Nutrition During and After Cancer Treatment

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Objectives

1. Understand benefits of adequate nutrition during cancer treatment
2. Understand nutrition and lifestyle recommendations for cancer survivorship

Disclosure: This event is intended as a support service in an educational format. This event does not establish a patient-provider relationship and is not meant to provide patient-specific clinical direction.

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Nutrition During Cancer Treatment

Malnutrition

A lack of proper nutrition that causes measurable adverse effects on tissue/body form, function, and clinical outcome

Consequences of Malnutrition

- Impaired immune response
- Reduced muscle strength
- Increased fatigue
- Impaired wound healing
- Reduced quality of life
- Reduced response to oncology treatment
- Potential increase in cost of health care
- Increased length of stay (>3 days)

Cancer patients are at higher risk of malnutrition

At time of diagnosis:

- Up to 70% of patients with ovarian cancer
- Majority (>50%) of patients have nutrition impairments

*Older patients, gyn cancers, and advanced stages are at higher risk

What can we do to help prevent/treat malnutrition?

1. Maintain weight
2. Maintain muscle mass
3. Manage treatment related side effects

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1. Manage weight

6% weight loss during treatment leads to;

- Reduced response to oncology treatment
- Decreased survival
- Lower quality of life
- **Loss of skeletal muscle and fat stores**

The focus is adequate nutrition

Maintaining weight during treatment is KEY

Current evidence shows that slow intentional weight loss during treatment in obese patients with management of other adverse effects is safe

2. Maintain Muscle Mass

Loss of muscle mass:

Can occur when significant weight loss occurs

Anti-cancer treatments (chemo, radiation, surgery) can increase muscle mass loss and therefore lead to reduced physical function

33-50% of adults with cancer need assistance with activities of daily living (indicating a decrease in functional capacity)

Poor physical function is associated with worsened treatment tolerance, less independence, and higher all-cause mortality

Exercise can help!

Benefits of Exercise **During** Treatment

Exercise should be part of the treatment plan

<u>Benefits of exercise:</u>

- Reduce symptoms of treatment related side effects
- Boost mood
- Decrease fatigue and increase energy levels
- Improve sleep
- Maintain function
- Improve quality of life

Recommendations

Any increase in activity is beneficial
Aim for an active vs sedentary lifestyle
Physical activity and exercise is generally safe in all cancer treatments, including palliative treatments
Include both aerobic and strength training if able
Bfit Bwell program

3. Manage Treatment Side Effects

Common Side Effects
Nausea/Vomiting
Poor appetite or poor intake
Constipation
Diarrhea
Mouth sores
Taste changes
Dry Mouth
Early Satiety
Difficulty Swallowing
Reflux/Gas
Delayed gastric emptying/malabsorption
Cold sensitivity

Side Effects	Nutrition Intervention
Nausea/Vomiting	• Small frequent meals • Choose high calorie/high protein foods in smaller quantities • Avoid foods with strong smells • Choose more bland foods
Poor appetite or poor intake	• Small frequent meals • Consume protein with each meal and snack • Schedule meals or use alarms/reminders • Increase exercise/movement to boost appetite • Rely on comfort foods
Constipation	• Consume adequate fluids daily • Increase fiber in the diet • Increase movement/daily activity
Diarrhea	• Limit high fiber, high fat, and greasy/spicy foods • Small frequent meals • Eat foods high in soluble fiber
Mouth sores	• Maintain good oral care • Use a baking soda and salt mouth rinse • Choose soft and moist foods
Taste changes/Dry Mouth	• Use a baking soda salt rinse daily or around meals • Add more spices, sauces, and marinades to improve flavor • Remove metallic utensils • Suck on hard candies
Early Satiety	• Small frequent meals • Drink fluids around meals instead of with meals
Difficulty Swallowing	• Choose soft and moist foods • Add sauces, gravies, oil/butter, and condiments to food • Use oral nutrition as needed

Nutrition During Treatment Summary

Prevent malnutrition

1. **Ensure adequate nutrition (comfort foods, easy foods, small meals)**
2. **Exercise during treatment**
3. **Remedy those side effects**

Nutrition After Treatment (Survivorship)

Cancer Survivor

Any individual with cancer from the time of diagnosis throughout life

Cancer survivorship has increased to 18 million survivors as of Jan 1st 2022

The overall 5-year relative survival rate for all cancers combined is now 68%

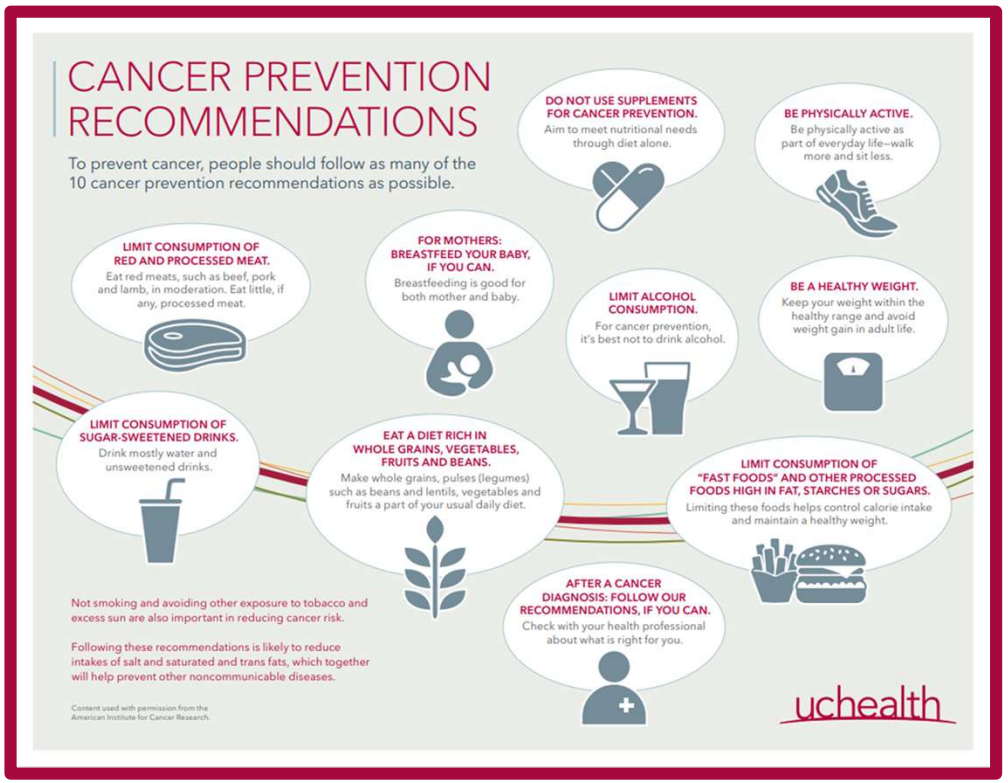
The 5-year relative survival for cancer of the uterine corpus is 81%

Over the past 30 years, there has been approximately a 32% decline in the overall cancer death rate

.Cancer Treatment & Survivorship Facts & Figures 2022-2024

Nutrition and Cancer Risk Reduction

An estimated 40% of cancer cases in the United States could be prevented through healthful dietary patterns, regular physical activity, maintaining a healthy weight, avoiding tobacco and excess sun exposure, and getting certain vaccines and regular screenings



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Cancer Prevention/Recurrence Recommendations (for most patients)

1. Be a healthy weight
2. Be physically active
3. Eat a diet rich in whole grains, vegetables, fruits, and beans
4. Limit consumption of “fast foods” and other processed foods that are high in fats, starches, or sugars
5. Limit consumption of red and processed meat
6. Limit consumption of sugar-sweetened drinks
7. Limit alcohol consumption
8. Do not use supplements for cancer prevention
9. For mothers: breastfeed your baby, if you can

1. Be a healthy weight

- Extra weight on your body increases risk of different medical conditions, including cancer
- Research shows that staying a healthy weight can reduce cancer recurrence
- Carrying extra body fat, especially around the abdomen (belly), has been tied to higher cancer risk
- If you are overweight or obese, try to lose about 1-2 pounds per week

2. Be physically active—walk more and sit less

- **Try to be active every day**
- Each week, aim for 150 minutes of moderate-intensity aerobic physical activity or 75 minutes of vigorous-intensity aerobic activity:
  - Examples of moderate-intensity activities: walking, cycling, household chores, gardening, swimming and dancing.
  - Examples of vigorous-intensity activities: running, fast swimming, fast cycling, aerobics and some team sports.
- Try to break any sedentary habits, such as sitting too much or not getting any regular exercise
- Find activities and movement that you enjoy!

"Survivors of female reproductive cancers who were the most physically active postdiagnosis had a 33% lower risk of all-cause mortality compared with the least physically active female reproductive cancer survivors."

Getting regular activity EVERY DAY in ANY WAY lowers your risk for cancer

3. Eat a diet rich in whole grains, vegetables, fruits, and beans

•2/3 of the plate: Plant foods

•Non-starchy vegetables and whole fruits

•Whole grains

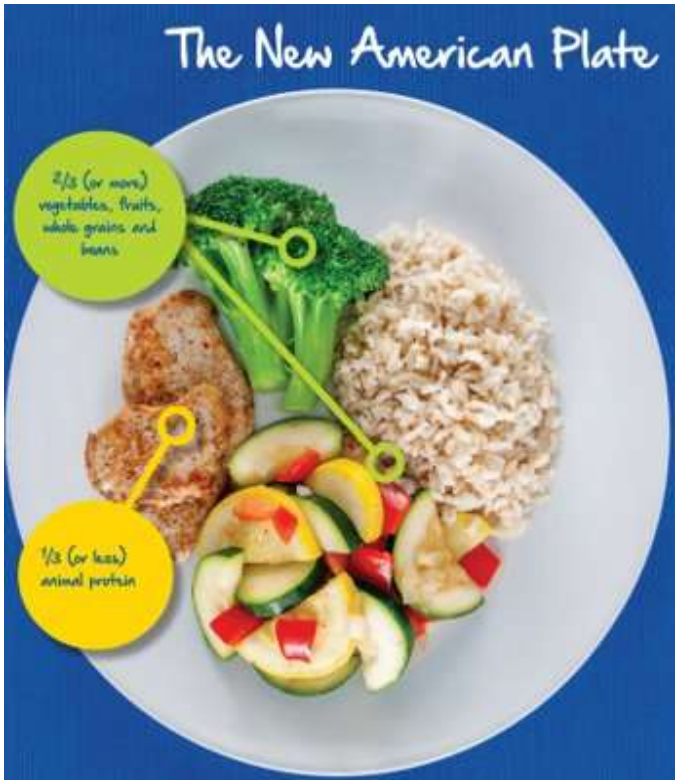
•Plant-based proteins (soy, beans, lentils, nuts)

•1/3 of the plate: animal based lean protein sources

•Fish, poultry, eggs, beef, dairy

•Minimize lean red meat

•Avoid/minimize processed meat



Try to eat at least 3½ to 5 cups of fruits and vegetables each day

Eat at least **30 grams** of fiber from food sources

Incorporate More Plants

- Eat the rainbow!
- Try to make 50% of grains whole grains;
  - Oats, brown rice, buckwheat, quinoa, barley, bulgur, whole wheat pasta, whole grain bread
- Fiber: support digestion, blood sugars, cholesterol, weight
- Choose plant-based proteins over animal-based proteins:
  - Beans (black, kidney, white, pinto, fava, garbanzo)
  - Lentils (red, yellow, green, brown; also split peas)
  - Nuts and nut butters (almonds, brazil nuts, cashews, pistachios, walnuts, peanut butter)
  - Seeds (chia, flax, hemp, pumpkin, sesame, sunflower)
  - Soy (tofu, edamame, tempeh), seitan, soy milk

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Soy and Cancer

Soy foods are safe to eat and do not cause cancer

- Soy foods contain several nutrients and phytochemicals believed to have cancer fighting properties
  - Isoflavones
- Isoflavones: previously believed to act as estrogen in the body and increase cancer growth
  - Previously only seen in rodent models-- which process soy differently than humans
- A large body of research now shows that Isoflavones can bind to estrogen receptors and may act as tumor suppressants, turn on genes to slow or destroy cancer cells, and support antioxidant defenses
- Studies have shown up to 3 servings/day – up to 100 mg/day of isoflavones – consumed in Asian populations long-term does not link to increased breast cancer risk
- Emerging research shows soy foods may increase variety of health-promoting bacteria in the gut microbiome

- Soy isolate and soy-based protein powders are not harmful but not as beneficial as the whole food (less isoflavones)

Choose whole soy foods more often for all the benefits

~Tofu, soy milk, edamame, tempeh and soy nuts~

One serving averages about 7 grams of protein and 25 mg isoflavones

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4. Limit Consumption of “Fast Foods” & Other Processed Foods High in Fats, Starches, or Sugars

*High intake of processed foods has been found to increase risk of many chronic diseases and disorders
  - Processed foods: often low in fiber, protein and micronutrients, but high in added sugar, salt, fat, and food additives

- Decrease intake of saturated fat and increase intake of unsaturated fat

Saturated Fat Sources	Unsaturated Fat Sources
Animal protein (dark meat of poultry, red meat)	**Fatty fish**
Full fat dairy and cream	Avocado
Butter, lard	**Canola/flaxseed oil**, olive oil, corn oil, safflower oil
Tropical oils such as coconut oil and palm	Nuts/seeds: **Flaxseed**, sunflower, **walnuts**, almonds, cashews

Limit sodium/salt intake to less than 2300 mg per day
  - 1 teaspoon salt = 2300 mg sodium

- Limit added sugar in foods
  - Look for in unexpected places: marinara sauce, yogurt, peanut butter, and breads

5. Limit Consumption of Red and Processed Meats

•The type of iron in red meat can lead to the formation of unstable atoms that damage DNA and promote the formation of compounds that can damage the gut and lead to cancer

•Cooking red meat at high temperatures (and smoking or grilling meat) can produce other cancer-causing compounds

•Red meat may also increase cancer by creating chronic low grade inflammation

•Red meat = anything with 4 legs: beef, pork, lamb, big game meats

Processed meats = ham, salami, deli meat, bacon, sausages, frankfurters, chorizo

•Preserved by smoking, salting, curing or adding chemical preservatives

•Contain high amounts of saturated fat and salt

Recommendations

- Limit intake of red meat to <18 oz per week (~3 portions per week)
- Think of lean meat as a side dish to plant based meals
- Go meatless occasionally ("meatless Monday")
- Eat little, if any, processed meats

6. Limit Consumption of Sugar-Sweetened Drinks

- Consuming soda and other sugary drinks increases the risk of weight gain, overweight, and obesity

- Sugar-sweetened beverages:

Regular soda, juice, sports drinks, energy drinks, tonic, fruit punch, lemonade, sweetened iced tea, sweetened coffee/tea

Healthy alternatives :

- Sparkling water or plain water
- Flavored water that do not contain added sugar
- Infused water with fruit
- Unsweetened tea (black, oolong, green, white)
- Unsweetened coffee

- Studies found that polyphenols in coffee and tea have cancer-fighting potential as antioxidants

Sugar and Cancer

Research does NOT show a direct link between intake of added sugar and cancer risk/survival

- All carbohydrates (including fruits, vegetables, whole grains, dairy) are broken down to simple sugars (glucose) during digestion
- Every cell in the body uses glucose for fuel
- Glucose is key to cell function, especially brain function
- *There is no clear evidence that the sugar in your diet preferentially feeds cancer cells over other cells OR that your cancer cells can only feed off sugar

The connection between sugar intake and cancer risk/occurrence is due to weight gain with diets high in sugar

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7. Limit Alcohol

It is the third leading modifiable risk factor that increases cancer risk/recurrence

The less alcohol you drink, the better

- Even one drink or less per day decreases risk of cancer
- If you are going to drink, consider drinking less
- Alternate between alcoholic beverages and non-alcoholic at social events
- Choose mocktails or alcohol-free substitutes

8. Do Not Use Supplements for Cancer Prevention

Whole foods are best!

•Foods are complex - nutrients may work in synergy for better utilization/absorption

•Research indicates benefits of antioxidants and phytochemicals are due to these components when ***eaten***, not taken in supplement form

•**Research shows that supplements do not offer cancer protection or prevent cancer recurrence**

Beneficial for:

•Identified nutrient deficiency (ex. Vitamin D, Magnesium, Calcium)

•Malabsorption or restricted diets

Important information to consider:

•Supplements are not regulated by the FDA

•High doses of some supplements may be harmful

•Some vitamins/herbals may enhance or weaken effects of pharmaceutical medications and cancer treatments

Bone Health

Some cancer treatments put patients at risk for impaired bone density and osteoporosis

- Chemo, radiation, long-term prednisone use, aromatase inhibitors, and androgen deprivation therapy (ADT)

Premature menopause increases risk for osteoporosis

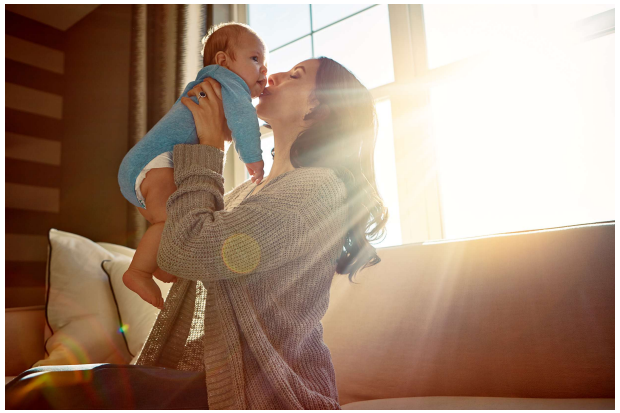
Vitamin D	Calcium
Daily recommended amount: 600 IU (15 mcg) if under 70 years old 800 IU (20 mcg) if over 70 years old	Daily recommended amount: Ages 19-51: 1000 mg Women age 51+: 1200 mg Men age 70+: 1200 mg
Normal: serum levels > 30 ng/mL *toxic levels can occur	Supplementation should be taken as divided 500 mg doses
Found in fortified dairy foods, fatty fish, and fortified cereals -Sunlight	Found in low fat dairy, leafy greens, beans, almonds -Weight bearing activities

Postmenopausal osteoporosis:
1200 mg Calcium
800 IU of Vit D
daily

9. For Mothers: Breastfeed your Baby, if You Can

Research:

- Evidence strongly suggests breastfeeding can lower mother's risk for breast cancer
- Breastfed babies may be less likely to develop overweight and obesity in adulthood
- WHO and UNICEF recommended exclusively breastfeeding for the first 6 months of life, if possible
- If you are breastfeeding, consult with your MD

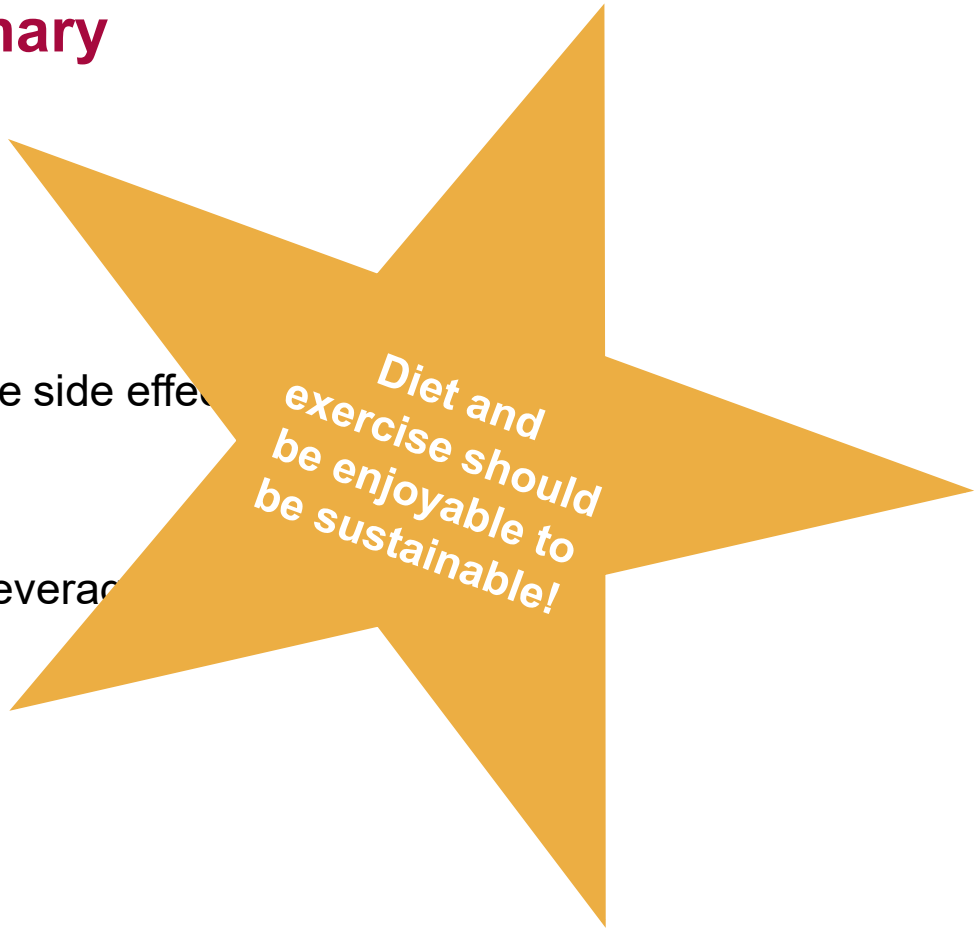


Tips for Implementing Recommendations

Consume only plants are breakfast	Swap-out a deli meat sandwich at lunch	Participate in “Meatless Monday”	Take your favorite meal and replace meat with a plant protein
Skip using the salt shaker	Choose unsweetened beverages such as sparkling water	Make fun mocktails	Participate in movement you enjoy
Choose vegetarian when eating out	Add vegetable or olive oil when cooking and butter afterwards for the flavor	Try to eat 30 different plant foods per week	Choose an activity (walking, pickleball) when meeting up with friends

Summary

- Prevent malnutrition during treatment with;
  - Weight and muscle mass maintenance
  - Management of treatment side effects
- Adequate nutrition is key
- Meet with your RD and oncology team to manage side effe
- Exercise is beneficial during and after treatment
- Eat more plants and plant protein foods
- Limit processed foods/meat, sugar sweetened beverag
- Decrease or stop drinking alcohol
- Avoid supplements for cancer prevention



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Questions?