

# Guide to Diet and Nutrition During Radiation Therapy



SERO

Care in action.™

When being treated for cancer with radiation therapy, it's important for patients to prioritize all aspects of their health, especially their diet and nutrition. However, maintaining a healthy diet and weight can be a challenge for many radiation patients.

The side effects of radiation, like nausea, loss of appetite, change in taste, and dry mouth, can make eating unappetizing or even physically challenging. Coupled with the increased nutritional needs of a body undergoing radiation, which may require extra calories to heal, it can be difficult for patients to meet their dietary needs during treatment.

If you or a loved one will soon begin radiation therapy, this guide will help you navigate your nutritional needs and challenges during treatment. **Coupled with support and advice from your SERO cancer care team, you can learn how to eat healthfully and maintain your well-being throughout radiation treatment.**



# CONTENTS

Why Nutrition Is Important During Radiation.....	01
Changing Your Nutritional Goals During Radiation Therapy.....	02
Radiation Side Effects and Your Diet.....	06
Basic Principles of Maintaining a Healthy Diet During Radiation.....	07
What to Eat During Radiation.....	10
What Not to Eat During Radiation.....	14
Prioritizing Hydration During Radiation.....	16
The New BRAT Diets.....	18
Supplements During Radiation Therapy.....	21
Food Preparation During Radiation Therapy.....	24
Adapting to a Change in Taste After Radiation.....	25
Tips for a Successful Radiation Therapy Diet.....	26
Recipes.....	27
About This Guide.....	31



# WHY NUTRITION IS IMPORTANT DURING RADIATION

Nutrition is an integral element of any healthy lifestyle, but it's especially important for those undergoing radiation treatment. Radiation therapy targets and destroys cancer cells. However, radiation can also affect the healthy cells surrounding your cancer.

As your body tries to promote the growth of healthy tissues affected by radiation, it needs lots of healthy calories, protein, and nutrients to promote growth and help your body heal.

“Radiation can be tiring and tough on the body,” says Shayna Komar, a Registered and Licensed Dietitian in Atlanta, Georgia. “What a person eats will help keep them strong enough to get the treatment they need.”

By maintaining your nutrition during radiation therapy, you give your body the tools it needs to heal from the inside out. A healthy diet during radiation can help you:

- **Heal faster.** Your body uses protein from food to heal and grow. Without enough protein, it will break down muscle instead, which can slow healing.
- **Fight infection.** Your body also uses protein to maintain a healthy immune system. Without enough protein and nutrients, you lower your body's ability to fight infections.
- **Feel better.** Your body feels better when it's meeting nutritional benchmarks, especially during radiation therapy.
- **Maintain energy and strength.** Radiation may affect your energy and strength, and you need carbohydrates and fats to rebuild that energy and strength.
- **Manage side effects.** A healthy diet helps your body avoid the side effects of radiation treatment.
- **Maintain weight.** Weight loss can slow down the effectiveness of treatment, so it's important to maintain your weight during radiation therapy.

# CHANGING YOUR NUTRITIONAL GOALS DURING RADIATION THERAPY

Your nutritional goals may change significantly during radiation therapy. Foods that you might typically avoid during a traditional diet are often recommended in more generous portions during radiation therapy. Other foods that you usually love may not sound appetizing during treatment.

“The best plan with nutrition during radiation is to have an eating plan that includes variety,” says Komar. “The more colorful foods a person eats, the more potential they would have to consume a variety of vitamins and minerals.”

It’s important to understand the nutritional needs of your body during radiation so that you can adapt your diet and maintain your health.



## CALORIES

During radiation, your body needs the energy to fight cancer and heal healthy tissues affected by radiation. That energy comes in the form of calories. Your doctor may recommend you increase your calorie intake in order to counter the metabolic stresses put on your body during treatment.

Adding calories to your diet means replacing low-calorie foods with calorie and protein-dense ingredients. Because your appetite may be impacted by radiation, doctors often recommend eating anything that sounds appetizing and provides your body with those all-important calories.



## PROTEIN

Foods with plenty of protein are key to your body's recovery during radiation. Protein is what your body uses to grow and repair healthy tissues, especially those affected by cancer and radiation.

Protein also keeps your immune system running smoothly. This is particularly important during radiation therapy, which might compromise your immune system and leave you more susceptible to infection. Getting enough protein can counter the effects of radiation on your immune system.

Like increasing calories, increasing your protein intake might mean incorporating more and larger servings of foods into your diet that you would typically limit. Foods like meats (poultry, lean red meats), fish, legumes (beans, peas, lentils, soy products), dairy, and nuts and nut butters all provide plenty of protein.

## CARBOHYDRATES & FIBER

Carbohydrates can be a great source of calories—and energy—for those undergoing radiation therapy. Carbohydrates also tend to be packed with fiber. Some patients undergoing radiation will experience gastrointestinal problems, such as constipation, which can be alleviated by increasing your intake of fiber.

Whole grains, fruits, and vegetables are the most healthful options for carbohydrates because they're also packed with other nutrients like vitamins and minerals. Other foods, like sugary treats, offer carbohydrates but few other nutrients.



## FATS

Like carbs, fats are an important source of energy for your body. Fats store energy and help transport vitamins through the blood.

However, not all fats are good for you. You should avoid overeating saturated fats, which can raise your cholesterol. Saturated fats are found in foods that come from animals, like meats, butter, and cheese. You should also avoid trans fats, which are found in snack foods.

Monounsaturated fats and polyunsaturated fats are better options for your cholesterol and heart health. These fats are found in vegetable oils and seafood.

## ANTIOXIDANTS

Radiation therapy is intended to damage and kill your cancer cells. However, antioxidants may interfere with this process by protecting your cancer cells. You should avoid antioxidant supplements, like zinc, vitamins A, C, and E, and selenium.

## PHYTONUTRIENTS

Phytonutrients, like lycopene and carotenoids, are thought to provide health benefits, including decreasing cancer cell production. You can find them in foods like soy, fruits, and vegetables, but you should most likely avoid phytonutrient supplements.

## HERBS

Integrative medicine is a broadening field of oncology that incorporates a variety of traditional practices into treatment. While herbs have been utilized by physicians for millennia, and many cancer drugs are actually derived from plants, combining herbs with your radiation therapy may actually be detrimental to your treatment.

If you are curious about supplementing your nutrition with herbs during radiation, you should bring your thoughts to your cancer care team. They will be able to advise you on how an herb may interact with your radiation.

# VITAMIN & MINERAL SUPPLEMENTS

While all vitamins and minerals are important during radiation therapy, most are found in plenty of quantities in the foods you eat and drink. “The general rule during radiation is ‘food first,’” says Komar. However, a patient’s doctor or oncology dietitian may recommend taking extra vitamins to meet their nutritional needs. Be sure to discuss any vitamins or supplements that you already take with your doctor since some may interact with your radiation therapy and should be avoided.

## Supplements recommended during radiation may include:

- **Vitamin D:** “Radiation therapy may lower vitamin D metabolism and make patients more at risk for a deficiency,” says Dr. Vanessa Lara, a Licensed Nutritionist based in Charlotte, North Carolina. “Vitamin D deficiency increases one’s susceptibility to intestinal inflammation, increases risk of infection, and decreases innate immunity.”
- **Calcium and Magnesium:** “Radiotherapy and chemotherapy may more rapidly deplete calcium and magnesium levels, requiring an increased intake of these nutrients in the diet or through supplementation to prevent deficiency,” says Dr. Lara.
- **Vitamin B12:** Vitamin B12 is important in several bodily functions, including nerve function, DNA and amino acid synthesis, and fatty acid metabolism. Some studies have also shown that vitamin B12 when combined with folate and vitamin B6 may actually decrease your risk of cancer.





# RADIATION SIDE EFFECTS AND YOUR DIET

While radiation treatments have become increasingly innovative, less invasive, and accurate, they do still cause side effects in most patients. These side effects vary in severity and type from patient to patient, but many of them do affect your appetite and ability to eat.

Side effects of radiation that may affect your diet include:

- **Nausea/vomiting**
- **Lack of appetite or taste**
- **Gas and bloating**
- **Mouth sores**
- **Difficulty swallowing**
- **Dehydration**
- **Weight loss**
- **Bloating and diarrhea**

We'll outline different approaches for alleviating and adapting to these symptoms below, but the basic principle is simple. Be willing to adapt your diet based on how you're feeling on any given day, and eat what sounds good.

If you experience any of the symptoms above or others during your radiation treatment, tell your doctor or cancer care team. In addition to adjusting your diet, they may be able to help you find other ways to address these side effects.



# BASIC PRINCIPLES OF MAINTAINING A HEALTHY DIET DURING RADIATION

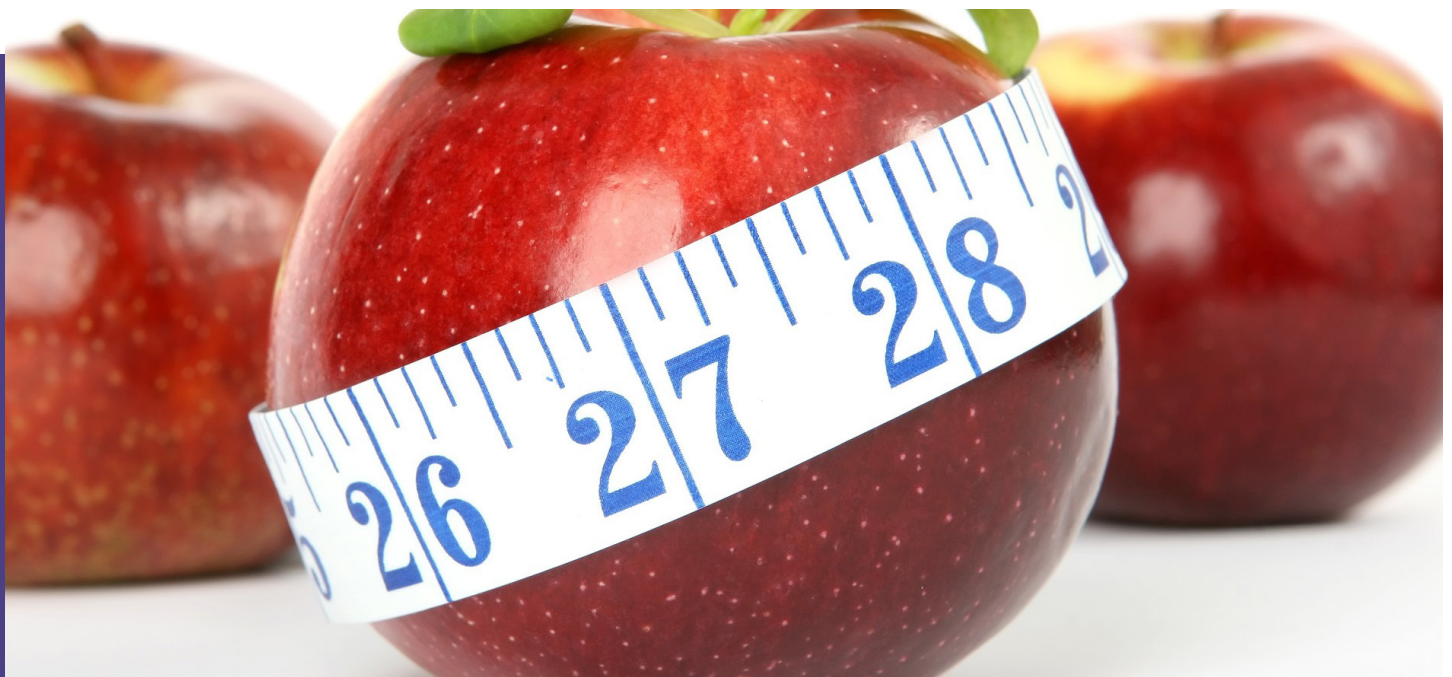
Every patient's experience with radiation therapy is different, including the way it impacts their nutritional needs, but there are a few basic principles that apply to most radiation patients.

## MEET YOUR CALORIC NEEDS

“Each patient needs their own unique amount of calories and protein based on their height, weight, past medical history, current cancer diagnosis, and treatment plan,” says Komar. However, there is a formula recommended by most oncology dietitians:

$$\text{Daily Minimum Calorie Consumption} = \text{Body Weight} \times 10$$

For example, Dr. Lara says, “a 150-pound male should try to eat between 1,705 to 2,386 calories [daily].” She adds that eating a variety of different foods minimizes the chances of nutrient deficiencies. Plus, eating a variety of foods prevents patients from becoming bored with their food choices, which is especially important when dealing with symptoms like nausea or a lack of appetite.



## EAT SMALL, FREQUENT MEALS

Many patients find that, during radiation, eating smaller, more frequent meals is easier. Rather than eating three large meals a day, patients may prefer to eat five to six small meals throughout the day. Doing so prevents the feeling of being too full, and it also helps avoid nausea.

## AVOID FOODS THAT ARE LOW IN CALORIES

Remember, calories are an important part of nutrition during radiation, and your appetite may decrease during treatment. Because of these factors, you should always prioritize calorie-rich foods.

Foods and drinks that are low in calories tend to fill you up quickly without the benefits provided by foods with more calories. Avoid foods with descriptions like “diet,” “low-fat,” and “non-fat.”

## ADD CALORIES WHEN POSSIBLE

During radiation, it may be difficult to meet your calorie needs. There are plenty of ways to add calories to your meals to make them as calorie-rich as possible, including dressings and sauces, nut butters, butter and margarine, and more. When preparing any dish or snack, ask yourself, “How can I add calories to this meal?”



## TAKE FOOD WITH YOU

Your appetite will likely be affected by your radiation therapy, so you want to be prepared to eat whenever hunger strikes. That might mean taking snacks with you when you leave home. Even if you're not hungry, eating snacks every few hours can help you avoid nausea and maintain your calorie intake. Snacks that are easy to take on the go are often rich in calories. Try foods like peanut butter crackers, dried fruit, and granola bars.

# INCORPORATE SOFT FOODS AND LIQUIDS INTO YOUR DIET

Depending on the area in which you receive radiation, the side effects can impact your ability to eat certain foods. Symptoms like mouth sores, mouth dryness, and difficulty swallowing make it challenging to eat solid, dry foods.

When experiencing these side effects, patients may benefit from incorporating softer foods or more liquids into their diets. Foods like smoothies, broths, and soups, and even milkshakes are easy to eat, plus they have the added benefit of being calorie-dense.

## LISTEN TO YOUR BODY

Ultimately, each body and the way it reacts to radiation is unique, and only you know what your body is feeling at any given moment. While your cancer care team can recommend best practices, the true best practices are those that feel best to you.

For some radiation patients, switching to a more bland diet is beneficial. For others, more flavorful dishes are satisfying. If you are craving a certain food or if a particular dish sounds unappetizing, listen to your instincts. Eat what sounds good when you can, and be willing to adjust your diet as necessary.



# WHAT TO EAT DURING RADIATION



There are no hard-and-fast rules regarding what to eat or not eat during radiation. No dish is totally off-limits, and no foods absolutely have to be incorporated into your diet.

However, there are general food groups that are beneficial to supporting you through radiation and a healthy recovery. Prioritizing the foods that are good for you and minimizing those that aren't will help you feel better, faster.



# PROTEINS

“While every food group is important, protein trumps them all during radiation!” says Komar. “When a patient has lost their appetite and the body doesn’t get enough protein, it might break down muscle for the fuel it needs. This can cause the body to have a longer recovery time from the treatment and lower resistance to infection.”

## **Foods that are rich in protein include:**

- Fish
- Poultry
- Lean red meat
- Nuts
- Greek yogurt
- Full-fat milk
- Cheese
- Eggs
- Nut butters
- Dried beans, peas, and lentils
- Soy foods
- Protein powders
- Shakes, such as Ensure, Boost, and Kate Farms

# FRUITS & VEGETABLES

Fruits and vegetables are an important source of carbohydrates, vitamins, and minerals for those undergoing radiation therapy. Most nutritionists recommend patients in radiation eat at least two and a half cups of vegetables and fruits daily.

## **Some fruits and vegetables that are beneficial during radiation include:**

- Kale
- Spinach
- Zucchini
- Cauliflower
- Broccoli
- Cabbage
- Red and yellow peppers
- Tomatoes
- Carrots
- Peas
- Pumpkin
- Turnips
- Citrus fruits (oranges, lemons, and grapefruits)
- Bananas
- Kiwi
- Avocados
- Figs

When preparing fruits and vegetables, be sure to scrub thoroughly with water and a brush before preparing to avoid contamination and infection. “Well-seasoned and thoroughly cooked vegetables are easier to digest and can be more palatable,” adds Dr. Lara.



# WHOLE GRAINS

Whole grains are another great source of carbohydrates, nutrients, and fiber. Compared to processed grains, such as white bread, the nutritional benefits of whole grains are much greater.

## **Whole grains to consider during radiation include:**

- Brown and wild rice
- Noodles
- Whole grain bread
- Whole grain pasta
- Whole grain crackers
- Oats
- Quinoa
- Millet
- Barley
- Corn

Remember, it's easy to combine beneficial ingredients across food groups. For example, Dr. Lara recommends, "Oatmeal with small fruits like berries are also a great way to include fiber and antioxidants in the diet."

# HIGH-CALORIE SNACKS

When undergoing radiation, calories are your top priority. If you don't have much of an appetite as a result of your radiation, it might be easiest to get those calories through rich, calorie-dense snacks. These are easy to incorporate into your diet, even on the go.

## **Some high-calorie snacks you might try include:**

- Peanut butter crackers
- Granola bars
- Dried fruits
- Yogurt
- Cereal and milk
- Cheese and crackers
- Muffins
- Cookies
- Pretzels
- Smoothies



# HIGH-CALORIE TOPPINGS

Incorporating more calories into your dishes is a great way to increase your daily calorie intake.

**There are plenty of ingredients to incorporate into your dishes that make them more calorie-rich (and appetizing), including:**

- Full-fat salad dressing
- Gravy
- Nut butters
- Chopped nuts
- Cheese
- Croutons
- Whipped cream
- Granola
- Butter, margarine, or oils





# WHAT NOT TO EAT DURING RADIATION

While no foods are necessarily off-limits during radiation, there are foods that should be avoided or eaten in moderation. Eating less of these foods can help patients avoid uncomfortable side effects or even help them heal faster.

## FATS

While fats are an important source of energy, monounsaturated and polyunsaturated fats should be eaten in small quantities. Saturated and trans fats should be largely avoided.

“Fats should be minimized and come from omega 3-rich foods, such as ground flaxseeds, chia seeds, nuts, avocados, and fatty fish,” says Dr. Lara. “Fatty fish can be consumed up to twice per week.”

**Fatty foods to avoid or eat in moderation during radiation include:**

- Processed meats
- Red meats, like lamb and beef
- Fried foods
- Processed snacks
- Ice cream
- Butter



# FOODS THAT CAUSE BLOATING

“One of the potential side effects of radiation therapy includes intestinal problems, such as bloating. Patients should watch out for foods and dietary habits that may cause bloating,” says Dr. Lara.

**Foods and habits to avoid if you experience these symptoms include:**

- Cruciferous vegetables (cabbage, cauliflower, broccoli, beans, and corn)
- Carbonated beverages (sparkling water, sodas, etc.)
- Dairy (cheese, milk, yogurt, butter)
- Drinking from straws
- Talking while eating

## ACIDIC & SPICY FOODS

As Dr. Lara mentioned above, radiation can irritate your intestines, and spicy and acidic foods may exacerbate that side effect. If you're having trouble swallowing or if you have painful mouth sores or dry mouth, spicy foods will also escalate those issues.

**Depending on your symptoms, acidic and spicy foods to avoid include:**

- Citrus fruits and juices
- Tomatoes
- Heavily peppered or spicy dishes like curry, Cajun spice mix, etc.

## DRY FOODS

If you experience difficulty swallowing or dry mouth as a result of your radiation, it may make certain dry, solid foods difficult to eat.

**If you experience these symptoms, you should avoid foods like:**

- Popcorn
- Chips
- Crackers
- Toast



# PRIORITIZING HYDRATION DURING RADIATION

## WHY IS HYDRATION IMPORTANT?

Water is vital to everyone, but especially those undergoing radiation therapy. “Good hydration helps flush toxins out of the body and reduce treatment side effects,” says Shayna Komar. “Staying hydrated also can help keep a patient from ER trips or going into the cancer center for IV hydration.”

**Side effects that can be alleviated or avoided through proper hydration (or, alternatively, exacerbated by poor hydration) include:**

- Nausea
- Weakness and fatigue
- Bowel changes and diarrhea
- Excessive urination
- Fever
- Vomiting
- Dry mouth
- Taste changes



Dr. Lara adds, “These symptoms increase the rate of water loss and require plenty of replenishment.” In other words, a lack of hydration is a cyclical process that builds on itself and its negative side effects. Staying hydrated will help avoid these negative side effects.

# HOW MUCH WATER DO RADIATION PATIENTS NEED DAILY?

“Patients should aim for three to four quarts of liquid every day,” says Dr. Lara. Other doctors and dietitians may suggest that most men need around 13 cups of fluids daily, while most women need about 9 cups of fluids each day.

## HOW TO INCREASE YOUR WATER INTAKE

“Cancer patients often need a gentle reminder to keep drinking throughout treatment,” says Komar. There are plenty of habits and even foods you can incorporate into your routine in order to get the water you need.

### **Komar and Dr. Lara recommend:**

- Keep a water bottle on hand
- Fill a pitcher with the amount of water you’ll need to drink throughout the day, and keep track of your progress
- Try other liquids, like juices, shakes, decaffeinated teas, electrolyte drinks, protein drinks, and smoothies
- Eat water-filled foods like watermelon, celery, yogurt, and soup
- Avoid caffeine when possible because it can increase the rate of dehydration
- Drink your liquids at room temperature



# THE NEW BRAT DIETS

The BRAT diet stands for bananas, rice, apples, and toast (sometimes it is referred to as BRATT and includes tea). This diet was developed to help radiation patients experiencing nausea, vomiting, and diarrhea alleviate those symptoms.

“In theory, the very restrictive food plan was recommended so a patient would eat only bland, lower fiber, easy-to-digest foods,” says Komar. “However, we do not recommend just these four foods anymore for management because it lacks quality nutrition.”

Instead, doctors may recommend the bland diet (an evolution of BRAT) or a low-residue diet plan.



# BLAND DIET PLAN

“Bland diets are generally easy to ingest and digest, preventing patients from losing too much weight,” explains Dr. Lara. The foods in this diet usually have mild flavor, are easy to chew, and are low in fat and fiber.

## Foods to Eat on a Bland Diet

- Milk, dairy products, and milk alternatives
- Canned vegetables or vegetables cooked until soft
- Potatoes, crackers, bread, pasta, and plain cereals
- Roasted poultry with no skin
- Smooth nut butters
- Olive oil and avocado oil
- Caffeine-free beverages

## Foods to Avoid on a Bland Diet

- Spicy or seasoned foods
- Red meat and fried foods
- Processed, sugary foods such as cookies, cake, candy, ice cream, and pastries
- Saturated fats such as butter and mayonnaise
- Poultry with skin
- High fiber foods (more than 5 grams per serving)
- Raw, steamed, and fried vegetables
- Alcohol
- Caffeine



# LOW-RESIDUE DIET PLAN

“Residue” refers to undigested food, like fiber, that forms a stool. By decreasing foods with fiber, the goal is to decrease the number and size of bowel movements.

“The LRD may be beneficial for symptom management during heightened or acute episodes of increased abdominal pain, infection, inflammation, and diarrhea,” explains Komar. “It consists of lower fiber, soft, mostly cooked foods that do not have spices added.”

## Foods to Eat on a Low-Residue Diet

- Refined grains, like white bread and crackers
- Cooked and cold cereals
- White rice
- Refined pasta
- Fruits and vegetables without seeds or peels
- Milk and dairy in moderation
- Lean meats (fish, poultry, etc.)
- Eggs
- Plain cake and cookies
- Butter and oils
- Most sauces and condiments

## Foods to Avoid on a Low-Residue Diet

- Seeds, nuts, and coconut
- Whole grain products
- Raw or dried fruits
- Beans and lentils
- Soy products
- Pickled foods
- Certain vegetables, like broccoli, squash, Brussels sprouts, cabbage, onions, and corn



# SUPPLEMENTS DURING RADIATION THERAPY

Most doctors and dietitians recommend a “food first” approach to nutrition. In other words, patients should try to get the nutrients they need from food, rather than from supplements.

However, the increased nutritional needs of cancer patients, coupled with side effects like nausea and a lack of appetite, can make it difficult for patients to receive the nutrients they need from food alone.

“Supplements can be a safe way to ensure patients undergoing radiation therapy get enough vitamins and minerals,” explains Dr. Lara. “However, [supplements] can also be harmful if taken improperly. It’s important to discuss supplements that are safe, supplements to avoid, and to check with your healthcare provider before taking any supplement.”

## **Choosing Your Supplements**

Unlike prescription drugs, companies are not required to prove that dietary supplements are safe before the supplement is marketed. Because of this lack of regulation, patients cannot ensure any supplement is natural or even safe, regardless of the label.

It’s important to discuss the over-the-counter supplements you’re taking with your doctor. He or she will be able to explain the ways in which these supplements may affect your radiation treatment.

Komar also recommends looking for the “USP Dietary Supplement Verification” label on supplement bottles. “This program can help enhance a manufacturer’s competitive position and brand recognition by promoting the manufacturer’s commitment to produce quality products for consumers,” she says.



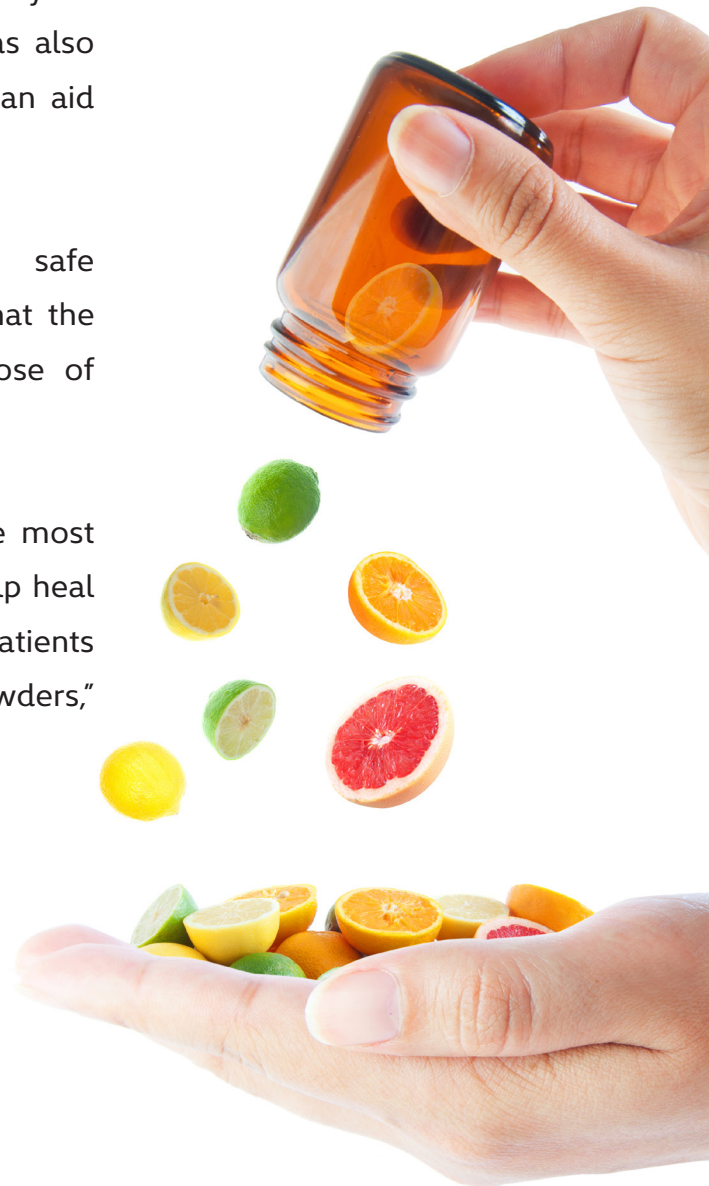


# SUPPLEMENTS THAT MAY FIT INTO YOUR RADIATION NUTRITION

- **Probiotics:** “Radiation therapy may alter the composition of the gut microbiota,” says Dr. Lara. Certain species of probiotics may reduce the side effects of radiation on the gut, like diarrhea.
- **Vitamin D3:** A vitamin D deficiency can negatively impact your immune system, so it’s important to maintain your levels of vitamin D during radiation. “This vitamin has also been shown to increase radiation sensitivity, which can aid in its effectiveness,” adds Dr. Lara.
- **Multivitamins:** While most multivitamins are safe supplements, Dr. Lara recommends patients check that the supplement does not exceed the recommended dose of antioxidants like vitamins A, C, E, or iron.
- **Protein Powders:** As discussed above, protein is the most important element of nutrition during radiation to help heal and build healthy tissues. “An easy way to ensure patients ingest and absorb enough protein is through protein powders,” says Dr. Lara.

## Options for protein powders and beverages include:

- Double-strength milk
- Soy protein
- Whey protein powder
- Hemp protein
- Pea protein isolate
- Nutritional beverages like Ensure or Boost



# SUPPLEMENTS TO AVOID RADIATION

- **Antioxidants:** “Many people take antioxidants thinking they will protect healthy tissues from the effects of radiation therapy. However, the high dose of antioxidants may minimize the therapy effectiveness and protect cancer cells,” explains Dr. Lara. Avoid supplements such as vitamins A, C, E, selenium, and CoQ10. Foods high in antioxidants are ok to eat during radiation.
- **Omega-3:** Omega-3 fatty acids offer many health benefits, but they are also blood thinners. Coupled with the risk of bleeding caused by radiation, omega-3 supplements should be avoided. Foods high in omega-3s can be eaten in moderation during radiation.
- **St. John’s Wort:** St. John’s Wort may increase the side effects of radiation.



# FOOD PREPARATION DURING RADIATION THERAPY

Cancer patients undergoing radiation therapy are immunocompromised, which means their immune system is not as strong as normal. This puts them at a higher risk for foodborne illnesses.

“Food poisoning can be dangerous because their body’s ability to fight pathogens is diminished, their risk of diarrhea and dehydration is increased, and their susceptibility to loss of appetite is higher,” Dr. Lara explains. “These can all lead to unwanted weight loss and painful symptoms.”

## TIPS FOR PREVENTING FOODBORNE ILLNESSES

It’s important for patients to take extra precautions when preparing their food while undergoing radiation therapy. When shopping for and preparing food, you should:

### **At the Grocery Store**

- Avoid bruised or damaged fruits
- Avoid damaged cans
- Do not buy foods from bulk bins

### **At Home**

- Properly store fresh produce
- Thoroughly wash or soak produce
- Cook food thoroughly, and avoid undercooked or raw meat, poultry, fish, and eggs
- Clean utensils and countertops before and after cooking
- Wash hands thoroughly before and after cooking
- Keep foods hot or cold, depending on their preparation
- Store leftovers immediately, and do not eat after three days

### **Eating Out**

- Minimize takeout
- Don’t eat at buffets, salad bars, or self-serve restaurants



# ADAPTING TO CHANGE IN TASTE AFTER RADIATION

While changes in your sense of taste are not as common with radiation as with other cancer treatments, if it's a side effect you experience, it can be both disconcerting and disappointing.

In some cases, the taste of certain foods—especially foods that are salty, sweet, or bitter—may taste different during or after treatment. Some foods may taste bland, others bitter or metallic. Sometimes all foods taste the same.

These changes in taste can affect your appetite and, therefore, contribute to weight loss. In order to avoid these side effects, nutritionists recommend:

- Experimenting with different foods, including new spices, herbs, and sauces
- Sucking on lemon drops, mints, or chewing mint-flavored gum to rid the mouth of lingering tastes
- Citrus fruits and yogurt may also help cleanse the palate
- Cold or frozen foods may taste better than warm or hot foods
- If you're experiencing a metallic taste, try using plastic utensils
- Marinate meats before cooking in salad dressings, sweet wines, or sauces
- If meat is unappetizing, try alternative sources of protein, like eggs or soy products
- To avoid bad tastes in your mouth, try rinsing your mouth with a salt and baking soda solution before you eat
- Brush your teeth and floss often to keep your mouth clean and healthy
- Zinc sulfates may help improve your sense of taste, but talk to your doctor before trying any supplements
- Your cancer care team may be able to recommend medications to help improve your sense of taste



# TIPS FOR A SUCCESSFUL RADIATION THERAPY DIET

While there are dozens of tips for successfully and healthfully navigating your nutrition during radiation, the only rule is to have no rules at all.

“I always say, ‘Do not approach radiation treatment with a strict food plan. Instead, listen to your body and take it one week at a time,’” says Komar. “I encourage patients to be very easy on themselves and listen to their body’s needs.”

As you begin your cancer care journey and when you encounter difficulties along the way, consider these suggestions so that you can adapt to your ever-changing, personal needs:

- Eat smaller meals more frequently
- Eat every few hours, rather than waiting until you’re hungry
- Chew your food slowly
- Before each meal, ask yourself, “What can I add to this meal to add calories?”
- Cook foods that smell good and sound appetizing
- Drink high-calorie beverages, like hot chocolate, smoothies, and fruit juice
- Make eating a positive experience by eating in a setting in which you are comfortable
- Marinate poultry and other bland foods to add a mild taste without overpowering flavors
- Avoid drinking during meals, but drink enough throughout the day
- Avoid eating your favorite foods when you feel nauseated because you may develop a dislike for them later
- Rest sitting up after meals for about an hour to allow proper digestion. Do not lay down for at least two hours after meals
- Try herbal teas, like ginger, peppermint, chamomile, lemon, licorice, and fennel, to soothe your stomach, minimize nausea, and stay hydrated
- Try new foods, which may appeal to you more during treatment
- Eat a variety of foods each day
- Limit highly processed foods and sugary beverages like soda
- Keep calorie-rich snacks on hand
- Eat your favorite foods at any time of day, regardless of mealtime
- Incorporate light exercise into your routine to build your appetite
- Expect days when you are too tired to cook by preparing extra food and freezing for later
- Utilize friends and caregivers who want to help you by asking them to prepare healthy dishes or share recipes

# RECIPES

## BREAKFAST: BERRY SMOOTHIE BOWL

### INGREDIENTS

- 1 medium, ripe banana, sliced
- 1 heaping cup frozen berries
- ½ c milk (dairy or plant-based)
- 1 scoop vanilla protein powder
- 2 T chia seeds
- Toppings of your choice
  - Granola
  - Nut butter
  - Extra fruit (dried or fresh)
  - Seeds and/or nuts
  - Honey

### DIRECTIONS

Blend ingredients (except toppings) in a blender until smooth. Serve immediately in a bowl and top with your toppings. Enjoy!



# LUNCH: EGG SALAD SANDWICH

## INGREDIENTS

- 4 eggs, hard boiled, cooled, peeled, and diced
- 1 avocado, mashed
- 4 pieces cooked bacon, chopped (can substitute ham or chicken)
- 1 stalk celery, finely diced
- 3 green onions, finely diced
- 1 T mayonnaise
- 1 T fresh lemon juice
- 1 t fresh dill, chopped
- 1 t garlic powder
- 1 t dijon mustard
- Whole wheat bread, whole wheat wrap, or crackers

## DIRECTIONS

In a medium bowl, add the mashed avocado, mayonnaise, dill, garlic powder, and mustard, and stir to combine. Add eggs, bacon, celery, and onion. Mix well. Season with salt and pepper. Serve on sandwich bread, with crackers, or as a wrap.



# DINNER: SWEET POTATO CHILI

## INGREDIENTS

- 1 T olive oil
- 1 small yellow onion, chopped
- 1 bell pepper, chopped
- 1 lb ground turkey
- 1 T chili powder
- 1 t oregano
- 1 ½ t cumin
- 1 t garlic powder
- ½ t salt
- 3 sweet potatoes, peeled and cubed
- 3 c chicken broth
- 1 can kidney beans
- Optional toppings
  - Sour cream
  - Creme fraiche
  - Cheese, like shredded cheddar



## DIRECTIONS

In a large pot, heat olive oil over medium heat. Add onion and bell pepper and cook until onion is translucent, about five minutes. Add turkey, chili powder, cumin, garlic powder, and salt. Break up turkey with a large spoon, and cook until turkey is browned. Add sweet potatoes and broth to pot and bring to a boil. Reduce to a simmer, cover, and cook until sweet potatoes are tender, about 15 minutes. Serve in a bowl and garnish with your favorite toppings.





# SNACK: FRUIT & NUT BARS

## INGREDIENTS

- 1 ½ c nuts, chopped (try pecans, almonds, cashews, or pistachios)
- ¼ c dried cherries or cranberries
- ¼ c dried apricots, figs, or dates, chopped
- ⅓ c chocolate chips
- 2 T ground flaxseeds
- 2 T nut butter, like almond or peanut
- ¼ c honey
- 1 T coconut oil
- ½ c seeds, like pumpkin, sunflower or sesame

## DIRECTIONS

Preheat oven to 325 degrees F and line baking dish (8x8) with parchment paper. If necessary, pulse nuts in food processor to chop. In medium bowl, combine nuts, dried fruit, and flaxseeds. In small pot over low heat, combine nut butter, coconut oil, and honey. Cook, stirring frequently, until ingredients combine. Add nut butter mixture to nut mixture and stir until combined.

In prepared dish, pour batter and spread until smooth. Top with seeds. Bake at 325 for 15 minutes. Remove and let cool. Cut into bars, and store in refrigerator.



# ABOUT THIS GUIDE

At SERO, we're experts in radiation oncology, but we understand that successfully treating cancer requires a full-body approach. We ensure every patient has the tools to navigate the many aspects of their cancer care, including the knowledge to maintain their diet and nutrition before, during, and after radiation therapy.

We tapped regional experts in oncology nutrition to help us create an adaptive guide for those undergoing radiation, as well as caretakers and family members who want to help. The result is a comprehensive nutritional guide designed to help you or your loved ones feel better and heal faster during treatment.

Every patient is different and so are their nutritional needs. This guide is intended to be a starting point for understanding your nutritional needs and preferences during treatment, but please talk with your SERO cancer care team to identify the best diet for you.

## ABOUT SERO

With more than 30 board-certified physicians practicing oncology out of 20 hospitals and cancer treatment centers around Charlotte, SERO is the region's authority in radiation.

At SERO, our patients don't just receive expert advice and treatment from experienced oncologists in a convenient setting, they receive compassionate care from an entire team dedicated to supporting them through their treatment and beyond. Our empathic approach ensures patients make knowledgeable decisions about their treatment and receive the support they need.



## ABOUT SHAYNA KOMAR, RD

Shayna Komar is a Registered and Licensed Dietitian in Atlanta, Georgia. She specializes in oncology and contracts with a cancer wellness center that is affiliated with a large multi-site hospital in Georgia, where she has worked for 15 years and where she started the nutrition program within the integrative wellness team. Komar works specifically with adult oncology patients of all diagnoses. She sees her patients before, during, and after treatment and surgery.

## ABOUT VANESSA LARA, PH.D., CNS

Dr. Vanessa Lara is a Certified Nutrition Specialist and a North Carolina Licensed Nutritionist. She holds Masters and Doctorate degrees in Nutrition and Exercise Physiology from the University of Miami, Coral Gables, Florida. The patients she works with present with some kind of chronic condition, such as PCOS, Hashimoto's, eczema, and diverticulitis. She also works with patients diagnosed with cancer, particularly colon, endometrial, and melanoma. She has a background in cancer biochemistry.

