ice cream, pudding, custard, and fruit. • Layer with fruits and bake. • Mix with dry fruits and nuts for a snack. • Substitute for bread or rice in pudding recipes.

**Dried Fruits
(raisins, prunes,
apricots, dates, figs)**

- Try cooking dried fruits; serve for breakfast or as a dessert or snack.
- Add to muffins, cookies, breads, cakes, rice and grain dishes, cereals, puddings, and stuffings.
- Bake in pies and turnovers.
- Combine with cooked vegetables, such as carrots, sweet potatoes, yams, and acorn and butternut squash.
- Combine with nuts or granola for snacks.

Eggs

- Add chopped, hard-cooked eggs to salads and dressings, vegetables, casseroles, and creamed meats.
- Make a rich custard with eggs, milk, and sugar.
- Add extra hard-cooked yolks to deviled-egg filling and sandwich spread.
- Beat eggs into mashed potatoes, vegetable purees, and sauces. (Be sure to keep cooking these dishes after adding the eggs because raw eggs may contain harmful bacteria.)
- Add extra eggs or egg whites to custards, puddings, quiches, scrambled eggs, omelets, and to pancake and French toast batter before cooking.

Food Preparation

- Bread meat and vegetables.
- If tolerated, saute and fry foods when possible, because these methods add more calories than do baking or broiling.
- Add sauces or gravies.

(continued on next page)

Table 6. How to Increase Protein

Hard or Semisoft Cheese	<ul style="list-style-type: none"> Melt on sandwiches, bread, muffins, tortillas, hamburgers, hot dogs, other meats or fish, vegetables, eggs, desserts, stewed fruit, or pies. Grate and add to soups, sauces, casseroles, vegetable dishes, mashed potatoes, rice, noodles, or meatloaf.
Cottage Cheese/Ricotta Cheese	<ul style="list-style-type: none"> Mix with or use to stuff fruits and vegetables. Add to casseroles, spaghetti, noodles, and egg dishes, such as omelets, scrambled eggs, and souffles. Use in gelatin, pudding-type desserts, cheesecake, and pancake batter. Use to stuff crepes and pasta shells or manicotti.
Milk	<ul style="list-style-type: none"> Use milk instead of water in beverages and in cooking when possible. Use in preparing hot cereal, soups, cocoa, and pudding. Add cream sauces to vegetables and other dishes.
Nonfat Instant Dry Milk	<ul style="list-style-type: none"> Add to regular milk and milk drinks, such as pasteurized eggnog and milkshakes. Use in casseroles, meatloaf, breads, muffins, sauces, cream soups, mashed potatoes, puddings and custards, and milk-based desserts.
Commercial Products	<ul style="list-style-type: none"> See the section on “Commercial Products to Improve Nutrition” on page 10. Use “instant breakfast” powder in milk drinks and desserts. Mix with ice cream, milk, and fruit or flavorings for a high-protein milkshake.

(continued on next page)

Ice Cream, Yogurt, and Frozen Yogurt	<ul style="list-style-type: none"> Add to carbonated beverages, such as ginger ale or cola. Add to milk drinks, such as milkshakes. Add to cereal, fruit, gelatin desserts, and pies; blend or whip with soft or cooked fruits. Sandwich ice cream or frozen yogurt between cake slices, cookies, or graham crackers. Make breakfast drinks with fruit and bananas.
Eggs	<ul style="list-style-type: none"> Add chopped, hard-cooked eggs to salads and dressings, vegetables, casseroles, and creamed meats. Add extra eggs or egg whites to quiches and to pancake and French toast batter. Add extra egg whites to scrambled eggs and omelets. Make a rich custard with eggs, high-protein milk, and sugar. Add extra hard-cooked yolks to deviled-egg filling and sandwich spreads. Avoid raw eggs, which may contain harmful bacteria, because your treatment may make you susceptible to infection. Make sure all eggs you eat are well cooked or baked; avoid eggs that are undercooked.
Nuts, Seeds, and Wheat Germ	<ul style="list-style-type: none"> Add to casseroles, breads, muffins, pancakes, cookies, and waffles. Sprinkle on fruit, cereal, ice cream, yogurt, vegetables, salads, and toast as a crunchy topping; use in place of bread crumbs. Blend with parsley or spinach, herbs, and cream for a noodle, pasta, or vegetable sauce. Roll banana in chopped nuts.

(continued on next page)

Table 6. How to Increase Protein *(continued)*

- | | |
|----------------------|--|
| Peanut Butter | <ul style="list-style-type: none"> • Spread on sandwiches, toast, muffins, crackers, waffles, pancakes, and fruit slices. • Use as a dip for raw vegetables, such as carrots, cauliflower, and celery. • Blend with milk drinks and beverages. • Swirl through soft ice cream and yogurt. |
| Meat and Fish | <ul style="list-style-type: none"> • Add chopped, cooked meat or fish to vegetables, salads, casseroles, soups, sauces, and biscuit dough. • Use in omelets, souffles, quiches, sandwich fillings, and chicken and turkey stuffings. • Wrap in pie crust or biscuit dough as turnovers. • Add to stuffed baked potatoes. |
| Beans/Legumes | <ul style="list-style-type: none"> • Cook and use peas, legumes, beans, and tofu in soups or add to casseroles, pastas, and grain dishes that also contain cheese or meat. Mash cooked beans with cheese and milk. |

Keeping Track of Side Effects

Here's a form to help you keep track of eating-related side effects you may experience while you are undergoing cancer treatment. Feel free to copy this form and keep your own record. You can also share it with the health professional who is keeping track of side effects with you during this time.

Your Name: _____ **Week of:** _____

Write the type and date of your *last* treatment(s):

Type of Treatment: _____ **Date(s):** _____

Your Weight: _____ lbs. (measure once a week)

Below you will find a list of some eating-related side effects that cancer patients may experience. Check the box next to any side effect listed below that you experience in the week you have listed above. Next to each one you have checked, write a number from 1 to 3 indicating how severe you think each side effect was for you, where: 1 = mild; 2 = moderate; and 3 = severe.

Side Effect	M	T	W	Th	F	S	Sun
Appetite	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _
Sore/Dry Mouth	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _
Nausea	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _
Vomiting	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _
Constipation	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _
Diarrhea	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _
Fatigue	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _
Other: _____	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _	<input type="checkbox"/> _

Other Questions or Concerns (Use this space to write down questions or concerns you may want to talk about with your health care provider.)

Glossary

Adjuvant treatment: anticancer drugs or hormones given after surgery and/or radiation to help prevent the cancer from coming back.

Anorexia: Loss of appetite leading to severe weight loss.

Antiemetics: Drugs used to control nausea and vomiting.

Biological therapy (immunotherapy): Treatment to stimulate or restore the ability of the immune system to fight infection and disease. This treatment uses products from the body's natural defense system to destroy cancer cells.

Calorie: A measurement of the energy your body gets from food. Your body needs calories as "fuel" to perform all of its functions, such as breathing, circulating the blood, and physical activity. When you are sick, your body may need extra calories to fight fever or other problems.

Cells: The smallest units of tissues that make up any living thing. All cells have very specialized structures and functions and are able to reproduce.

Chemotherapy: The use of drugs to treat cancer.

Dehydration: When the body loses too much water to work well. Severe diarrhea or vomiting can cause dehydration.

Diet: The things you eat and drink, both liquids and solids.

Digestive tract: The parts of the body involved with eating, digesting, and excreting food. It includes the mouth, esophagus, stomach, and intestines.

Diuretics: Drugs that help the body get rid of water and salt.

Dysphagia: Difficulty swallowing.

Edema: The buildup of excess fluid within the tissues, such as in ankles, legs, arms, abdomen.

Fiber: The part of plant foods that the body cannot digest. It helps to move food waste out of the body more quickly. Fiber is found in fruits, vegetables, dry beans and peas, nuts and seeds, and breads and cereals. Fiber is not found in animal foods (meat, milk, eggs).

Fluids: Things to drink; liquids.

Hormone therapy: The use of drugs that block hormones in the treatment of breast, prostate, and other cancers. This therapy is used to prevent recurrence.

Immunotherapy: See "biological therapy."

Infection: When germs enter the body and produce disease, the disease is called an infection. Infections can occur in any part of the body. They cause a fever and other problems, depending on the site of the infection. When the body's natural defense system is strong, it can often fight the entering germs and prevent infection. Cancer treatment can weaken the natural defense system, but healthy eating can help make it stronger.

Lactose: Lactose is a sugar found in milk and milk products.

Lactose intolerance: The inability to easily digest lactose. This may be inherited, or may occur after some types of surgery. Surgery-related lactose intolerance may go away over time. Many stores carry special milk products that do not contain lactose.

Minerals: Nutrients needed by the body in small amounts to help it function properly and stay strong. Iron, calcium, potassium, and sodium are minerals.

Nutrient: Chemical compounds (water, protein, fat, carbohydrate, vitamins, minerals) that make up foods. These compounds are used in different ways by the body, i.e., to grow, function and stay alive.

Nutrition: A three-part process that gives the body the nutrients it needs. First, you eat or drink food. Second, the body breaks the food down into nutrients. Third, the nutrients travel through the bloodstream to different parts of the body where they are used as “fuel” and for many other purposes. To give your body proper nutrition, you have to eat and drink enough of the foods that contain key nutrients.

Phytochemicals: A class of helpful chemical substances found in plants. Many of these chemicals are thought to reduce your risk of cancer.

Potassium: A mineral the body needs for fluid balance and other essential functions.

Protein: One of the three nutrients that supply calories to the body (the other two are fats and carbohydrates). The protein we eat becomes a part of our muscle, bones, skin, and blood.

Radiation therapy: Treatment with high-energy x-rays to treat diseases such as cancer. External radiation therapy is the use of a machine to aim high-energy x-rays at the cancer. Internal radiation therapy is the placement of radioactive material inside the body as close as possible to the cancer.

Registered dietitian: A health care professional with extensive scientific background in food, nutrition, biochemistry, and physiology. This knowledge is applied to promoting health, preventing disease, and providing counseling and education.

Sodium: A mineral required by the body to keep body fluids in balance. Sodium is found in table salt. Too much sodium can cause you to retain water.

Soft diet: A diet consisting of bland, lower fat foods that you soften by cooking, mashing, puréeing or blending.

Surgery: An operation.

Tissue: Groups or layers of cells that perform a specific function.

Total parenteral nutrition: When a person receives needed nutrients through a needle in a vein.

Vitamins: Key nutrients, such as vitamins A, C, and E, that the body needs in small amounts to grow and stay strong.

Resources

Information about cancer is available from many sources, including the ones listed below. For additional information, you may wish to check the local library, bookstores, or support groups in your community. The health, science, or local events section of your local newspaper may list cancer support or information resources.

National Cancer Institute

CANCER INFORMATION SERVICE

Toll-free: 1-800-4-CANCER (1-800-422-6237)

TTY: 1-800-332-8615

Answers questions about cancer clinical trials and cancer-related services and helps users find information on the NCI Web site. Provides NCI printed materials.

Online: www.cancer.gov

Chat online: www.cancer.gov/help

American Dietetic Association (ADA)

The ADA is a professional society of registered dietitians and other professionals working in food- and nutrition-related fields. For a referral to a registered dietitian in your area and to listen to recorded food and nutrition messages, call the ADA's consumer nutrition hotline at 1-800-366-1655. Or, visit the ADA's home page on the World Wide Web at <http://www.eatright.org>.

Other Booklets

- ◆ Cancer patients, their families and friends, and others may find the following National Cancer Institute books useful. They are available free of charge by calling 1-800-4-CANCER or at www.cancer.gov/publications.
 - *Chemotherapy and You: A Guide to Self-Help During Treatment*
 - *Radiation Therapy and You: A Guide to Self-Help During Treatment*
 - *Helping Yourself During Chemotherapy: 4 Steps for Patients*

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- *Pain Control: A Guide for People with Cancer and Their Families (Order Spanish Version)*
- *Taking Time: Support for People with Cancer*
- *Taking Part in Clinical Trials: What Cancer Patients Need to Know*
- *If You Have Cancer: What You Should Know about Clinical Trials*

The National Cancer Institute and the U.S. Department of Agriculture and U.S. Department of Health and Human Services have published several materials on healthy eating. You may find them helpful after your treatment is over. They include:

- *Nutrition and Your Health: Dietary Guidelines for Americans*
U.S. Department of Agriculture and U.S. Department of Health and Human Services
- *The Food Guide Pyramid U.S. Department of Agriculture*

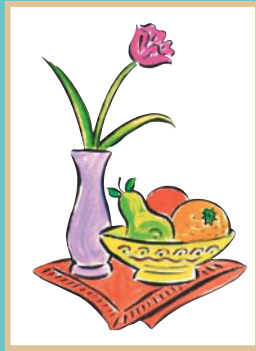
To get a copy of either publication or other USDA nutrition publications, write to:

U.S. Department of Agriculture
Human Nutrition Information Service
6505 Belcrest Road
Hyattsville, MD 20782

- ◆ The Food and Drug Administration (FDA) has published a booklet called "The Unwelcome Dinner Guest: Preventing Food-Borne Illness," which contains useful information and tips on symptoms of food-borne illness, safe food storage, safe cooking and storing temperatures, safe food handling, and other topics related to preventing food-borne illness. Cancer patients and others with weakened immune systems need to be careful about food-borne illness, so this booklet may be especially helpful. To get up to 10 free copies write the FDA Office of Consumer Affairs:

Food and Drug Administration
Office of Consumer Affairs
5600 Fishers Lane
Room 1675, HFE 88
Rockville, MD 20857

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NIH Publication No. 06-2079
Revised July 1997
Printed August 2006

