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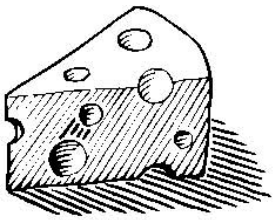
Nutrition And Cancer

Getting proper nutrition during cancer treatment can help you fight infections, give you needed energy to tolerate cancer therapy, help your body heal, and give you a better chance at recovering you're your cancer. Keep in mind that your nutritional needs may change during your treatment.

Both chemotherapy and radiation treatments may effect your **nutritional status**. The most common side effect is loss of appetite. You may also experience altered taste, nausea, diarrhea, dehydration, sore mouth and throat. There are a number of things you can do to reduce or eliminate these. This booklet will provide some tips on how to do this.

Here are a few basics

- Try eating small meals and snacks all day instead of 3 large meals
- When hungry eat more than you usually would
- Identify times that your appetite is better and eat your main meals at these times
- Keep ready to eat snacks available. For example cheese, crackers, ice cream, muffins, yogurt, granola bars, and nuts.
- Be sure to drink plenty of fluids, especially if you are not eating much.
- Practice food safety. Hot foods hot, cold foods cold. Avoid cross contamination – keep surfaces clean. Wash hands often. Read expiration dates on food products – when in doubt throw it out.
- Include all food groups, carbohydrate from breads, pastas, crackers, cereals; protein from lean meats, milk, beans, eggs, and fat from olive or canola oils, margarine, butter.



FLUID INTAKE

As discussed with your dietitian and nursing staff, taking fluids is important.
This is especially true when taking chemotherapy.
It is recommended that you take 2-3 quarts of liquid (about 2-3 L) daily.
This should be non-caffeinated.

To help you measure fluids:

1 quart	32 oz	4 c	960 cc	about 1 Liter
1 pint	16 oz	2 c	480 cc	
	8 oz	1 c	240 cc	
	4 oz	½ c	120 cc	
	1 oz =		30 cc	

- To keep track of all of the liquid that you drink each day, use a measuring cup to find out the amount of liquid that your favorite glass or mug holds.
- Until you get used to measuring, keep track of the amount of liquid your drink each day on a sheet of paper or notebook.

What counts as a fluid?
All of these foods count toward your fluid intake:

- Water for drinking and taking medications
- Ice cubes and ice chips
- Coffee and tea (non-caffeinated)
- Ensure/ Boost or equivalent
- Soda and lemonade
- Milk, cream, liquid creamer, milk shakes
- Juices, both fruit and vegetable
- Soup and broth
- Popsicles® and frozen fruit bars (1 double = 3oz)
- Ice cream, sherbet and sorbets
- Gelatin/ jello
- One-cup ice is equal to a ½ cup of water/juice

What to do if you have a poor appetite:

- Eat small meals more often. Try to eat something every 2-3 hours.
- Have meals that are easy to prepare such as casseroles and ready-to-eat items.
- Have snacks on hand and close by during the day such as muffins, peanut butter and crackers, granola bars, ice cream, pudding, raisins, nuts, and fruit.
- Make eating enjoyable! Light some candles, play relaxing music, use the nice dishes, or visit with friends during meals.
- Avoid drinking liquids with meals unless they are needed for dry mouth or other swallowing problems.
- Increase activity. Taking a walk in the fresh air can help improve appetite.
- Use seasonings to enhance flavor if tolerated.
- Have items that are room temperature or cold to reduce the smell of food
- If you do not feel like you can eat foods, consider sipping on nutritional supplements throughout the day. Also try soups, juices, and other liquids.
- Try to eat larger meals when you feel the best. Often people feel better earlier in the day or after a nap when they are rested.

Make every bite count by choosing items high in calories and protein

Tips to make food taste better

- Choose and prepare foods that look appetizing and smell good, such as colorful, fresh fruits and vegetables

- Keep your mouth clean. Rinse your mouth and tongue often to remove any strange tastes

- Chew mints, gum or lemon drops to remove bad tastes

- If food tastes metallic, use plastic utensils

- If food tastes too bitter, salty or acidic, increase the sugar content by adding sweet juices or fruits

- If food tastes too sweet:
    - Add lemon to mask the sweetness
    - Add fruit to milkshakes or yogurt
    - Eat frozen fruit

- If smells bother you:
    - Avoid foods with strong odors like cabbages, garlic and seafood
    - Eat foods at room temperature
    - Turn on the fan or cook outdoors
    - Cover your food when cooking
    - Cover nutrition supplements and drink from a straw

Managing taste problems

Taste changes can make it difficult to eat when going thru cancer treatment. Below are a few tips to help with change changes, particularly metallic taste.

- Choose foods that smell good, even if the food is unfamiliar.

- Eliminate cooking smells by using an exhaust fan, cooking on an outdoor grill, or buying precooked foods. Consider cold or room-temperature foods as they smell less. Also stay out of the kitchen while cooking is being done.

- Eat cold or frozen food, which may taste better than hot foods. However, avoid cold foods if you are receiving chemotherapy with oxaliplatin (Eloxatin). This drug makes it difficult to eat or drink anything cold.

- Use plastic utensils and plastic cups to lessen a metallic taste.

- Try sugar-free gum or hard candies with flavors such as mint, lemon, or orange. These flavors can help mask a bitter or metallic taste in the mouth.

- Try protein sources, such as poultry, eggs, fish, peanut butter, beans, or dairy products if red meats don't taste good. Add sweet flavor to red meats (ie cooked pineapple to hamburger)

- Marinate meats in fruit juices, salad dressings, or other sauces.

- Flavor foods with herbs, spices, sugar, lemon, or sauces. Curry is a strong herb, hot herbs like red pepper flakes and cayenne pepper are also options.

- Avoiding favorite foods before and just after chemotherapy helps prevent aversions to those foods.

- Try this to help neutralize bad tastes in the mouth. Rinse with a salt and baking soda solution before meals. Try a solution of ½ teaspoon of salt and ½ teaspoon of baking soda in 8-12oz of lukewarm water.

- Keep a clean and healthy mouth by brushing frequently and flossing daily. Use a soft tooth brush and don't forget to brush your tongue also.

- Consider zinc sulfate supplements, which may help improve taste in some people. However, talk with your doctor before taking any dietary supplements, especially during active treatment.

Nausea

- Eat foods that do not have strong smells. Hot foods tend to have more odor than room temperature or cold items.

- Avoid very sweet, spicy, fried, or greasy foods.

- Try to wait at least two hours after eating before lying down.

- Eat dry foods (crackers, dry cereal, toast).

- Sip water, juices, or other clear liquids often during the day.

- Drink clear liquids that have calories.

- Avoid the kitchen while food is being prepared if smells bother you.

- Eat more between treatments when your appetite is better.

- Have frozen or prepared meals on hand so you do not have to cook when you feel nauseated.

- Chewing gum or candy, especially tart candy, may help control nausea.

- Eat small, frequent meals that are high in calories and protein, such as:
    - Cheese, crackers, and juice
    - Peanut butter and jelly sandwich, milk
    - Grilled cheese sandwich and a bowl of soup

- Rinse your mouth before and after meals and often

- Try to drink 8 or more cups of liquid daily. For every episode of vomiting, drink ½-1 cup more liquid.

- Talk to your doctor about medicines that may help control nausea and vomiting.

Diarrhea

Here are some ways to cope with diarrhea:

- Eat small amounts of food several times a day instead of 3 large meals
- Choose low fiber foods
- Drink plenty of fluids

Low fiber foods may help slow the diarrhea:

- White rice, bread, noodles, crackers
- Applesauce

Choose these foods to replace the electrolytes lost in diarrhea:

- Bananas
- Gatorade™ or other sports drinks, Pedialyte

Other foods to try:

- Hard boiled eggs
- Smooth peanut butter on white bread or crackers
- Chicken, turkey or roast beef sandwich
- Nutmeg may help slow down your digestive tract
- Ginger may sooth your stomach
- Choose higher fiber foods when amount of stool is more manageable

Foods to avoid

- Fried or fatty foods
- Raw vegetables, especially those with thick skins, seeds, or stringy fibers
- Dried fruits
- High fat ice creams, any candies, gum or breath mints containing sorbitol, mannitol, or xylitol

Dehydration

What causes dehydration during cancer treatment?

- Chemotherapy and radiation
- Treatment-related diarrhea and/or nausea and vomiting
- Short and long term pain can interfere with the wish to drink or eat
- Taste changes

What are some signs and symptoms of dehydration?

- Dry or sticky mouth
- Low or no urine output
- Dark yellow, strong smelling urine
- Sunken eyes
- Fatigue (feeling very tired)
- Constipation
- Confusion

Ways to promote proper hydration:

- Drink 8 to 12 cups of liquids a day
    - Take a water bottle when leaving home
    - It is important to drink even if not thirsty
    - Try flavored water
    - Keep a pitcher of water on the counter as a reminder

- Add food to your diet that contains a significant portion of fluid
    - Soup
    - Gelatins
    - Flavored ices
    - Flavored ice pops

- Limit consumption of caffeine containing products
    - Sodas
    - Coffee
    - Tea (both hot and cold)

- Drink most liquids after and/or between meals to increase overall consumption of liquids and solids

Sore Mouth and throat

Help with mouth pain

- Eat softer foods such as pudding, soups, mashed potatoes and gravy, custard, casseroles, scrambled eggs, ice cream, Jell-O™, ground or tender meats with gravy / sauces, or hot cereal.

- Eat and drink room temperature or cold items as these can be very soothing.

- Cook food well, until it is very tender.

- If you drink carbonated beverages, let them stand open until the fizz is gone.

- Make sure to drink plenty of fluids each day.

- Try using a straw.

- Use gravies, butter, sauces, or yogurt to make foods moist before eating.

- Drink high protein drinks such as milkshakes, powdered instant breakfast drinks mixed with whole milk, or eggnog throughout the day.

- Let your doctor know if you are having mouth pain and ask for pain medication if you feel you need it. Use medication as ordered.

Things to avoid when having mouth pain

- Very hot foods or drinks
- Citrus juices or acidic items such as oranges juice or tomato sauce
- Spicy foods
- Hard or very crunchy foods including dry toast or crackers
- Alcohol and tobacco
- Carbonated beverages

Take care of your mouth and keep it clean

- Use the softest bristle brush
- If toothpaste irriates your mouth, use a mixture of ½ teaspoon salt with 4 cups of water
- **Gargling may help. Use a solution made up of:**
    - **8-12 oz water**
    - **½ teaspoon table salt**
    - **½ teaspoon baking soda**

Dry Mouth

Things That Help Dry Mouth:

- Sip on cool liquids during the day. Always carry something to drink.
- Suck on sugar-free candy, gum, or popsicles which can help produce more saliva.
- Try using a straw.
- Try tart or sweet items if your mouth isn't sore.
- Take small bites of foods and chew well.
- Take sips of liquid often while eating to help make foods easier to swallow.
- Moisten foods with gravy, soups, cream, butter / margarine, or other sauces.
- Keep your mouth clean. Rinse your mouth before and after eating and use a soft-bristle tooth brush, especially on your tongue, as tolerated.
- Can rinse with a mild mouth rinse made up of one quart water, 1 teaspoon salt, and 1 teaspoon baking soda.
- Keep a glass of water by your bed during the night to sip on if you wake up.
- Keep lips moist using balm.
- If problems continue, talk with your doctor or dentist. There are products available that can help coat or moisten your mouth.
- Avoid tobacco and alcohol as these can make dry mouth worse.
- Avoid very salty or spicy foods.
- Avoid drinks that contain caffeine such as coffee, tea, cola, and chocolate.
- Avoid commercial mouthwashes.
- Avoid acidic foods or beverages.
- Avoid dry breads or rolls, pretzels or chips.
- Avoids dry meats without sauces or gravy.

Five Tips for Keeping Food Safe

Food safety is especially important for during cancer treatment.

1. **Wash hands and surfaces often.**
   Bacteria can spread throughout the kitchen and get onto cutting boards, utensils, countertops and food. In addition to thoroughly washing fruits and vegetables, change sponges and dishtowels often.

2. **Separate, don't cross-contaminate.**
   When handling raw meat, poultry, seafood and eggs, keep these foods away from ready-to-eat foods to stop bacteria from spreading. Use separate cutting boards for raw meat, poultry and fish.

   Wash all fruits and vegetables under cold running water before peeling or cutting, and avoid bruised or damaged produce.

3. **Cook food thoroughly to proper temperatures.** Keep hot foods hot and cold foods cold.
   Use a food thermometer, inserted into the center of the food, to check when foods are safely cooked.

Chicken Breast – 165°
Leftovers and Casseroles – 165°
Egg Dishes – 160°
Pork – 160°
Fish – 145°
Steaks and Roasts – 145°
Ground Beef – 160°
Whole Poultry – 165°

4. **Refrigerate food promptly.**
   Refrigerate or freeze leftover foods within 1-2 hour to slow the growth of harmful bacteria (use several shallow containers for large volumes). Use a thermometer to make sure refrigerator temperature is consistently 40°F or below and the freezer 0°F or below.

   Discharge refrigerated leftovers after 3 days
   Thaw frozen meat and poultry in the refrigerator, microwave or cold water, not by leaving it out on the kitchen counter.

   Read food product expiration dates and look for signs of spoilage. If in doubt, throw it out.

5. **Avoid foods from buffet lines and self-serve bulk bins**

Protein

It is important to get adequate protein in your diet especially during your therapy.
Eating 30g of protein at each meal will help your body synthesis protein (or build muscle).
If you don't get enough protein your body may start breakdown down your muscle stores.
Start your day with a good dose of protein at breakfast.
Below are some examples of high protein choices.

Food	Protein (g)
Cottage cheese 1c	28
Canadian Bacon, 2pc	11
Greek yogurt, 1c	18
Peanut butter, 4tbsp	14-18
Eggs, 3	18-21
Milk, 1c	8
Kefir, 1c	11
Whey protein, 1 scoop	23
Egg whites, 3	12
Egg beaters, 1/2c	12
Beef, 3.5oz	33
Chicken, 3.5oz	30.9
Pork, 3.5oz	20.4
Cod, 3oz	19.4
Soy milk, 8oz	6.6
Tofu, 1/2c	10
Chick peas, 1c	14.5
Black beans, 1c	15.2
Dry milk powder, 1/4c	10.8
Cheese, 1oz	7

Websites that may be of interest

Cancer Care www.cancercare.org
American Institute for Cancer Research www.aicr.org
American Cancer Society www.cancer.org
National Cancer Institute www.cancer.gov

Does sugar feed cancer?

The bottom line: every cell in our bodies, including cancer cells, uses sugar (glucose) from our bloodstream for fuel.

We get that blood sugar from foods we eat containing carbohydrates, including healthful vegetables, fruits, whole grains and low-fat dairy sources. Some glucose is even produced within our bodies from protein. But there's no clear evidence that the sugar in your diet preferentially feeds tumors over other cells.

There is a connection between sugar and cancer risk, however – but it's more indirect than many realize. Eating a lot of high-sugar foods may mean more calories in your diet than you need, which eventually leads to excess body fat. It is excess body fat that is convincingly linked to greater risk of ten types of cancer, including post-menopausal breast, colorectal and endometrial.

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