

# Nutrition and Bone Marrow Failure

Twyla Jackson, RDN, CSO, LD

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# Topics



- AICR Guidelines
- Food Safety Diet
- Managing Side Effects of Treatment
- Questions



# A Blueprint to Beat Cancer

## AICR RECOMMENDATIONS FOR CANCER PREVENTION

### *A Blueprint to Beat Cancer*

To prevent cancer, people should aim to follow as many of the 10 Cancer Prevention Recommendations as possible. However, any change you make that works toward meeting the goals set out in the Recommendations will go some way to reducing your cancer risk.

#### EAT A DIET RICH IN WHOLE GRAINS, VEGETABLES, FRUITS AND BEANS

Make whole grains, vegetables, fruits and pulses (legumes) such as beans and lentils a major part of your usual daily diet



#### LIMIT CONSUMPTION OF RED AND PROCESSED MEAT

Eat no more than moderate amounts of red meat, such as beef, pork and lamb. Eat little, if any, processed meat



#### LIMIT CONSUMPTION OF SUGAR-SWEETENED DRINKS

Drink mostly water and unsweetened drinks



#### LIMIT CONSUMPTION OF "FAST FOODS" AND OTHER PROCESSED FOODS HIGH IN FAT, STARCHES OR SUGARS

Limiting these foods helps control calorie intake and maintain a healthy weight



#### LIMIT ALCOHOL CONSUMPTION

For cancer prevention, it's best not to drink alcohol



#### DO NOT USE SUPPLEMENTS FOR CANCER PREVENTION

Aim to meet nutritional needs through diet alone



#### FOR MOTHERS: BREASTFEED YOUR BABY, IF YOU CAN

Breastfeeding is good for both mother and baby



#### AFTER A CANCER DIAGNOSIS: FOLLOW OUR RECOMMENDATIONS, IF YOU CAN

Check with your health professional about what is right for you



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Not smoking and avoiding other exposure to tobacco and excess sun are also important in reducing cancer risk.

Following these Recommendations is likely to reduce intakes of salt, saturated and trans fats, which together will help prevent other non-communicable diseases.

# Eating Well Using a Plant Based Eating Plan

- Plant based eating provides **antioxidants**, **anti-inflammatory** compounds, and **anticarcinogens** (phytonutrients/phytochemicals) that help “**fight**” cancer cells and scavenge free radicals in the body.
- Phytochemicals provide plants with color, odor, and flavor.
- Not one single food has all the phytonutrients in it.
- Research has shown that phytonutrients work better together, so variety is important.



# Eat the Whole Rainbow of Colors to Include a Variety of Phytonutrients/Phytochemicals

- **Red:** apples, bell peppers, cranberries, cherries, onions raspberries, tomatoes
- **Orange:** carrots, pumpkin, sweet potato, turmeric
- **Yellow:** apple, ginger, pear, pineapple, summer squash
- **Green:** broccoli, Brussels sprouts, green tea, kale, spinach
- **Purple:** Blackberries, blueberries, cabbage, eggplant, figs, grapes
- **Tan/White:** coffee, garlic, mushrooms, nuts, onions, seeds, soy, tea, whole grains



# Plate Method



# Non-starchy Vegetables

- Aim for 4 or more servings per day. ( 1cup raw leafy, ½ cup cooked/raw for all others)
- When cooking vegetables, they should be slightly cooked.
- Steam, bake, stir-fry, roast, or lightly sauté or raw. (Not deep fried)
- Drizzle 1tsp. Olive oil on vegetables for greater phytonutrient absorption!



# Fruits



- Aim for 2 – 3 servings per day. (1 medium or ½ cup cut up raw or canned, approx. 12 grapes)
- Choose fresh when in season, or canned in their own juice, or frozen with no added sugar.
- Avoid drinking fruit juices unless you need extra calories!



# Whole Grains

- Aim for 3 servings per day.
  - Brown and Wild Rice
  - Oatmeal
  - Quinoa
  - Barley
  - 100% whole wheat bread/English muffin
  - Whole grain cereal
  - Whole wheat pasta
  - Corn Tortillas
  - Corn, sweet potato, pumpkin, winter squash (acorn, butternut) – these starches are considered grains on your plate, not vegetables.



# Lean Protein Choices

- Dried Beans, Peas & Lentils: 3 – 4 servings per week
- Fish: 3 – 4 servings per week (not fried)
- Chicken and Turkey breast meat without skin
- Veggie Burgers
- Eggs – limit yolks to 3 or 4 per week
- Tofu
- Tempeh
- Soybeans/Edamame



# Dairy & Dairy Alternatives



- Aim for 2 – 3 servings per day.
  - Skim or 1% milk
  - Non Fat Greek Yogurt
  - Low Fat Cottage Cheese
  - 2% or Low Fat Cheese
  - Skim Soy Milk
  - Skim Lactaid
  - Almond Milk, Oat Milk, Rice Milk needs to be fortified with calcium and does not contain significant amounts of protein.



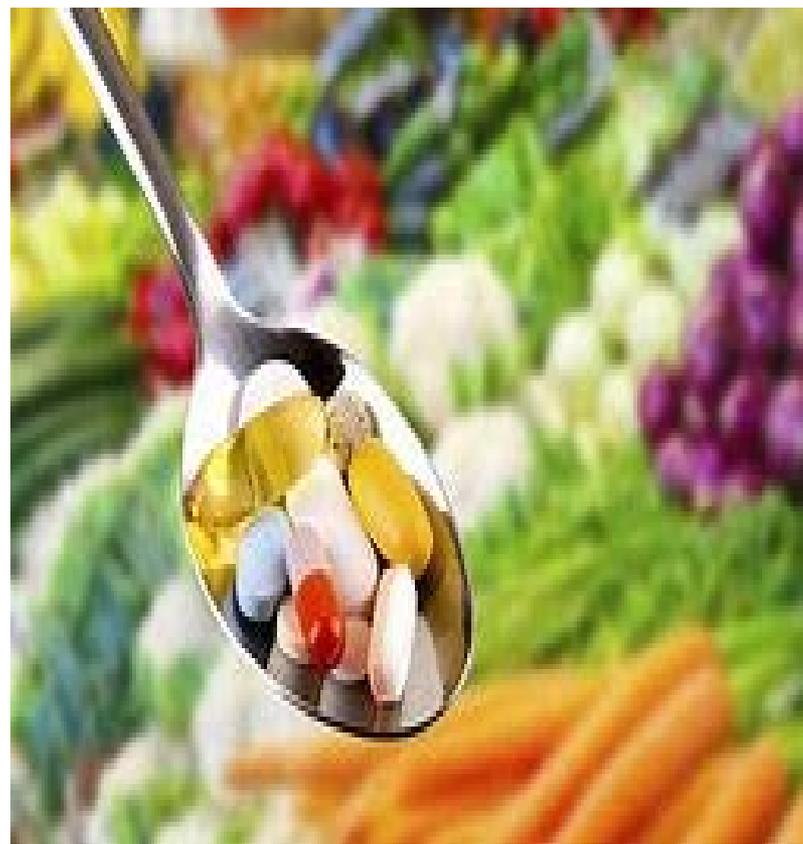
# Healthy Fats

- 1 – 2 servings per day.
  - Nuts and Nut Butters (Peanut Butter, Almond Butter, Cashew Butter)
  - Seeds: Flaxseed, Pumpkin Seed, Sesame Seed, Sunflower Seeds, Chia Seeds
  - Oils: Canola oil, Olive oil, Peanut oil, Flaxseed oil, Grape Seed oil, Safflower oil, Sesame oil, Sunflower oil
  - Avocados
  - Olives



# Don't use supplements to protect against cancer

- Best is to consume a balanced diet with a variety of foods rather than mega dose supplementation
- Not known exactly what nutrients do what in prevention/recurrence of cancer- seems it's the combination of fiber, vitamins, micronutrients and phytochemicals
- Always review with your cancer team if you start taking supplements- some health professionals do recommend certain supplements given certain situations
- 60-80% of cancer patients have taken supplements before, during and after diagnosis and treatment



# Supplements that may help

- Vitamin D
  - Modulation of cell growth (Many genes encoding proteins that regulate cell proliferation, differentiation, and apoptosis are modulated in part by vitamin D.)
  - Most cancer patients are deficient. Ask your MD to check levels.
  - Recommended level greater than 40nl/ml
- Calcium
  - Good for bone health; works with Vitamin D
  - Ask doctor to check bone status
- Omega 3
  - Anti-inflammatory
  - Reduce muscle wasting during treatment
  - Good for cardiovascular disease
- Probiotics
  - Increase healthy gut flora
  - DO NOT use when neutropenic



# Sources for evaluating supplements



Natural Medicines Comprehensive Database:  
<http://naturaldatabase.therapeuticresearch.com/home>

National Institutes of Health:  
<http://www.nlm.nih.gov/medlineplus/dietary-supplements>

Memorial Sloan-Kettering Cancer Center:  
About Herbs, Botanicals, and other Products:  
<http://mskcc.org/cancer-care/integrative-medicine/about-herbs-botanicals-other-products>



# Be physically active for at least 30 minutes every day

- May need more if goal is weight loss
- Linked to lower risk of breast, prostate and colorectal cancer

Helps with:

1. Quality of Life
2. Muscle mass
3. Muscle strength
4. Flexibility
5. Improved mood and thinking

Also decreases treatment side effects

1. Decreases fatigue
2. Decreases weight loss with more muscle
3. Decreases inflammation
4. Decreases levels of estrogen and other hormones that could promote cancer

ALWAYS TALK TO YOUR HEALTHCARE PROVIDER FOR OPTIMAL EXERCISE REGIMEN



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# Where to Find More Information

- American Cancer Society: [cancer.org](http://cancer.org)  
1-800-227-2345
- American Institute of Cancer Research (AICR) [aicr.org](http://aicr.org): 1-800-843-8114
- Books:
  - *American Cancer Society Complete Guide to Nutrition for Cancer Survivors: Eating Well, Staying Well During and After Cancer, 2<sup>nd</sup> Edition*
  - *What to Eat During Cancer Treatment*
  - *American Cancer Society's Eating Healthy Cookbook, 3<sup>rd</sup> Edition*



# Food Safety

There is no uniformly recognized and defined “neutropenic diet.” Recommendations may vary from one institution to another.

- **Shopping-** Avoid buying food with damaged packaging. Pay attention to expiration dates vs “Best By” dates. Avoid eating from bulk bins, salad bars, delis, buffets, “potlucks,” and sidewalk vendors.
- **Storing-** Refrigerate perishable food within 1-2 hours. Store raw meat separately from other items.
- **Preparation-** Wash your hands frequently, using soap & warm water for at least 20 seconds before & after preparing food and before eating.
- Sanitize all food prep areas and equipment, including cutting boards and can openers.
- Clean the tops of cans before opening.



# Food Safety- Preparation



- Prevent cross contamination. Use separate cutting boards for different types of food. Keep raw/uncooked foods away from cooked items.
- Wash fresh produce thoroughly **before** peeling, slicing, eating, and/or cooking. Remove bruised or damaged areas. If you use a produce brush, sanitize it between uses. **Avoid** fermented vegetables, raw mushrooms, and raw vegetable sprouts.
- Do not eat raw, unpasteurized, or undercooked animal products.
- Avoid cheeses with molds and yogurt with added cultures.
- Do not drink untested water or water from rivers, streams, etc.
- Change water filter regularly.
- **Thawing**-Thaw frozen food in refrigerator, or under cold running water. Microwave thawing-cook immediately after thawing.



# Food Safety

- **Cooking**- Cook food to proper temperatures (meats at least 145F/60C, ground meats at least 160F/71C, poultry at least 165F/74C.)
- **Serving**-Hot foods at least 140 F. Cold foods 40F/4C or below. Avoid buffets, salad bars, & other places where foods may not have been held at correct temperatures.
- **Leftovers**- Properly wrap and store leftover foods promptly. Use cooked leftovers within 4 days. Reheat to at least 165F/74C.
- References:  
[CDC.gov/listeriaprevention.html](http://CDC.gov/listeriaprevention.html); *The Clinical Guide to Oncology Nutrition*, Second Edition; Nutrition Care Criteria, Seattle Cancer Care Alliance; [foodsafety.gov](http://foodsafety.gov)



# Managing Side Effects of Treatment

## Poor Appetite

- Small, frequent meals
- Largest meal when hungriest
- Consume high protein food first
- Have high protein/calorie beverage/food within reach
- Stay away from strong odors- may choose cool/room temperature foods
- Avoid very greasy, high fat foods with nausea
- Be consistent & proactive with anti-nausea medication

## GI Issues

- Diarrhea
  - Consume low fiber, bland foods during this time (no whole grains, raw vegetables, nuts)
  - Drink fluids, especially with electrolytes
- Constipation
  - Consume high fiber foods (whole grains, cooked and raw vegetables)
  - Drinks plenty of fluids (prune juice, water, warm fluids)
  - Increase physical activity when possible



# Questions?



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