

# Good Nutrition During Cancer Treatment

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## Introduction

Healthy food choices are very important while you are receiving cancer treatment. You have two main nutrition goals during treatment:

- Choose foods and beverages that you can tolerate best.
- Aim for choices rich in healthy nutrients to give you the energy to recover, the nutrients to heal, and the calories to prevent unintended weight loss.

This is not always easy. Side effects may temporarily limit the variety of healthy foods you are able to eat. As a result, you may lose muscle mass and have unplanned weight loss.

**The Registered Dietitians Nutritionists (RDNs) are part of your Roswell health care team.** RDNs can:

- help you manage nutrition-related side effects
- improve your nutritional health before, during, and after your cancer treatment

If you would like to meet with a dietitian, ask your doctor or nurse to order nutrition consult for you.

## Aim for Healthy Foods Instead of Dietary Supplements

Research shows that eating colorful, whole foods that are rich in vitamins, minerals, and fiber is a better choice than taking dietary supplements. Why?

- Dietary supplements and herbals do not provide the full range of healthy nutrients that you can get from eating a variety of whole foods. Foods from plants provide unique combinations of healthy fibers, vitamins, minerals, and phytochemicals that cannot be duplicated in a supplement.
- Some dietary supplements, even those available over-the-counter, have the potential to interfere with cancer treatments.
- Supplements are often formulated with more than the daily recommended amount of a nutrient. This can be harmful, particularly if you are being treated for cancer. It is much harder to exceed the daily recommended amounts of a nutrient from eating foods.

Eating a variety of healthy foods is the safer choice.

## Recommendations for Healthy Food Choices Foods Instead of Dietary Supplements

If you feel well, and your doctor has not restricted your diet, focus on making wise food choices. Choose food and beverages that are in line with the current Dietary Guidelines for Americans.

The number of servings for each food group will vary. It is based on your individual energy needs.

The general ranges of **servings per day** for most adults (based on a 1600-2200 calorie diet) are:

- 2-3 cups of vegetables
- 1-2 cups of fruit
- 5-7 servings of grain-based foods (at least half should be whole grain)
- 2-3 servings of dairy foods (fat-free or low-fat milk, yogurt, cheese)
- 3-4 servings of protein foods (lean meat and poultry, seafood, eggs, nuts, legumes such as beans, peas, and lentils)
- 40-65 grams of fat (oils instead of solid fats)
- Foods low in sodium (salt)
- Water instead of sugary drinks



## Cancer Treatments and Nutrition-related Side Effects

There are a variety of cancer treatments. Each type of treatment may affect your nutrition needs or your ability to eat in a different way.

Note: We recommend that you **see your dentist for a checkup before starting chemotherapy or radiation**. Get a head start on your oral health and address any dental issues. If you have not seen a dentist but you have started treatment, talk to your medical team about the best time for a dental visit.

### Radiation

Side effects from radiation therapy depend upon the area of the body treated and the dose given

Most people will:

- feel fatigued
- have less of an appetite
- have skin changes in the area receiving radiation

In addition, you may have side effects as a result of part of the digestive tract being in the radiated area. Some side effects will last for a short time. Other side effects may begin later, or may last longer.

<b>Radiated Area</b>	<b>Short-term Side Effects</b>	<b>Long-term Side Effects</b>
<b>Head and Neck</b> Cancers of the brain, mouth, thyroid, or upper esophagus	<ul style="list-style-type: none"> <li>• Dry or irritated mouth, tongue, throat, or esophagus</li> <li>• Altered sense of taste and/or smell</li> <li>• Heartburn</li> <li>• Pain when you swallow</li> <li>• Thick saliva</li> <li>• Jaw stiffness</li> </ul>	<ul style="list-style-type: none"> <li>• Dry mouth</li> <li>• Tooth decay</li> <li>• Difficulty or pain with swallowing</li> <li>• Altered sense of taste/smell</li> <li>• Headaches</li> <li>• Jaw stiffness</li> </ul>
<b>Upper Body</b> Breast or lung cancer	<ul style="list-style-type: none"> <li>• Irritation of esophagus</li> <li>• Nausea, vomiting</li> <li>• Cough</li> <li>• Tenderness/swelling of irradiated breast</li> </ul>	<ul style="list-style-type: none"> <li>• Irritation of esophagus</li> <li>• Cough</li> <li>• Difficulty breathing</li> </ul>
<b>Abdomen</b> Cancers of the lower esophagus, stomach, gallbladder, liver, pancreas, or kidney	<ul style="list-style-type: none"> <li>• Irritation of the stomach</li> <li>• Nausea, vomiting</li> <li>• Diarrhea</li> </ul> Lactose intolerance*	<ul style="list-style-type: none"> <li>• Irritation of the stomach</li> <li>• Nausea, vomiting</li> <li>• Diarrhea</li> <li>• Lactose Intolerance*</li> </ul>
<b>Lower Body/Pelvis</b> Cancers of the colon, rectum, prostate, ovaries, uterus, cervix, or bladder	<ul style="list-style-type: none"> <li>• Diarrhea</li> <li>• Abdominal discomfort</li> <li>• Changes in urinary frequency, incontinence</li> </ul>	<ul style="list-style-type: none"> <li>• Diarrhea</li> <li>• Abdominal discomfort</li> <li>• Painful urination</li> <li>• Changes in urinary frequency</li> </ul>

\* Lactose intolerance is a digestive system sensitivity to the sugar found in milk. It can cause bloating, gas, and abdominal cramps. See page 14 for more information.

## Surgery

As a general rule, your body needs more calories, protein, and nutrients after surgery, to promote healing.

Whether you have nutrition-related side effects will depend upon:

- the site of the surgery
- whether any parts of your digestive system were removed or changed during the operation

<b>Area of the Body</b>	<b>Surgical Procedure</b>	<b>Possible Nutrition- related Side Effects</b>
<b>Head, neck, tongue, or jaw</b>	<ul style="list-style-type: none"> <li>• Removal of all or part of the affected area</li> </ul>	<ul style="list-style-type: none"> <li>• Difficulty chewing/swallowing</li> <li>• May need a feeding tube</li> </ul>
<b>Esophagus</b>	<ul style="list-style-type: none"> <li>• Removal of the affected area with possible reconstruction using muscle from the intestine</li> </ul>	<ul style="list-style-type: none"> <li>• Narrowing of the esophagus</li> <li>• Abdominal cramping</li> <li>• Nausea</li> <li>• May need a feeding tube</li> </ul>
<b>Stomach</b>	<ul style="list-style-type: none"> <li>• Partial or complete removal of the stomach</li> </ul>	<ul style="list-style-type: none"> <li>• Poor appetite</li> <li>• Feeling full quickly</li> <li>• Acid reflux</li> <li>• Nausea</li> <li>• Diarrhea</li> <li>• Possible iron, folate, or Vitamin B12 deficiency</li> </ul>
<b>Small Intestine</b>	<ul style="list-style-type: none"> <li>• Partial removal</li> <li>• Reconstruction or opening created outside the body (ileostomy)</li> </ul>	<ul style="list-style-type: none"> <li>• Abdominal discomfort</li> <li>• Poor absorption of nutrients</li> <li>• Diarrhea</li> <li>• Electrolyte &amp; water loss; dehydration</li> <li>• Vitamin B12 deficiency</li> </ul>
<b>Pancreas</b>	<ul style="list-style-type: none"> <li>• Partial or complete removal</li> <li>• Reconstruction</li> </ul>	<ul style="list-style-type: none"> <li>• Diabetes</li> <li>• Frequent, loose bowel movements</li> <li>• Indigestion</li> </ul>
<b>Large Intestine</b>	<ul style="list-style-type: none"> <li>• Partial or complete removal</li> <li>• Reconstruction or opening created outside the body (colostomy)</li> </ul>	<ul style="list-style-type: none"> <li>• Poor absorption of nutrients and water</li> <li>• Dehydration</li> <li>• Diarrhea</li> </ul>

## Chemotherapy

Chemotherapy is medication that kills cancer cells. It is called a systemic therapy because the chemo travels through the whole body. As a result, you may have side effects in different areas of your body.

General side effects may include fatigue, low blood counts, infection, and hair loss.

Common nutrition-related side effects from chemotherapy may include:

- irritation or inflammation of the mouth, tongue, or throat
- nausea/vomiting
- taste changes (odd taste or lack of taste)
- sensitivity to smells
- distaste or repulsion for particular foods
- acid reflux (stomach acids flows backwards - up into esophagus and causes heartburn)
- feeling full from a small amount of food (early satiety)
- appetite changes
- diarrhea
- constipation

**Deal with side effects in a timely manner to keep up your nutritional status and to prevent:**

- unplanned weight loss
- dehydration
- illness or hospitalization
- unplanned breaks in your treatment plan



Talk to your medical team if you have any of these issues.

Ask for a referral to a Roswell Registered Dietitian Nutritionist if you would like:

- help with creating a personal meal plan
- suggestions for managing side effects that are causing nutrition problems

## Immunotherapy

Immunotherapy activates your own immune system to fight cancer. Immunotherapy works differently than chemo, and the side effects are different as well. Possible side effects include:

- flu-like symptoms such as fever, chills, nausea, vomiting, fatigue, poor appetite
- bone and/or joint pain

To get the best nutrition possible while dealing with these symptoms, you may find it easier to have smaller meals and eat more frequently during the day (instead of 2 or 3 large meals a day).

## Hormone Therapy

May be prescribed to treat cancers of the breast, prostate, ovary, or endometrium. Possible side effects include:

- hot flashes
- nausea/vomiting
- bone loss (as a result of androgen deprivation therapy or aromatase therapy)
- fluid retention
- unplanned weight gain

A nutritious meal plan can help to manage these side effects. Discuss these side effects with your medical team and explore ways to increase your physical activity and maintain your bone health.

## Integrative Therapies

The standard medical therapies already described may be combined with integrative therapies such as acupuncture, massage, mindfulness, meditation, and yoga. These therapy options are available through our Survivorship Center. If you are considering any integrative therapy, it is important to have a discussion with your oncologist before you begin.

## Cancer and Weight Loss

**If you lose weight before or during your treatment, tell your medical team.**

Unintentional weight loss reflects the loss of muscle mass along with body fat. As a result, you may have:

- fatigue, lack of energy
- increased risk of infection
- delayed wound healing
- difficulty coping with the side effects of cancer treatment
- unplanned breaks or delays in your planned cancer treatment



**To maintain your weight and keep your treatment plan on track, you must:**

- manage your treatment-related side effects
- get any assistance needed with nutrition interventions

## Tips for Managing Nutrition-related Side Effects

### Loss of Appetite

During treatment, it's common to lose your appetite. Possible causes include:

- side effects of cancer treatment and/or the cancer itself
- physical difficulty with eating
- changes in the way your body digests food and nutrients
- pain
- anxiety and/or depression

**If you are not feeling particularly hungry, try these tips.**

- Eat smaller meals more often.
- Snack between meals and before going to bed.
- Do some light exercise 10-15 minutes before eating to help stimulate your appetite.
- Adjust the seasonings and flavorings in your food to please your tastes.
- Try high-calorie, high-protein foods and beverages to get more benefit from a smaller amount of food. Try peanut butter, cheese, cereal with whole milk, yogurt, or liquid nutrition drinks.
- Set an alert every few hours on your clock or phone to remind you to try to eat something – even if you do not feel hungry.
- Talk to your medical team about medications that may help stimulate your appetite.



### Feeling Full Quickly

- Chew your food slowly and thoroughly.
- Eat small, frequent meals 5-6 times a day instead of 3 big meals.
- Avoid carbonated beverages, chewing gum, and foods or beverages that give you gas.
- Avoid high-fat, greasy foods, and foods high in fiber. These foods can make you feel full for longer periods of time.



## Sore Mouth or Throat

### Food

- Experiment with different textures of food. Make them softer and easier to chew and swallow. Try mashed potatoes, cottage cheese, scrambled eggs, oatmeal, yogurt, custards, puddings, gelatin, bananas, or applesauce.
- Cook foods to a very soft and tender texture.
- Moisten foods by cooking with broth, gravies, sauces, or cream soups.
- Stews, soups and casseroles are moist meal options.
- Cut foods into very small pieces, or grind/puree them.
- Try cold foods that are not too thick such as sherbet or popsicles to soothe mouth soreness.
- Avoid foods that may be irritating such as:
  - coarse, dry, rough, or fibrous foods (like raw fruits/veggies)
  - coarse whole grain or bran products
  - acidic foods and beverages (such as orange juice, citrus fruits, or tomato sauce).

### Mouth Care

- Oral care is very important. It removes food, promotes healing and avoids infection. Use a soft toothbrush.
- Rinse your mouth several times a day with water or a homemade mixture of 1 cup warm water, ¼ teaspoon salt, and ¼ teaspoon baking soda.
- If you prefer a commercial mouthwash, make sure it is alcohol-free.
- Remove dentures (except during eating) if your gums are sore.
- Ask your medical team about numbing agents to relieve your mouth/throat pain long enough to eat and drink without pain.
- If you see small, white patches in your mouth, or if swallowing is difficult or painful, tell your medical team. This could be a sign of infection.

## Dry Mouth

Possible causes: radiation, chemotherapy, or medications. A reduced flow of saliva can change the way foods taste, make it difficult to eat, and, over time, harm your teeth.

### Tips

- Sip water or other cool beverages throughout the day. Aim for at least 8-12 cups (2-3 quarts) of liquid a day.
- If water does not taste good to you, try infusing your water with a wedge of fresh fruit. Or try fruit nectars, 100% fruit juice diluted with water, or electrolyte replacement beverages.



- If your mouth is not sore, tart foods and beverages may help your mouth make saliva.
- Suck on popsicles or ice chips.
- Cook with liquids, or moisten foods with broths, gravies, sauces, or milk to make them easier to chew/swallow.
- Ask your medical team about products to help coat and protect your mouth, such as saliva substitutes or mouth moisturizers.
- Try lip balms to prevent dry lips. Use a product that has no flavor or fragrance. Avoid products that contain essential oils, peppermint, citrus, or cinnamon.
- Rinse your mouth with an alcohol-free mouthwash or a homemade salt and baking soda mixture. (**Rinse Recipe:** 1 cup warm water + ¼ teaspoon salt + ¼ teaspoon baking soda; mix well. Swish in mouth for 15 seconds and spit out.)
- Use a cool mist humidifier in your room while sleeping.
- Do not smoke or use tobacco products.

## Taste Changes

Possible causes: chemotherapy, medications, dry mouth.

### **Tips to prevent or reduce symptoms of taste changes**

- Keep your mouth clean and moist using the **mouth rinse recipe above**. Rinse your mouth well before eating by swishing a small amount of mouth rinse in your mouth and spitting it out
- Use plastic utensils if you have a metallic taste in your mouth.
- Add some slices of citrus fruit (such as lemon or lime), or 1-2 ounces of fruit juice to make water taste better.
- Try some tart foods or beverages as these may taste better during treatment.
- Try cold or room temperature foods – they may be more appealing than warm foods when your taste perception is a bit off.
- If things taste too sweet, try adding something sour or bitter to improve its taste. (For example, try adding some Decaffeinated instant coffee granules to creamy oral liquid nutrition supplements. Or add a small amount of lemon juice to a fruit smoothie.)
  - Try adding different dried spices or fresh, washed herbs to change the flavor of your foods or beverages. Condiments, marinades or salad dressings can also help make the flavor of foods more appealing.

## Difficulty Swallowing

Possible causes: surgery or radiation to the head and neck.

If you have trouble swallowing, tell your medical team. You may be sent to a speech language pathologist who can evaluate your swallow. They can also recommend a diet consistency and/or swallowing techniques to keep you comfortable and safe.

### Tips to help with swallowing problems

- Drink liquids at room temperature rather than very hot or very cold temperatures.
- Thicken liquids to the consistency recommended by your speech pathologist.
- Eat small, frequent meals.
- Puree moist foods with a blender or food processor to make them easier swallow.
- If you require a pureed or liquid diet, ask for a consultation with a Registered Dietitian Nutritionist. They can offer suggestions to help meet your calorie, protein, and fiber needs.
- Tell your medical team if you have any episodes of choking or coughing while eating, especially if you develop a fever.

## Nausea

Possible causes: surgery, chemotherapy, radiation, and some medications.

Nausea can prevent you from eating enough and can lead to unintended weight loss as well as loss of muscle mass. Address nausea right away. (If you have nausea, you are not likely to eat foods with the most nutritious value.)

### Tips to prevent or lessen nausea

- Take anti-nausea medications as prescribed by your medical team.
- Eat small meals more often (5-6 times per day).
- Eat slowly, sitting upright. Remain upright for at least 1 hour after eating. If you need to recline, keep your head elevated.
- If beverage odors bother you, use a cup with a lid.
- Foods and beverages with ginger may help reduce nausea.
- Before and after you eat, rinse your mouth with water or a homemade salt/baking soda rinse (see page 19 for recipe).
- Chose cold or room temperature foods if you are sensitive to food odors: hot foods produce more odors.
- Avoid spicy, fried, high-fat, or high-fiber foods and rich desserts.

## Specific problems

- Nausea in the morning: Keep crackers at your bedside to eat before you get up.
- Nausea during chemotherapy or radiation treatments: Avoid eating 1-2 hours before your treatment. Try bland, soft foods on treatment days.
- Bad taste in your mouth: Suck on peppermint or lemon candy.
- Sensitive to food smells: Eat in a well ventilated room to avoid odors.
- If you don't eat or drink for 12 hours: Your blood sugar levels can drop and/or cause dehydration. Watch for signs of dehydration such as headache and increasing nausea. Sipping fluids that contain carbohydrates may prevent these symptoms.
- **If you are taking insulin or medications to control blood sugar levels:** Tell your medical team if you can't tolerate food or beverages for 24 hours or more. You may need to have your medications adjusted to avoid a hypoglycemia (low blood sugar) episode.

## Anticipatory Nausea

You may have nausea before a treatment session or at mealtime. Remembering nausea from a previous treatment session, or from a specific food or event, can cause you to anticipate nausea. There are things you can try to prevent or lessen this feeling.

- Practice meditation or relaxation techniques.
- Try to change the environment with pleasing conversation, music, or an activity. Doing different things at each session can help distract you from the routine experience of your treatment.
- Talk to your medical team about medication options that can help relieve anxiety and anticipatory nausea.

## Vomiting

- After an episode of vomiting, sit upright and bend forward.
- Do not eat or drink until the vomiting is under control.
- Try sipping on small amounts of clear liquids first, such as apple or cranberry juice, pear or peach nectar, broth (may be better tolerated if cool to warm instead of hot), flat ginger ale, or a popsicle.
- If you are able to keep clear liquids down, try eating small amounts of crackers, toast, cereal, or noodles in broth.
- Once you tolerate these foods, gradually reintroduce foods you normally tolerate well.
- **If you are vomiting for more than 24 hours contact your healthcare provider.**

## Diarrhea

Possible causes: surgery, chemotherapy, radiation to the abdomen, certain medications, infection, food sensitivity, and stress.

Diarrhea can lead to dehydration and nutrient loss. Always bring it to the attention of your medical team.

If you have diarrhea:

- Aim for a minimum of 8 cups of liquids daily. **You must drink fluids to prevent dehydration.**
- We recommend beverages such as water, diluted fruit juices, broth, and decaffeinated coffee or tea.
- Liquids at room temperature or warmed are best: avoid very cold or very hot beverages.
- Eat small, frequent meals to help your body absorb nutrients.
- Try low fiber foods (mashed potato, white rice, noodles, or low-fiber bread and cereals made from refined grains), soft cooked vegetables, canned or peeled soft fruits (banana, applesauce), skinless chicken and turkey, lean beef, cooked fish, and cooked eggs.
- Avoid gas-forming foods and beverages, such as beans/legumes, onions, carbonated beverages and chewing gum.
- Avoid greasy, fatty, or fried food as well as spicy foods.
- Avoid alcohol and caffeine.
- Avoid large portions of mild and dairy products.
- Avoid rich desserts.
- Avoid sugar-free candies and gums that contain sugar alcohols (ingredients such as sorbitol, mannitol or xylitol) or other sugar substitutes, which may have a laxative effect.
- If your diarrhea is oily or greasy in appearance, you may be having trouble digesting fats. Bring this to the attention of your medical team. They may want to prescribe digestive enzymes to relieve these symptoms.
- Take anti-diarrhea medications as prescribed by your doctor.



## Lactose Intolerance

If you were able to have milk and dairy products before you began chemotherapy or radiation treatment, but now you get gas, abdominal cramping, and diarrhea after you have them, you may have developed lactose intolerance.

It is not uncommon for cancer treatments to reduce your intestinal tract's ability to make the enzyme (lactase) that digests the carbohydrate in milk (lactose). This may be a temporary condition.

### Tips to reduce symptoms:

- Avoid large portions of milk and dairy products: some people with lactose intolerance can tolerate small amounts without difficulty.
- Milk and ice cream because they have the highest amount of lactose among dairy products. Aged cheeses, yogurts and non-dairy milk options such as soy or almond milk may be easier to digest.
- Lactaid® or other lactase enzymes in the form of pills, capsules, or liquid are available at pharmacies and grocery stores. You do not need a prescription.
- Without dairy products, you may need to consider calcium-fortified foods and beverages to help meet your calcium requirements. Ask your medical team or Registered Dietitian Nutritionist to help you decide if a calcium supplement is right for you.

## Constipation

Possible causes: certain cancer treatments, pain medications, dehydration or poor fluid intake, lack of fiber in your diet, and lack of physical activity.

If you are unable to pass stools and have nausea, vomiting, or abdominal pain or swelling, alert your medical team. This combination of symptoms may indicate something more serious, and your doctor needs to know about it.

If you have constipation:

- Drink at least 8 cups of fluid a day to help keep stools soft. Water, prune juice, warm juice, decaffeinated tea, warm broth, and warm lemonade are good choices.
- Increase your fiber intake by choosing more fruits, vegetables, whole grains, beans, legumes, and nuts.
- Consider a fiber supplement if eating a diet with more fiber does not improve your bowel regularity.
- Avoid inactivity: Moving around for a few minutes every hour during the day, and taking a walk every day can help with bowel motility. Talk to your medical team before starting a new exercise.



## Fluid Retention

Possible causes: certain medications (prednisone), nutritional deficiency, or a medical condition.

If you notice fluid retention (water weight), rapid weight gain, or both, tell your medical team.

**Do not reduce your fluid intake** without speaking to your doctor – this could result in dehydration. Instead, let your doctor determine the cause and advise you on what to do.

If you are retaining fluid:

- Continue to drink. (Only restrict your fluid intake if your doctor specifically tells you to do so.)
- Avoid processed foods that are high in sodium. (The sodium content of foods is listed on the labels. The average person should aim for less than 800 milligrams (mg) of sodium per meal, if eating 3 meals per day.)
- Be as physically active as possible.
- Talk to your doctor about medication to help reduce fluid retention.



## Weight Gain

Possible causes of weight gain during cancer treatment:

- fatigue
- decreased physical activity
- medication side effects
- eating more due to feelings of stress or depression
- chemotherapy-induced hormone changes that alter your metabolism or thyroid function
- fluid retention/swelling

If you are **unintentionally** gaining weight but you are not retaining fluid, try these tips.

- **Eat when you are truly hungry.** Before you reach for food, ask yourself “Am I really hungry?” This “mindful” approach to eating can help you avoid consuming extra calories for comfort, out of boredom, or for other emotional reasons. Make a list of activities you enjoy and refer to it when you find yourself wanting to eat simply because you are bored.

Talk to your medical team about the integrative care options available in our outpatient centers to help you cope with your feelings or stress in a healthier way.

- **Portions are important.** Get the measuring cups out and learn what a standard serving size looks like on your favorite plate, bowl, or cup.

Examples of what a standard serving size looks like:

- 3 ounces of meat = a deck of cards or size of your palm
- 1 ounce of cheese = a pair of dice
- 1 cup vegetables = a clenched fist
- ½ cup pasta = the front of your clenched fist
- 2 Tablespoons of hummus or nut butter = a golf ball

Avoid eating foods out of a package. Put food on a plate or in a bowl to help you visualize the proper serving size, and then put the rest of the package away.

**If you want to lose weight while receiving cancer treatment, talk to your doctor FIRST.** There are limits to how quickly you should lose weight and the total amount of weight that can be lost safely. This is especially true in the pre-treatment and active treatment phases for cancer patients.

Talk about your weight goals, and what you want to do to achieve your goals *before* you begin a weight loss plan.

Your medical team needs to evaluate the safety of your plan as it relates to your cancer diagnosis and treatment, and monitor you closely throughout the process.

## Nutrition and Cancer FAQs

### 1) Doesn't sugar cause cancer?

The simple answer is no – not directly.

The carbohydrates you take in are broken down into simple sugars as they travel through your intestines. This signals your pancreas to release insulin into the blood stream. With the help of insulin, the sugars move into your cells and provide them with energy.

Glucose, the form of sugar most commonly used by the body, is in **all** body cells. Your brain needs it to work properly. Even if you did not eat carbohydrates, your body would activate alternative processes to keep your blood glucose levels normal. This shows how important carbohydrates are to your body's function and health.



When it comes to cancer cell growth and other diseases, scientific evidence tells us it is not “sugar” itself, but the relationship between how much carbohydrate we consume, our levels of insulin, and growth factors that seems to make a difference.

Processed sugars add calories to foods and beverages without providing a feeling of fullness. Consuming foods and beverages rich in processed sugars can result in overeating and weight gain. Being overweight appears to increase the risk of developing chronic diseases, including heart disease, diabetes, and some types of cancer.

Evidence also shows that reducing your consumption of processed foods and avoiding sugary drinks can make you feel fuller longer, and help you to achieve and maintain a healthy weight. This is why a diet rich in fruits, vegetables, whole grains, and legumes – and drinking water instead of sugary drinks – is linked to a lower risk of developing some common cancers.

## **2) Does gluten cause cancer?**

The only known link between gluten consumption and the risk of developing cancer is for people diagnosed with celiac disease. If someone with celiac disease continues to consume gluten, it may, over time, increase their risk of developing cancer of the intestinal tract. If you eliminate all sources of gluten from your diet without having a medical reason to do so, it may be difficult to meet your nutrition goals for fiber, carbohydrate, and other important nutrients your body needs.

In fact, consumption of foods with high fiber content, including whole grain sources of gluten such as wheat or rye, is associated with a lower risk of most cancers.

## **3) Is there anything I can eat to increase my white blood cell count?**

- Unfortunately, there are no specific foods or individual nutrients known to increase white blood counts (WBC).
- Chemotherapy and radiation therapy can cause your WBC to drop. These white blood cells are made in the bone marrow and help your body to fight infection. Your WBC should recover after your treatment ends, but the rate of recovery varies from person to person.
- **Wash your hands thoroughly several times per day, and before preparing or eating food.** Wash all fruits and vegetables before eating them. Avoid raw meats, eggs, and unpasteurized dairy products.
- The booklet *Food Safety for Cancer Patients* is available in the Resource Center for Patients & Families (1st floor of the hospital, inside the cafeteria) and on the Food & Drug Administration’s website: [www.foodsafety.gov/risk/cancer](http://www.foodsafety.gov/risk/cancer) (This page also offers a FoodKeeper application that advises on the proper way to store foods and beverages.)

## **4) Should I buy only organic produce?**

There have not been any direct studies done on humans to show organic produce can prevent cancer or disease any more effectively than non-organic produce. And there is no consistent evidence to show

organic produce is any more nutritious. The advantage to organic produce is less pesticide residue; the disadvantage is that organic produce is generally more expensive.

If you want to purchase organic produce to avoid pesticides, you should consider buying the organic versions of the produce items listed on the Environmental Working Group's "Dirty Dozen" list. This annual list is based on the United States Department of Agriculture (USDA) Data Program report. The 2021 Dirty Dozen list includes:

**Fruits:** Strawberries, nectarines, apples, grapes, peaches, cherries, pears

**Vegetables:** Kale/collard/mustard greens, bell and hot peppers, spinach, celery, tomatoes

## 5) Should I take any dietary supplements or herbals?

Research shows colorful, whole foods rich in vitamins, minerals, and fiber are superior for cancer prevention when compared to dietary supplements and herbals. Here are some reasons why:

- Some dietary supplements, even those available over-the-counter, have the potential to interfere with cancer treatments. In some studies, specific supplements actually increased risk of certain cancers.
- Supplements are often made with nutrient levels that exceed the daily recommended amounts. This can be harmful – especially when you are receiving cancer treatment. It is far more difficult for you to exceed daily recommended amounts of nutrients from foods, so choosing a variety of healthy foods the safer choice.

**You should take a dietary supplement prescribed for you by your doctor if:**

- You are diagnosed with a deficiency of a specific vitamin or mineral. (Vitamin D is a common example.)
- You are unable to consume enough nutritious foods and/or beverages to meet your nutrition requirements.
- Your doctor is aware of the type and dose of the supplements and/or herbals you are taking.

**Taking dietary supplements or herbals without informing your medical team has the potential to interfere with your treatment or to interact with other medications you are taking. This could put your safety at risk.**

If you are interested in taking a supplement or herbal, discuss it with your medical team first to get the facts to help you make an informed decision.

Visit the National Institutes of Health's Office of Dietary Supplements for more information about dietary supplements. [www.ods.od.nih.gov](http://www.ods.od.nih.gov)

## Resources for Reliable Nutrition Information

### Nutrition in Cancer Prevention, Treatment, and Survivorship

- American Institute for Cancer Research (AICR): [www.aicr.org](http://www.aicr.org)
- NCI Nutrition in CancerCare – Patient Version: [www.cancer.gov/about-cancer/treatment/side-effects/appetite-loss/nutrition-pdq](http://www.cancer.gov/about-cancer/treatment/side-effects/appetite-loss/nutrition-pdq)
- Nutrition & Cancer: [www.nutrition.gov](http://www.nutrition.gov) Links to multiple government resources including *Food Safety for Cancer Patients* and *Eating Hints: Before, During, and After Cancer Treatment*
- American Cancer Society (ACS) Nutrition for People with Cancer: [www.cancer.org/treatment/survivorship-during-and-after-treatment/staying-active/nutrition.html](http://www.cancer.org/treatment/survivorship-during-and-after-treatment/staying-active/nutrition.html)

### Cancer Information

- [National Cancer Institute \(NCI\) - Home](#)
- [National Comprehensive Cancer Network \(NCCN\)](#) Patient versions of cancer treatment guidelines

### Healthy Eating Information

- Dept. of Agriculture (USDA)  
[Healthier Eating – My Plate Dietary Guidelines](#)  
[U.S. Dept of Agriculture \(USDA\) Nutrition](#)
- [United States Department of Health and Human Services \(HHS\) – Eat Healthy](#)
- Centers for Disease Control and Prevention (CDC) – Nutrition: [www.cdc.gov/nutrition](http://www.cdc.gov/nutrition)

**If you have any questions, please call the  
Roswell Park Dietitian Office  
716-845-2398**