

# Nutrition During Chemotherapy

## Part 1- Nutrient Needs

Presenter: Joanna Lipp, MS, RD, CSO, CSNC  
Pluta Integrative Oncology and Wellness Center  
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MEDICINE *of*  
THE HIGHEST ORDER



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MEDICINE

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CANCER INSTITUTE

# Overview- Part 1

- **Objectives:**
  - Review nutrient needs during chemotherapy
  - Recommendations to meet your nutrition needs during treatment
- **Note:** these are general nutrition guidelines. For individualized recommendations based on your cancer site, treatment plan, medical history and side effects, consult with your medical oncology team and/or registered dietitian.
  - **To schedule a free nutrition consultation:**
    - Pluta Integrative Oncology and Wellness location: (585) 486-0654
    - Wilmot (Strong Hospital) location: (585) 275-5823



# Different cancers, different needs

- Patients with some types of cancers don't have a lot trouble eating, and can eat lower calorie, less processed foods without a problem and maintain good nutrition
  - Breast
  - Prostate
  - Some colon cancers
- Patients with other kinds of cancers have more trouble being able to eat or digest “healthy” foods, and may need an alternate approach
  - Head and neck
  - Esophageal
  - Stomach
  - Small bowel
  - Pancreas
  - Some hematologic cancers (leukemia, lymphoma)
  - Lung
  - Gynecological



# Why is nutrition important?

- Maintain weight
- Maintain muscle
- Fewer treatment breaks
- Better treatment response
- Less fatigue
- Feel better
- Help reduce risk of recurrence



# Choose Foods First

- Select foods and drinks that are best tolerated during treatment- healthy ones, if possible
- Calories = Energy

Sources: carbohydrate, protein and fat

- Avoid unintentional weight loss due to difficulty eating
- Treatment may increase calorie needs
- Balance meals/snacks with a variety of foods
- Try 4–6 smaller meals/day
- Make the most of every bite



# Fluids

- Goal: 2–3 quarts/day
- Why are fluids important?
  - Protects kidneys
  - Prevents dehydration
  - Helps keep mouth moist
  - Thins mucous
- Tips
  - Sip fluids throughout the day
  - Limit caffeine
  - Flavored or infused waters
  - Other sources: broth, soups, smoothies, gelatin, popsicles/ices, ice cream



# Protein

- Basic building block of every cell
- Needed for healing
- Helps maintain muscle mass
- Limit “processed/cured” meats
- Include protein food at all meals/snacks
- Food Sources:



Animal Proteins	Plant-based Proteins
Meats (beef, pork, poultry)	Legumes (“beans”)/Lentils
Fish and seafood	Soy (edamame, tofu, soy milk)
Eggs	Nuts/seeds
Dairy (milk, yogurt, cheese)	





# Carbohydrates

- **Whole grains**
  - Select less processed breads, pastas and grains, if you can tolerate them
    - Recommend: whole grain bread/pasta, brown rice, quinoa, farro, bulgur
  - Limit foods based on refined (“white”) flour and/or sugar , unless you need the calories
    - Examples: white bread/pasta, cakes, pies, cookies, crackers
- **Fruits and Vegetables:**
  - Eat the Rainbow
  - Can use different forms: fresh/frozen/canned/puree/juice
  - Low calories and high in nutrients
    - Add calories with high fat or high protein ingredients, if you need the calories
- **Dietary Fiber**
  - Insoluble
  - Soluble
- **Phytonutrients** = “Fight -O- nutrients”





## Common Phytonutrients in food

	COLOR	PHYTONUTRIENT	BENEFITS	PRESENT IN
GREEN		<b>Lutein</b> (Yellow-green and Leafy greens)	Helps in maintaining good vision. Reduces risk of Cataracts.	Kale, Spinach, Leafy greens, Lettuce, Peas, Kiwi fruit.
		<b>Indoles</b> (Cruciferous vegetables)	Reduces risk of cancers like breast and prostate cancer.	Broccoli, cabbage, turnips, cauliflower, kale.
ORANGE		<b>Beta-carotene</b> (Dark Orange)	Powerful antioxidant. Reduces risk of heart disease and cancer.	Carrots, Pumpkin, Mangos, Apricots, Peaches.
		<b>Bioflavonoids</b> (Yellow-Orange)	Help maintain good vision, teeth/bones and healthy skin. Also, powerful antioxidants.	Oranges, grapefruits, lemons, pears.
RED		<b>Lycopene</b>	Helps control high blood pressure. Reduces risk of cancers and heart attacks.	Tomato-based products, fresh tomatoes.
		<b>Anthocyanins</b>	Powerful antioxidants. Reduces risk of cancer, diabetes and Alzheimer's.	Strawberries, raspberries, red apples, cabbage.
BLUE		<b>Anthocyanins</b>	Powerful antioxidants. Reduce risk of cancer, heart disease, diabetes and age-related amnesia.	Blueberries, black berries, purple grapes, black currants.
		<b>Phenolics</b>	Powerful antioxidants. May slow effects of aging.	Eggplant, dried raisins, plums.
WHITE		<b>Allicin</b>	Helps lower high blood pressure and high cholesterol. Reduces risk of heart attacks and cancer.	Garlic, onions, leeks, scallion, chives.

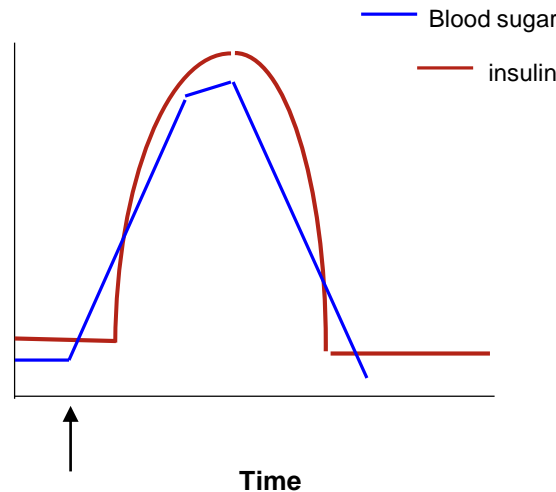


# What about sugar?

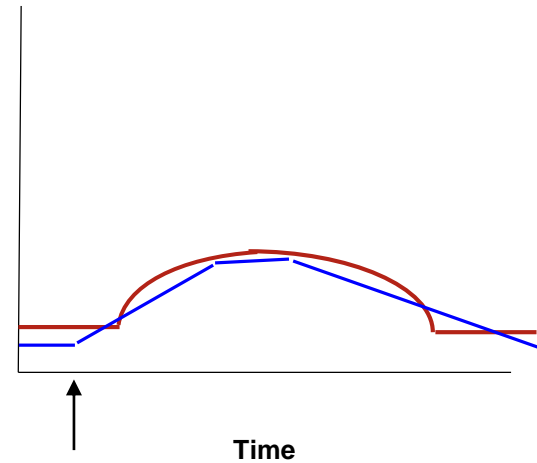
- Does sugar “feed” cancer?
  - All body cells use sugar (glucose) and the body will make sugar from stored carbohydrates or muscles – you cannot deprive a tumor of sugar by limiting it in your diet.
  - There might be a connection between elevated insulin levels and growth factors – controlled more by exercise
- Tips to stabilize insulin levels:
  - Limit “Added sugars”
    - Candy, soda, baked goods, sweetened coffees/teas, fruit juice, honey, agave, maple syrup
  - Choose whole grains, if possible
  - Monitor portion size of carbohydrate foods
  - Pair with protein and/or fat
  - Spread carbohydrates throughout the day
  - Physical activity



# Insulin response of simple vs complex carbohydrate



Carbohydrate (simple/refined)



Carbohydrate (complex/less processed)





Click [here](#) to view “Anytime Bars”  
recipe demonstration



# Fats

- Concentrated energy source
- Helps with absorption of fat soluble vitamins and phytonutrients
- Better choices
  - Nuts/seeds
  - Olive oil/canola oil
  - Avocados
  - Fatty fish- salmon, tuna, sardines, trout
- Good way to add calories in a smaller volume of food
  - Pestos, salad dressings, nut butters, guacamole, hummus



# Dietary Supplements

- Individual nutrients or bioactive substances sold in pill/powder forms
- Not regulated by the FDA
- Efficacy is not evidenced-based
- Potential adverse side effects; “natural” ≠ safe
- Interactions with chemotherapy regimens:
  - Green tea and Velcade
  - St John’s Wort
- Need to include in medication list in your medical record
- Discuss Risks vs. Benefits with Oncology Team (including oncology pharmacist)



# Food Safety Guidelines

- Wash hands/utensils
- Thoroughly wash fruits/vegetables
- Keep raw meats/fish separate from produce
- Eat hot foods hot/ cold foods cold
  - Limit exposure of foods to the “danger zone”
- Thaw foods in refrigerator or in microwave
- Avoid uncooked or raw meat/fish/poultry/eggs/dairy
- Cook meats/fish/poultry/eggs/casseroles to safe temperature
  - Have a food thermometer at home
- Leftovers- refrigerate quickly; eat within 2–3 days
  - “When in doubt, throw it out”
- Avoid buffets/salad bars
- Be aware of food recalls:
  - <https://www.foodsafety.gov/recalls/recent/index.html>





# Physical Activity

- Check with your medical team for clearance
- Try 10–15 minute intervals, 2–3 times/day
- Livestrong program, Gentle Yoga, ReNEW, walking
- Benefits
  - Helps maintain muscles
  - Helps manage constipation
  - Increases appetite
  - Improves immune function
  - Feel Better!





# Summary

- Adequate intake of calories, protein and fluids
- Aim to get your nutrients from a variety of foods
- Focus on the healthiest foods you can tolerate
- Follow food safety guidelines
- Light physical activity
- Seek help from your medical team or the oncology dietitian, if you are not able to eat well
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