Cancer and Medical Nutrition Therapy Education

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WHAT YOU WILL LEARN

- What is cancer
- How cancer affects nutritional needs
- Treatment & potential affects on nutrition
- Tips to manage nutritional concerns
- Example meal plans
- Take – home tips

BETHESDA
Exceptional Senior Living, Care & Services
A common definition of cancer is a disease where cells divide at an uncontrolled rate and body tissue is destroyed.

Nutrition can play a key role in cancer treatment and healing.


- Based on strong scientific evidence
- Eating healthy and routine physical activity can support wellness and reduce risk of additional cancers
How Cancer Affects Nutritional Needs

- When you are undergoing treatment for cancer, the body has increased demands placed upon it and changes happens in the way nutrients are metabolized. **Often there are two nutritional goals to focus on:**
  - The Oncology team will help you set a goal weight (it is often suggested to have a little extra nutrition stored on your body)
  - Customize a meal plan that you enjoy and works well with your body. It should be easy to prepare and include portable to-go nutrition packed options to help meet your increased nutrient needs.

- Side effects of cancer therapy may **alter your appetite** or foods may start to **taste different**. This can cause you to eat less and have unplanned weight loss.

- If you had a condition prior to cancer, like diabetes, it may effect how your medication works. Your prior diet may also need to be modified to better manage your blood sugars and it is helpful to work with a Dietitian. By working with a Dietitian it can help reduce the anxiety behind what to eat and help simplify your grocery shopping list.
Treatment & Potential Affects on Nutrition

There is a variety of methods used to treat cancer. They may affect your nutritional needs and ability to follow your normal eating pattern:

- **Radiation therapy** includes high-energy rays to destroy cancer cells. It can be used alone or in combination with chemotherapy or surgery.
  - Side effects are related to the specific part of the body treated and the dose of radiation used. Fatigue and GI irritations are common side effects. These can occur immediately or months later (even after therapy has been completed): mouth sores, nausea, vomiting, diarrhea, dry mouth, poor absorption of nutrients, abdominal pain, dairy intolerance, & constipation.

- **Chemotherapy** uses medication to fight cancer cells. It can be an infusion or injection provided by a nurse or come in a pill form. It is “systemic” unlike radiation (which means it affects the entire body). Cancer cells divide and reproduce quickly, some normal cells also act the same way (the inner layer of your GI). This is why side effects like nausea, vomiting, hair loss and fatigue are common.
  - Low blood counts (red and white blood cells) can lead to infection, bleeding and anemia. Anti-nausea drugs can cause constipation or diarrhea. While others experience taste changes, water retention (edema), abdominal distension. This can lead to decreased interest in eating and later nutritional deficiencies and/or unplanned weight changes.
Hormone Therapy uses medication to stop the body from producing certain hormones or a surgical procedure to remove organ producing hormones. This type of therapy is used most often for breast, prostate, ovary and endometrium (the lining of the uterus).

- **Side effects include:** nausea, vomiting, swelling, weight gain (muscle loss), bone loss and hot flashes.
- Bone loss is common when hormones like testosterone and estrogen decrease quickly, prescribed corticosteroids can also cause bone loss.

Biological Therapy is also known as immunotherapy, it is the use of the body’s own immune system to help defend against cancer or help reduce side effects of other cancer treatments. The National Cancer Institute reports that biological therapy seems to play a role in cancer defense in the following ways:

- Stop or slow growth of cancer cells, ease destruction of cancer cells, stop cancer from spreading to other areas of the body
- Some drugs enhance white blood cells “our defense system” however can have side effects: rash at injection site, flu-like symptoms, muscle aches, and/or low blood pressure
Complementary & Alternative Medicine (CAM) includes techniques, protocols, and clinical systems that are not defined as standard medical practices in Western countries. CAM is used in combination with standard medical care. While alternative medicine replaces standard medical care.

- **Types of CAM include:** herbal treatments, supplements, homeopathy, acupuncture, touch therapy (massage), dietary plans, mind-body & spiritual based practices

- CAM can be helpful in some phases of the treatment journey, however scientific evidence of its effectiveness is not very strong. It is recommended to use caution with this approach.

**Targeted Therapies** focus on certain molecules and interfering with how they help cancer cell production. This technique decreases injury to normal healthy cells and therefore reduces side effects and may improve quality of life. Here are two ways targeted therapy works:

- From inside the cell, the signal to grow more cancer cells can be stopped.
- From outside the cell, communication with the immune system to deliver toxic substances to the surface of the cancer cells can kill them.
Tips to Manage Nutritional Concerns

- **Try a foods first approach** to help meet your nutritional needs: research suggests foods high in fiber, colorful vegetables and fruits, whole grains and beans is preferred over supplements. Some supplements may interfere with medications prescribe for your cancer treatment. Always discuss your supplements and any herbal remedies you use with your doctor.

- In some situations a chewable multivitamin may be helpful. If you are not able to eat enough wholesome food, you may benefit from a **commercial drink supplement** daily (these provide vitamins and minerals similar to a multivitamin).

- In general eating 2/3 c of vegetable with lunch & dinner, and choosing a small cup of fruit (instead of juice) with breakfast, lunch & dinner can provide a lot of fiber and antioxidants.

- Swap half of your refined white foods for **whole grains** (choose brown rice, whole grain bread, & oats) unless you have been told to follow a low fiber diet.

- If **speech therapy** has recommended a specific **texture or thickened liquids** in your diet, please follow these recommendations for safety reasons.
If you tolerate dairy in your diet, choose low-fat options (cheese, milk) or fortified alternatives (soy or almond beverages) for daily calcium needs. The bonus of having a daily yogurt with live cultures is it acts as a food source of probiotic. This promotes a balanced GI (gastrointestinal) tract. Sometimes a smaller portion of dairy is tolerated well (try ½ cup serving) this amount of milk sugar is usually easier to digest.

Protein needs often increase during cancer therapy, and can help prevent anemia. Try to always have a good source of protein at each meal: lean meat and poultry, fish, eggs, beans, lentils, soy tofu, nuts/seeds or nut butters.

Potassium, calcium, magnesium, fiber & vitamin D are often low in the typical American diet, using the tips and example menus in this presentation can help restore these key nutrients.
Tips continued, managing side effects:

- **Loss of Appetite**
  - A common side effect of cancer and treatment
  - Alterations in how the body process & absorbs nutrients
  - Physically harder to eat after a surgical procedure
  - Emotional changes, anxiety and depression

- **Feeling full too quickly**
  - Eat **smaller meals every 2-3 hours**, fortify these meals with extra nutrition, drink your beverages between meals, keep your head elevated after meals ~45-90 degrees (30 minutes), take a gentle walk to encourage digestion, try a **commercial drink supplement daily (i.e. boost, ensure)** or a homemade **smoothie** (refer to smoothie recipe later)

- **Taste Changes (dysgeusia)**
  - As a side effect of cancer therapy or dental problems (infection). A bitter or metallic taste is common with protein consumption (meats). Try using **plastic utensils** instead of metal. Choose foods that look and smell good (**cold or room temperature** may help). Add sugar to improve salty foods, or add salt to decrease too sweet flavors.
  - **Frozen fruits** (grapes, orange slices) provide a nice sweet, tart & refreshing bite.
  - **Marinate plain meats** (avoid red meats) in an appealing sauce, juice or dressing.
Tips continued, managing side effects:

- **Mouth sores, sore throat, dryness (xerostomia), nausea**
  - Avoid citrus (fruit juices are usually too acidic), hot temperature/spicy, too salty
  - Choose room temperature foods, add *saucers/gravy to mix or moisten food* that are too dry or coarse (cut food into smaller pieces)
  - *Drink more fluids*, choose moist foods often (soup based helpful), try sugar-free mints or candies
  - Avoid commercial mouthwashes (try an alcohol-free version)
  - If you experience *difficulty chewing or swallowing* ask your doctor for a *speech swallow evaluation* (you may need to change the texture of your food)
  - For *nausea* try dry foods (salted crackers, toast), plain yogurt, flat ginger soda or ginger tea, anti-nausea medications can also be helpful and can be prescribed by your doctor

- **Change in weight**
  - Significant weight changes unplanned can affect how your heart, kidney, liver and other key organs function. Being undernourished also makes it harder to fight off infections.
  - Eat *several small meals instead of three large meals*. Always have *protein at each meal* (beans, peas, tofu, chicken, yogurt, fish, eggs, nuts, nut butters, dried milk powder can be mixed into recipes). Keep favorite foods on hand and try compact versions of commercial supplement drinks (i.e. *Ensure compact*) that will not make you feel too full.
  - Talk to your doctor about *an appetite stimulant medication*.
Tips continued, managing side effects:

- **Weight Gain**
  - Is a common side effect experienced in these types of cancer: breast, prostate and lymphoma. It often happens due to decreased physical activity, lower energy levels or as a result of certain medications.
  - Chemotherapy can effect hormones causing menopause prematurely. Others may eat when feeling stress or depression and the extra calories cause unplanned weight gain.
  - **Fluid retention** in your legs or ankles, known as *edema*, will also cause weight gain. If you notice rapid weight gain of 2-3 pounds in 24 hours or 4-5 pounds in one week, it could be fluid related (side effect of malnutrition or prednisone) and you should notify your clinical team or doctor immediately.

- **If the weight gain is from eating, not fluid retention, the following tips can be useful:**
  - Watch your portion sizes, use the *MyPlate method* for weight management: ¼ of your plate is your carbohydrate (starch/grain), ¼ of your plate is your protein (meat/beans), the largest portion of the plate is your vegetable (think greens), and the last portion is the smallest on the plate your fruit (think a few slices of apple). *Refer to the photo at the top right of this page.*
  - **Eat only when you are physically hungry** (not emotionally hungry). If you notice thoughts full of stress, fear, depression or anger it would be best not to self-sooth by eating. Instead talk to your doctor about working with a psychologist or counselor to talk through these feelings and learn techniques to balance your mood that do not include food. Sometimes we confuse fatigue for hunger as well. Try to keep a consistent sleep and exercise pattern.
Tips continued, managing side effects:

- **Diarrhea**
  - Can develop after surgery, chemotherapy, radiation to the abdominal region, use of certain medications, infections, lactose intolerance, GI sensitivities, or emotional distress. This can lead to dehydration, loss of nutrients, and other health problems.
  - You are losing fluids “hydration and electrolytes” from your body when you have episodes of diarrhea. To balances these losses it is important to drink more water and use salt more liberally in your diet. Sugar and salt work together helping pull water into your cells, this is why sport drinks are used for hydration goals. They contain small amounts of sugar and salt. Two other examples: a watered-down fruit juice drink with saltine crackers, or chicken noodle soup and a small cup of (flat) white soda. You can also ask your doctor about anti-diarrhea medications if the symptoms continue for more than a couple days.
  - **Food that helps reduce diarrhea:** low-fiber foods like white rice, pasta, bread and mashed potatoes; soft well cooked vegetables; soft fruit without skin like ½ a banana or applesauce; plain toast, lean cuts of meat (not heavy and fried), well cooked eggs, nut butters
  - **Foods to avoid:** beans, onions, carbonated drinks, high fiber foods like oats, cabbage, broccoli, large portions of milk/dairy, large portions of fruit juice (keep juice 4 oz portions, or dilute it), large portions of sweets (dried fruits, pastries, desserts), caffeine or hot temperature beverages, spicy foods, large portions of greasy fried foods, and lastly artificial sweeteners (made from sorbitol, mannitol) which have a mild laxative effect

- **Fatigue**
  - Ask friends or family to help food prep a week of healthy meals. Smoothies can be made in bulk and stored frozen for later portable meals. Try frozen dinners (healthy choice brands).
Tips continued, managing side effects:

- **Constipation**
  - Can develop after use of pain medications or cancer therapy drugs.
  - A diet with not enough fiber, fluids or lack of physical activity.
  - Some people are vulnerable to intestinal blockage (small bowel obstruction), if you experience swelling and pain in the abdomen, cannot pass bowel movements (BM), and/or have nausea report this to your clinical team immediately.
  - Prune juice (if you do not have kidney disease), hot beverages (tea, coffee), or warm juices and lemonade (if you are not diabetic) can stimulate a BM. Most people need 6-8 cups of water per day, this increases if you are in a hot environment, have a fever or are fighting an infection.
  - Slowly increase fiber in your diet: mix a high fiber cereal 1:1 ratio with your favorite cereal, swap white bread for whole grain bread, add a green vegetable with lunch and dinner. Increase your physical activity, if medically cleared, a daily walk can help promote GI motility.
  - If you still struggle with constipation ask your doctor about adding a bowel regimen (fiber supplement or stool softener to your GI wellness routine).

- **Daily mouth rinse recipe, oral care**
  - Mix: 4 cups warm water, 1 tsp salt, 1 tsp baking soda. Swish in mouth for 15 seconds, spit out, then rinse mouth. Repeat 3-5x per day.

- **Vomiting**
  - Sip on clear liquids (cranberry juice, broth, flat soda, popsicles), sit upright 90 degrees.
  - Try soft foods as tolerated (cream of wheat, pudding, frozen yogurt, jello).
Does sugar feed cancer?

- Researchers continue studying any correlation between sugar in the diet and growth of cancer cells. This thought produces a lot of anxiety and miscommunication in the media. While yes, sugar (glucose) is the main source of fuel that feeds all of our cells, if we follow a lower sugar diet the body is capable of making fuel from other sources (fat and protein).

- Unfortunately some people take this idea to the extreme, and avoid all carbohydrates (which turn into sugar) in their diet. This is not helpful when one is already at risk for unplanned weight loss and vulnerable to stress. **Stressing over eliminating sugar from the diet triggers the “fight or flight” system in the body** and this stimulates your blood sugar to rise while decreasing your immune system which is key in combating cancer. The bulk of research shows a connection between **high insulin levels** and similar growth factors that may cause cancer cells to grow the most.

- All carbohydrates consumed eventually break down into simple sugars. These sugars are absorbed in the small intestine and then enter the blood stream (increasing blood sugar and triggering insulin to be released from the pancreas). Insulin is a key hormone that allows sugar into the cell where it is used as energy.

What is the bottom line?

- **Avoid bringing anxiety into the equation** by working with a Dietitian to create a **well balanced meal plan** that supports healthy insulin and blood sugar levels. Cutting down on simple sugars (juices, candies, desserts, large portions of carbohydrates) can be a benefit for almost everyone’s diet. By eating complex carbohydrates consistently at each meal you will notice a slow and stable blood sugar, enjoy a very small portion of a “sweet” at each meal will also support these goals (i.e. 2 small squares of dark chocolate or a small piece of fresh fruit)

- **Stay active!** Exercise decreases insulin resistance. Research shows persons who lead an active lifestyle, even just a brisk daily walk, were able to eat a higher carbohydrate diet with a lower risk of cancer.

- **Maintain a healthy weight**, abdominal weight gain increase your risk of developing insulin resistance.
### Example Meal Plan, General Healthly Diet

<table>
<thead>
<tr>
<th>Breakfast</th>
<th>Lunch</th>
<th>Dinner</th>
<th>Snack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oatmeal, low-fat milk, cinnamon, berries, ¼ c nuts, drizzle of honey</td>
<td>½ sandwich on whole grain bread, low sodium deli meat; side salad with cranberries, oil and vinegar dressing (2 Tbsp)</td>
<td>1 slice of regular crust pizza, low fat cheese, chicken and vegetables (avoid pepperoni), grilled Brussels sprouts</td>
<td>Fruited low fat yogurt, ¼ cup nuts or 1.5 tablespoons favorite nut butter</td>
</tr>
<tr>
<td>Veggie omelet, olive oil, whole grain bread with 2 thin slices of avocado, 1 c fruit</td>
<td>1 c low sodium soup with chicken, vegetables, and brown rice, 1 small apple</td>
<td>4-6 oz salmon grilled, 1 small sweet potato with a pat of butter, steamed broccoli</td>
<td>Hummus ½ c, raw carrots/celery, whole grain crackers</td>
</tr>
</tbody>
</table>

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Example Meal Plan, Weight Gain Goals

<table>
<thead>
<tr>
<th>Breakfast</th>
<th>AM Snack</th>
<th>Lunch</th>
<th>PM Snack</th>
<th>Dinner</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 pieces toast: 3 avocado slices or 1 pat of butter (on top of each piece of toast); scrambled eggs (2); 1 cup fruit</td>
<td>Granola bar, string cheese (2)</td>
<td>Chicken, rice, and vegetable bowl, teriyaki or sweet and sour sauce</td>
<td>Ensure Compact supplement Or Hardboiled egg &amp; a box of raisins</td>
<td>Creamy pasta, steamed spinach, and ½ an apple Or (substitute the apple with ½ c of ice cream 2x week)</td>
</tr>
<tr>
<td>Oatmeal: made with whole milk, pat of butter, ¼ c nuts or 1 spoonful of nut butter, ¼ c dried fruit</td>
<td>½ c trail mix (add cheerios to the mix)</td>
<td>Grilled cheese on whole grain bread, with a side of baby carrots &amp; ranch dressing</td>
<td>Boost Supplement (glucose control is a lower sugar option) Or ½ PB&amp;J on wheat bread</td>
<td>Grilled shrimp, brown rice with sautéed mushrooms in canola oil, 1 small orange Or 1 (4-6 oz glass of red wine, 1-2x per week) with MD approval</td>
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</tbody>
</table>
## Example Meal Plan, Nausea

<table>
<thead>
<tr>
<th>Breakfast</th>
<th>AM Snack</th>
<th>Lunch</th>
<th>PM Snack</th>
<th>Dinner</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 piece plain toast, ½ banana, 2/3 c plain yogurt</td>
<td>Ginger candied, sips of broth</td>
<td>Plain chicken, white rice, flat white soda</td>
<td>Ginger tea, sport drink <em>(if you have episodes of vomiting)</em></td>
<td>Chicken noodle soup 1 c, applesauce</td>
</tr>
<tr>
<td>Oatmeal plain, applesauce, hard boiled egg</td>
<td>Sips of gingerale flat soda, saltine crackers</td>
<td>Tofu, white rice, diluted cranberry juice</td>
<td>Ginger hard candies, sport drink <em>(if you have episodes of vomiting)</em></td>
<td>Chicken and rice soup 1 c, ½ banana</td>
</tr>
</tbody>
</table>

*BETHESDA Exceptional Senior Living, Care & Services*
Example Smoothie Recipes:
For meal replacement or weight gain goals

<table>
<thead>
<tr>
<th>Food Item</th>
<th>Portion Size</th>
<th>Directions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Protein Source:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk/almond milk (with protein)</td>
<td>1 c</td>
<td>Pick one protein source to have in your smoothie</td>
</tr>
<tr>
<td>Plain Greek yogurt 2%</td>
<td>2/3 C - 1 C</td>
<td>Protein keeps your skin strong and blood sugar more stable</td>
</tr>
<tr>
<td>Nut butter</td>
<td>1-2 Tablespoons</td>
<td>You need more protein during chemotherapy and radiation treatments</td>
</tr>
<tr>
<td>Dried milk powder</td>
<td>6-8 Tablespoons</td>
<td></td>
</tr>
<tr>
<td>Whey protein powder/pea protein powder</td>
<td>1-2 scoops (comes with jug)</td>
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<td></td>
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<td></td>
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<tr>
<td><strong>Complex Carbohydrate:</strong></td>
<td></td>
<td></td>
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<tr>
<td>Whole grain cereal, or fortified cereal (cheerios, bran flakes)</td>
<td>½ c - 2/3 c</td>
<td>Pick a favorite cereal, choose a low sugar cereal &lt;6 g sugar</td>
</tr>
<tr>
<td>Cooked oatmeal or soaked oats</td>
<td>½ c</td>
<td>Look for whole grain on the label</td>
</tr>
<tr>
<td>Graham crackers</td>
<td>1-2 sheets</td>
<td></td>
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<td></td>
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<tr>
<td><strong>Quick Simple Carbohydrate:</strong></td>
<td></td>
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</tr>
<tr>
<td>Honey</td>
<td>2 tsp</td>
<td>Pick fresh or frozen fruit over sweet syrups for added fiber and antioxidants</td>
</tr>
<tr>
<td>Sugar</td>
<td>2 tsp</td>
<td></td>
</tr>
<tr>
<td>Fresh or frozen fruit</td>
<td>1 c</td>
<td></td>
</tr>
<tr>
<td>Syrup</td>
<td>2 tsp</td>
<td></td>
</tr>
<tr>
<td>Dried fruit</td>
<td>1.5 Tablespoons</td>
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<td></td>
</tr>
<tr>
<td><strong>Source of Fat:</strong></td>
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<td></td>
</tr>
<tr>
<td>Avocado</td>
<td>2 thin slices</td>
<td></td>
</tr>
<tr>
<td>Canola oil</td>
<td>2 tsp</td>
<td></td>
</tr>
<tr>
<td>Chocolate</td>
<td>2 squares</td>
<td></td>
</tr>
<tr>
<td>Nuts/seeds</td>
<td>2 Tablespoons</td>
<td></td>
</tr>
<tr>
<td>Nut butter</td>
<td>2 Tablespoons</td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Additions for flavor:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ginger, turmeric (anti-inflammatory)</td>
<td></td>
<td></td>
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<tr>
<td>Cinnamon, nutmeg</td>
<td></td>
<td></td>
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<tr>
<td>Sea salt</td>
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<td></td>
</tr>
<tr>
<td>Chocolate (dark is lower in sugar)</td>
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Take – Home Tips

- Cancer patients usually need **extra protein**, this helps repair tissue and support a healthy immune system.

- Carbohydrates will provide the bulk of the diet and help prevent unplanned weight loss, by choosing **well balanced meals** this helps keep your insulin and blood sugar levels stable. Adding a variety of healthy fats to your meal plan is also soothing to the body (olive oil, canola oil, nuts). Fat and carbohydrates in synergy keeps you feeling energized and satisfied longer after meals.

- **Work with a Dietitian and your Oncology team** to set your goal weight and design a meal plan that matches the phase of treatment you are in.

- Planning ahead will allow you to meet your estimated nutrition needs. **Meal prepping** and asking for support from friends and family is key.

- If you notice a consistent **decreased appetite, nausea and/or fluid retention** on your body, call your doctor to discuss your symptoms.

- Try not to over stress the small things, **following the guidance of your clinical team**, explore daily meditation and positive imagery.
References


THANK YOU!

LEARN, GROW & LIVE WELL

Barnes Jewish Extended Care

Bethesda | BJC HealthCare