



**BISMARCK
CANCER
CENTER**

Upper GI Cancer Nutrition Therapy

(Including Stomach, Liver, Gallbladder, Pancreas)



During Radiation Therapy

You may experience nausea, vomiting and diarrhea during radiation therapy. These are also side effects from other anticancer therapies. Your body is using additional protein and calories during this time to heal from treatment and maintain a healthy immune system. If you are able to prevent weight loss, you will tolerate treatment better and heal faster after treatment.

To manage side effects better, there are three different "diets" you could follow. Follow the diet for the side effect you are currently experiencing. You may notice that the recommendations in a high calorie high protein diet do not correlate with a diet for diarrhea. Listen to your body. If foods that are adding calories are making your diarrhea worse, limit those foods.

High calorie high protein diet guidelines:

Eat and drink more often:

- Eat 6 small meals or every 2-3 hours while awake
- Use high calorie beverages such as:
 - Nutrition drinks like Ensure Plus, Boost Plus, and Carnation Breakfast Essentials. Use Boost Glucose Control or Glucerna if diabetic.
 - There are many nutrition drinks on the market. Choose one that works for you. While shopping for nutrition drinks look for beverages that provide at least 250 calories and 12 or more grams of protein per 1 - 8oz/237ml serving.
 - Whole milk, juice, PowerAde or Gatorade, milkshakes, and smoothies
 - Reminder that water/fluid intake is very important but beverages like water, plain coffee and tea do not offer calories.
- Drink at least 64oz/8 cups/1900ml of fluids per day

Protein:

- Your body is using additional protein during this time to heal from treatment and maintain a healthy immune system
- Good sources of protein are eggs, beans, dairy products, soy, nuts, lean meat, fish and poultry
- Bean dishes like baked beans, bean salads, mild chili or refried beans are excellent high calorie and protein foods to add.
- Try to choose a source of protein for most meals.



During Radiation Therapy ...continued

Eat more fat:

- An extra tablespoon of butter, oil or some margarine will offer 100 calories.
- Whole fat dairy products
- Use regular versions of foods – avoid light, fat free, “zero” or “diet” type foods and beverages
- Use sauces, gravies and dips
- Add avocado to foods like toast, eggs, rice, salads, and sandwiches or eat with crackers.

Fruits and Vegetables:

- Fruits and vegetables are important during this time to help your body heal from treatment. However, many fruits and vegetables do not offer many calories or protein.
- Use sauces, yogurt, vegetable dips, bean salsas, guacamole and salad dressings.
- Avocado is higher in calories, add to salads or sandwiches or eat with crackers.

Nausea:

- Avoid strong odors perfumes, cooking food, air fresheners. Foods that are cold or room temperature have less fragrance.
- Stay hydrated by sucking on ice chips and taking small sips of water
- Avoid greasy foods, fried foods, and foods with strong odors that may trigger nausea.
- Drink most liquids between meals rather than with meals.
- Take your nausea medication as prescribed and rotate medications so you have consistent coverage throughout the day and night.
 - For example, if you have two nausea medications:
Nausea medication A: prescription directions, take one pill every 6 hrs
Nausea medication B: prescription directions, rub gel on wrist every 6 hrs
Take medication **A** at 8:00am, three hours later at 11:00am take medication **B**, at 2:00pm take medication **A** again, at 5:00pm take medication **B** again, etc.
 - Your nurse or pharmacist can help you make a schedule
- Nausea medication may need to be used daily prior to radiation therapy or for many days in a row following a dose of chemo.
- Nausea medications can be constipating. If you have not had a bowel movement for three days you should use a laxative and talk to your health care team.

“Natural” Nausea-relief strategies:

- Taking 0.5 to 1 gram ginger extract along with prescribed anti-nausea medications
- Using Sea-Band acupressure bracelets
- Massage
- Distraction strategies
- Relaxation techniques like meditation or practicing mindfulness

Diarrhea:

- Foods that can cause diarrhea are insoluble fiber, fat, lactose and foods with excess sugar.
- Foods with soluble fiber may produce a more formed stool: bananas, white rice, applesauce, oatmeal and barley
- Foods with insoluble fiber could make diarrhea worse. Avoid: whole wheat, bran, raw vegetables, fruit peels, beans, peas and popcorn
- If diarrhea is severe all fiber may need to be limited
- If you have been prescribed pancreatic enzymes, make sure to take enzymes at the first bite of each meal and possibly with high fat snacks. If you take pancreatic enzymes after you have finished the meal or snack the enzyme will not be effective



During Radiation Therapy ...continued

Foods recommended vs. not recommended:

Type of Food	Recommended Foods	Not Recommended Foods
Protein	<ul style="list-style-type: none">• Baked or broiled beef, pork, poultry or fish• Eggs• Low Fat dairy products<ul style="list-style-type: none">• Yogurt without berries• Keifer	<ul style="list-style-type: none">• Meats with a lot of marbling• Peas and beans• Nuts and seeds• Processed meats: bacon, bologna, salami, sausages, and hot dogs• Chunky nut butter• Fried or spicy meats, poultry or fish
Grains	<ul style="list-style-type: none">• Breads and pasta made from refined flour• White rice• Refined cereals such as farina, cream of wheat, cream of rice• Oatmeal• Pretzel• Graham crackers	<ul style="list-style-type: none">• Whole grain or multigrain breads or pastas• Brown rice• Bran• Granola• Popcorn• Most baked goods• Cereals made with whole grains
Fruit	<ul style="list-style-type: none">• Banana and melons• Canned fruit packed in light syrup, fruit juice or water• 100% fruit juice• Applesauce	<ul style="list-style-type: none">• Fresh fruits• Dried fruits• Prune juice or juice with pulp• Fruits packed in sorbitol
Vegetables	<ul style="list-style-type: none">• Well-cooked vegetables• Potatoes without the skin• Tomato products	<ul style="list-style-type: none">• Raw vegetables• Gas forming vegetables: beets, broccoli, brussel sprouts, cabbage, cauliflower, collard, mustard and turnip greens• Corn• Potato skins• Fried vegetables
Beverages	<ul style="list-style-type: none">• Non-caffeinated beverages	<ul style="list-style-type: none">• Caffeine• Alcohol• Carbonated drinks
Other foods		<ul style="list-style-type: none">• Foods made with sorbitol, xylitol or mannitol• Spicy, fried, greasy and very sweet foods



During Radiation Therapy ...continued

Medication, Supplements, and Skin Care

- Avoid magnesium and vitamin C supplements as they can cause diarrhea
- Consider psyllium fiber (Metamucil). This may help bulk the stools.
 - Do not take psyllium fiber within two hours of taking other medications, as the agents may impair medication absorption
- If you are having multiple loose stools you may take Imodium. Start by taking ½ tablet in the morning and add a ½ tablet after each bowel movement
- Do not take more than 8 full tablets of Imodium per day.
- If following food recommendations and taking Imodium has not helped slow the diarrhea, inform your health care team
- Take care of the skin being affected by radiation by applying lotion or Aquaphor multiple times per day. Informing your care team if skin is red and painful or irritated.

Vitamins/Minerals/Herbs

- Speak to your doctor and pharmacist before taking any vitamin, mineral or herbal supplements
- Do not take more than 100% daily value of any vitamin or mineral, unless instructed by your doctor



Recipes

Doubled milk: (*Use this mixed into other recipes like puddings, smoothies, shakes and smoothies)

Ingredients:

- 1 cup whole milk with ¼ cup powdered milk.
- Add additional flavoring as desired and serve cold.

This drink offers at least: 211 calories, 24gm carbohydrates, 14gm protein

Ensure/Boost shakes:

Ingredients:

- 1 Ensure Plus or Boost Plus
- ½ cup ice cream
- Optional: Fresh or frozen fruit, flavoring syrup, peanut butter

Directions: Blend until smooth in blender. Serve cold.

This drink offers at least: 487 calories, 61g carbohydrates, 16g protein

Super Shake:

Ingredients:

- 1 Ensure Plus or Boost Plus
- 1 Magic cup
- 1 Benecalorie
- Optional: Fresh or frozen fruit, flavoring syrup, peanut butter

Directions: Blend until smooth in blender.

Serve cold. Shake will be thick.

This drink offers at least: 980 calories, 86gm carbohydrates, 30g protein

Peanut Butter Banana Shake:

Ingredients:

- ¼ cup Whole Milk
- 1 frozen banana
- ½ cup ice cream
- ¼ cup peanut butter

Directions: Blend until smooth in blender.

Serve cold.

This drink offers at least: 666 calories, 22g protein



Recipes ...continued

Instant High Calorie, High Protein Pudding:

Ingredients:

- 1 box instant pudding mix
- 12oz can of evaporated milk
- ½ cup whole milk
- Optional: Frozen whipped topping, chocolate syrup.

Directions: Pour evaporated milk and whole milk into a large bowl or blender. Slowly pour instant pudding mix into the milk and mix or blend until smooth. Pour into 4 dishes. Refrigerate and serve cold. Top as desired for more calories.

This dessert offers at least 240 calories, 33g carbohydrate and 8g protein.

Hard Boiled Eggs:

Ingredients:

Eggs

Directions: Place eggs into sauce pan in a single layer. Add cold water to cover eggs by 1 inch. Heat over high heat to just boiling. Remove from heat. Cover and let eggs stand in hot water for 9 minutes for medium eggs, 12 minutes for large eggs, and 15 minutes for extra large eggs. Drain and serve warm. Or, Cool completely under cold running water or in a bowl of ice water, then refrigerate. Eggs can be stored in the refrigerator with shell on in an airtight container for 1 week.

High Calorie High Protein Gelatin Dessert:

Ingredients:

- ½ cup hot water
- 1 small box gelatin dessert mix, any flavor
- 12oz can evaporated milk
- Optional: fresh or canned fruit

Directions: Dissolve gelatin mix in hot water. Add evaporated milk and mix. Pour into 4 dishes. Add fruit as desired.

This dessert offers at least 210 calories, 28g carbohydrate, 8g protein

Hot Cocoa

Ingredients:

- ½ cup half-and-half, warmed
- ½ cup whole milk, warmed
- 4 tablespoons chocolate syrup
- 2 tablespoons dry milk powder or protein powder
- 2 tablespoons whipped cream (for topping)

Directions: Blend all ingredients except whipped cream with a whisk or spoon until smooth. Top with whipped cream.

This drink offers at least: 600 calories and 16 grams protein.