

# Nutrition and Cancer Survivorship

## Guidelines from the Continuous Update Project



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# #1. Be a Healthy Weight

- Next to not smoking, maintaining a healthy weight is the most important thing you can do to reduce your cancer risk.<sup>1</sup>
  - Being overweight/obese increases your risk for 12 different types of cancers.
- Melanoma and Obesity Link<sup>2</sup>
  - Obesity → Chronic Insulin Resistance (Insulin Resistance is an independent risk factor for melanoma)
  - Obesity → Larger body surface area exposed to sunlight → Larger number of cells exposed to risk
- Normal Body Mass Index
  - BMI 18.5-24.9



1. <http://www.aicr.org/cancer-research/dietandcancerreport/>  
2. European Journal of Cancer (2013) 49, 642– 657

## #2. Be Active

- Physical Activity in any form helps lower cancer risk.
- Aim for a minimum of 150 minutes of moderate, or 75 minutes of vigorous, physical activity a week.
- For cancer prevention and weight control, higher levels of activity provide even more benefit.

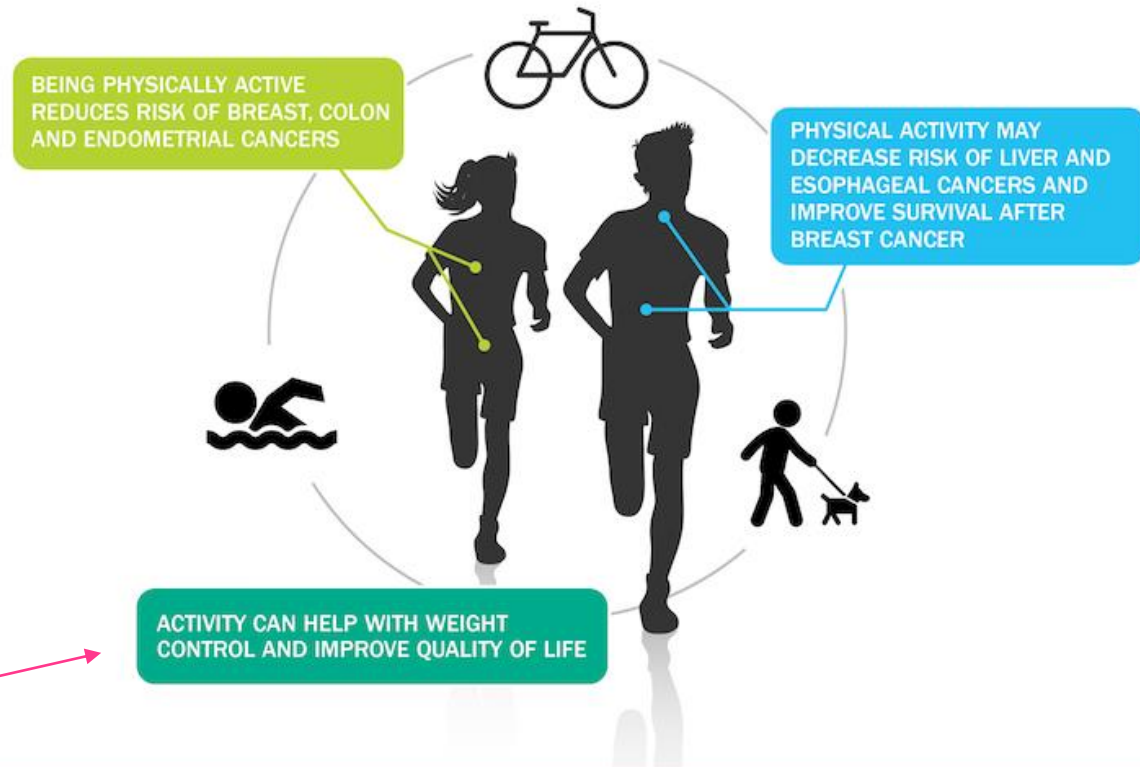


GETTING REGULAR PHYSICAL ACTIVITY  
**EVERY DAY  
IN ANY WAY**  
LOWERS RISK FOR CANCER

**WALK MORE AND SIT LESS**

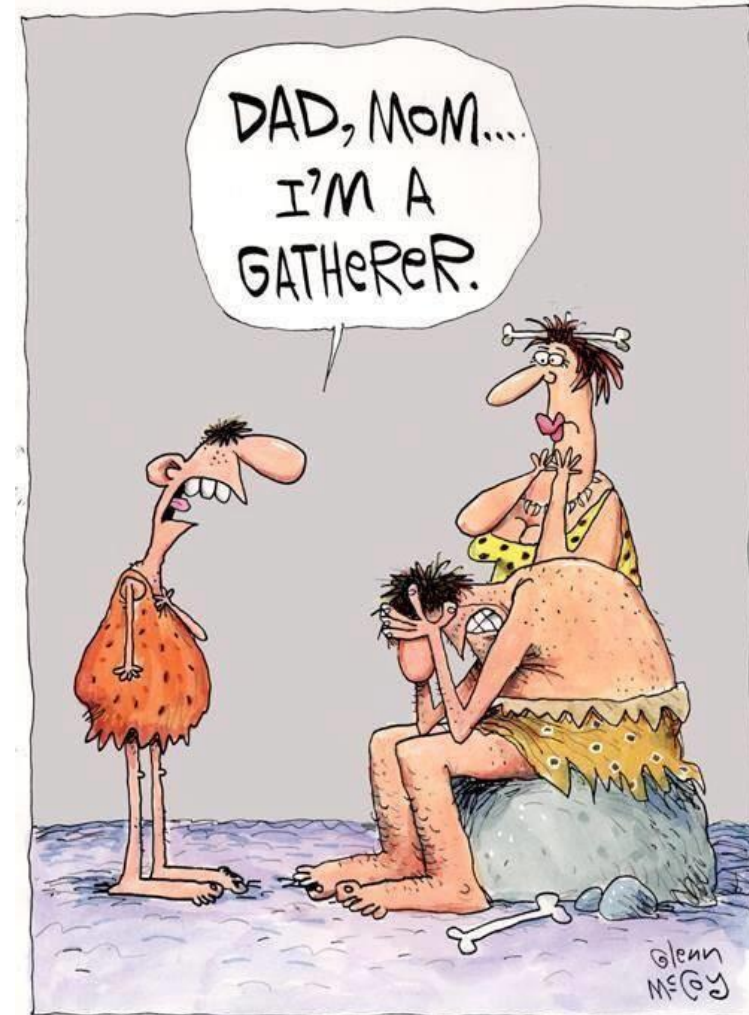
AIM TO GET AT LEAST  
**150 MINUTES  
A WEEK**

FOR MORE PROTECTION, BE ACTIVE FOR  
**45 - 60 MINUTES EVERY DAY**



# #3. Eat a Diet Rich in Whole Grains, Fruits, Vegetables, and Beans

- Basing our diets around plant foods, which contain phytonutrients, can reduce our risk of cancer.
- Phytonutrients have the potential to stimulate the immune system, slow the growth rate of cancer cells, and prevent DNA damage that can lead to cancer.



# The Plant Based Diet

- **Lycopene (tomato, watermelon, guava)**- Reduces oxidative stress and inhibition of platelet-derived growth factor-BB, reducing melanoma-induced fibroblast migration and signaling transduction<sup>1</sup>.
- **Resveratrol (grapes, berries, plums)**- Induces cell death, reduced proliferation of melanoma A431 cells.
- **Vitamin A (sweet potatoes, mango, cantaloupe, carrots)**- Contain retinoids that have been consistently reported to enhance skin repair after ultraviolet light damage and inhibit the growth of murine and human melanoma cells. Retinoids have also been shown to be effective in treating sun-induced skin lesions and reducing risk of second primary tumor in patients with prior epithelial cancer<sup>2</sup>.



1. American Academy of Dermatology, Inc.  
<http://dx.doi.org/10.1016/j.jaad.2014.01.910>  
2. Zhang Y-P, Chu R-X, Liu H (2014) Vitamin A Intake and Risk of Melanoma: A Meta-Analysis. PLoS ONE 9(7): e102527.  
doi:10.1371/journal.pone.0102527

<b>Tomatoes, Watermelon, Guava</b>	<b>Lycopene: Antioxidant; cuts prostate cancer risk</b>
<b>Carrots, Yams, Sweet Potatoes, Pumpkin, Mangos</b>	<b>Beta-Carotene: Antioxidant; supports immune system</b>
<b>Oranges, Lemons, Grapefruits, Papayas, Peaches</b>	<b><u>Vit C</u>, Flavonoids: Inhibit tumor cell growth, detoxify</b>
<b>Spinach, Kale, Collards, Other Greens</b>	<b>Folate: Builds healthy cells and genetic material</b>
<b>Broccoli, Brussels <u>Sprouts</u>, Cabbage, Cauliflower</b>	<b>Indoles, Lutein: Eliminate excess estrogen and carcinogens</b>
<b>Garlic, Onions, Chives, <u>Asparagus</u></b>	<b>Allyl Sulfides: Destroy cancer cells, reduce cell division, support immune system</b>
<b>Blueberries, Purple Grapes, Plums</b>	<b><u>Anthocyanins</u>: Destroy free radicals</b>
<b>Grapes, Berries, Plums</b>	<b>Reservatrol: May decrease estrogen production</b>
<b>Whole grains, Legumes</b>	<b>Fiber: carcinogen Removal</b>

# #4. Limit intake of “fast foods” and other processed foods high in fat, sugar, and starches



1575 Kcal  
High Energy Density



1575 Kcal  
Low Energy Density

## #5. Limit intake of red and processed meats

- Red Meat Includes: beef, pork, lamb
- Limit intake of red meat to 12-18 oz/week
- What should you replace red meat with?
  - Oily Fish (salmon, tuna, mackerel) have high isoprenoid content, which is known to inhibit melanoma B16 cell proliferation<sup>1</sup>.



3 oz of red meat



# #6. Avoid Processed Meats

- No Threshold Exists!
- Processed Meat is any meat that is preserved by smoking, curing, salting, or addition of chemical preservatives
  - Bacon
  - Hot Dogs
  - Pastrami
  - Deli Meats
  - Ham
  - Pepperoni
  - Bologna
  - Luncheon Meats
  - Sausage
  - Salami
  - Corned Beef



# #7. Avoid Sugar Sweetened Beverages

- Women= Limit to 6 teaspoons of ADDED SUGAR per day (25g)
- Men= Limit to 9 teaspoons of ADDED SUGAR per day (37g)



**16 oz Starbucks Triple Mocha Frappuccino  
51 g sugar**



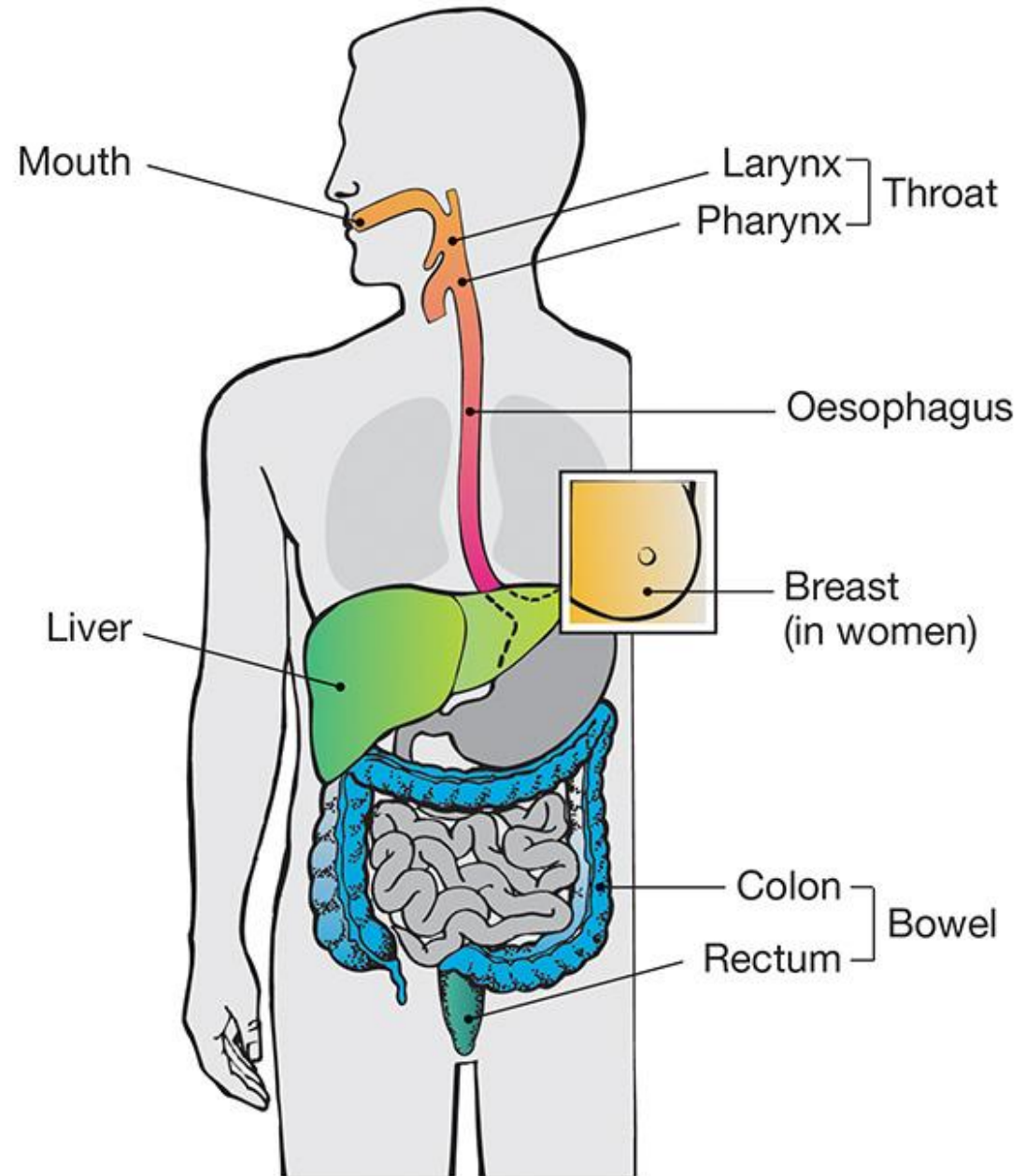
**18.5 oz Gold Peak Sweet Tea  
48 g sugar**



**16 oz Coke  
52 g sugar**

# #8. Avoid Alcohol Consumption

- Alcohol is linked to EIGHT different types of cancers!
  - Ethanol and Acetaldehyde (metabolized form of alcohol) are classified as known carcinogens.
  - Alcohol metabolism damages DNA, causes inflammation, interacts with folate and estrogen pathways.



# #9. Don't Use Supplements to Protect Against Cancer

- Aim to meet nutrition needs through diet alone



# A Few Hot Topics

Going Beyond the Recommendations

# Does Sugar Feed Cancer?

- Short Answer:
  - NO!



# Does Sugar Feed Cancer?

- **Long Answer:**

- Sugar is your body's favorite form of fuel. Without sugar we wouldn't survive.
- What does sugar do? It provides energy to EVERY cell in our body, most importantly our brain! Your brain uses 120g glucose/day itself.
- Even if you cut out sugar, including carbohydrates, from your diet, your body will still make its own. We cannot live without sugar in our blood so our bodies have a backup system that will make its own sugar out of our muscle (remember your heart is a muscle!) and fat.

# Should I Drink Alkaline Water?

- Short Answer
  - No!



**Pictured:** Robert O. Young, the man who pioneered the “Alkaline Diet”



# Should I Drink Alkaline Water?

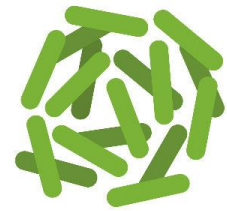
- **Long Answer**

- While cancer cells can't survive in high alkaline environments, **neither can any of the other cells in your body!** If your body suddenly changed pH levels (normal is 7.4), you'd be in the ICU.
- Everything you eat or drink goes straight your stomach, where it becomes acidic.
- From there, your intestines turns everything back to slightly alkaline with the help of your pancreatic secretions and enzymes.
- **Everything you eat ends up at the same pH, regardless of the pH it started as.** If you've been drinking alkaline water, you're just going to make alkaline urine in the end!

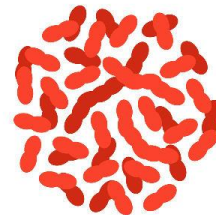
# Should I Take Probiotics?

- Short Answer
  - Depends...

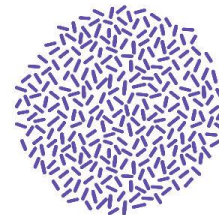
## PROBIOTICS



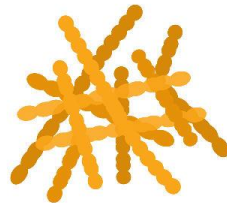
LACTOBACILLUS



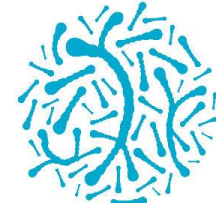
LACTOCOCCUS



PROPIONIBACTERIUM



STREPTOCOCCUS  
THERMOPHILUS



BIFIDOBACTERIUM



BULGARICUS

# Should I Take Probiotics?

- **Long Answer**

- Specific probiotics are recommended for specific gastrointestinal disorders
- The benefit of the probiotic lasts only as long as one consumes it

Clinical Condition	Effectiveness	Specific Strain of Organism and Strain Reference
Prevention of Antibiotic Associated Diarrhea	A	S. boulardii, LGG, Combo of L. Casei DN114 G01, L. bulgaricus, snf Streptococcus thermophilus
Prevention of Recurrent C. Diff Associated Diarrhea	B/C	S. boulardii, LGG, FMT
Prevention of C. Diff Associated Diarrhea	B/C	LGG, S. boulardii
Inflammatory Bowel Disease/ Ulcerative Colitis Inducing Remission	B	Escherichia coli Nissle, VSL#3
Inflammatory Bowel Disease/ Ulcerative Colitis Maintenance	A	E. coli Nissle, VSL#3
Irritable Bowel Syndrome	B	Bifidobacterium infantis B5624, VSL#3
	C	B. animalis, L. plantarum 299V
Radiation Enteritis	C	VSL#3, L. acidophilus

# What Did She Say?

- Be a healthy body weight by eating less and moving more
- Limit red meat to 12-18 oz/week
- Avoid processed meats
- Limit fast foods
- Avoid alcohol
- Limit sugar sweetened drinks
- Don't rely on supplements, get it from REAL food
- Eat mostly fruits, vegetables, whole grains, beans, nuts, legumes
- Sugar does not feed cancer
- Alkaline water is unfounded
- Probiotics may help some cases

