



Cancer's Sweet Truth: A Closer Look at Sugar and Cancer

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“Sugar feeds cancer”

“Eating sugar causes cancer”

“Cancer thrives on sugar”

“Cutting out sugar will kill cancer cells”

Research Update

- * Rapidly dividing cancer cells require higher levels of glucose than healthy cells.
- * This dependency on glucose distinguishes cancer cells from normal cells.
- * **Not all cancer cell types are sensitive to the removal of glucose → low levels may enhance survival.**
- * Even for the cancers that are sensitive, glucose depletion only slows down the rate of cancer progression.
- * The pathways that sensitize cancer cells to glucose deprivation remains poorly understood.

Sugar and Cancer

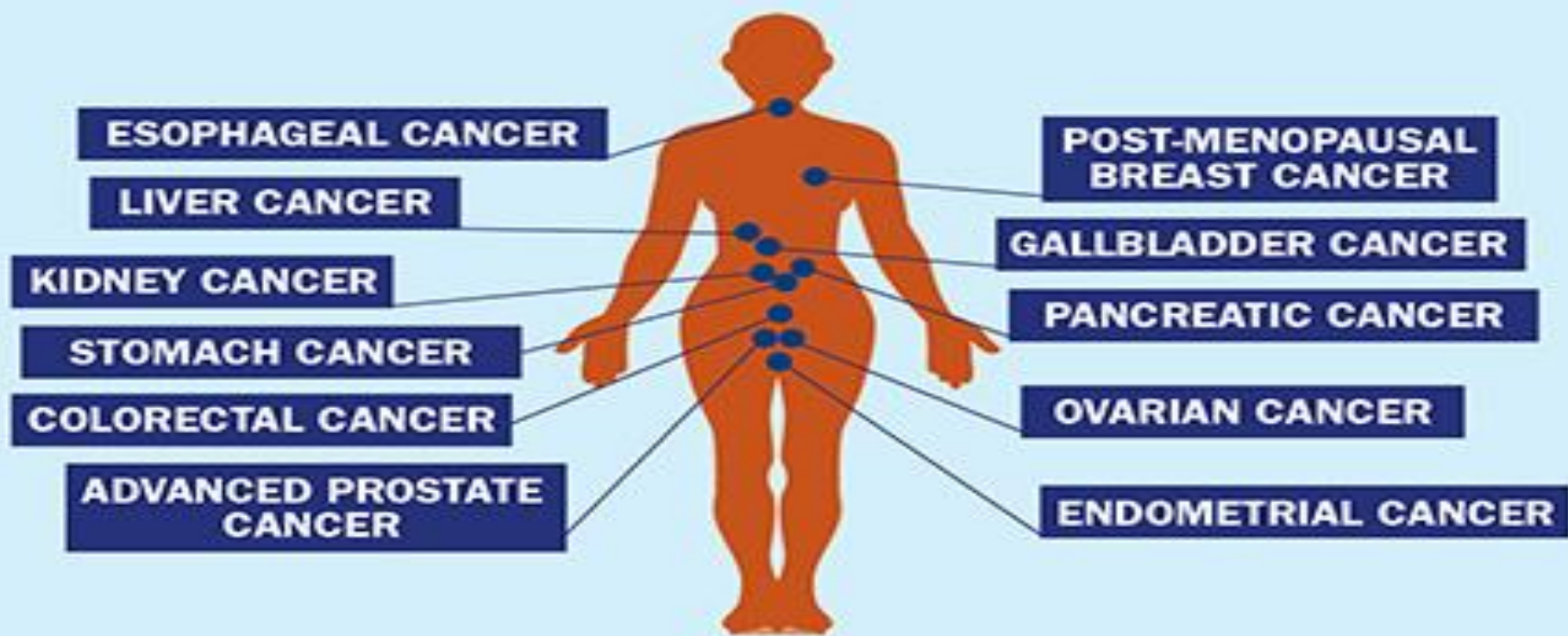
- * Carbohydrates in the food we eat break down to glucose, the sugar that is the main source of energy for the body.
- * All cells require glucose in order for the body to function effectively.
- * While a form of sugar is naturally found in fruits, vegetables, grains, and dairy foods, these foods offer more beneficial nutrients than highly processed foods with added sugars.

Sugar and Cancer

- * High sugar diets cause the body to release more insulin.
- * Elevated insulin levels create a more cancer-friendly environment.
- * Consumption of high-sugar foods increases overall caloric intake and can lead to excess weight and body fat.
- * Excess body fat is a risk factor for 11 different types of cancer.

WHAT YOU NEED TO KNOW ABOUT OBESITY AND CANCER

Overweight and obesity INCREASE RISK FOR



How much is too much sugar?

The American Heart Association has made the following recommendations for added sugar limits:

Children = Limit to 3-4 teaspoons per day (12-16g)

Adult women/teens= Limit to 6 teaspoons per day (24g)

Adult men/teens= Limit to 9 teaspoons per day (36g)

12 oz can of soda → 10 tsp

Three Oreo cookies → 3 tsp

A half cup of marinara sauce → 2 tsp

1 tablespoon of grape jelly → 3 tsp



Compare Favorite Coffee Drinks



Tall Starbuck's Caramel Frappuccino (12 oz)
300 calories
46 g sugar



Tall Starbuck's Toasted Coconut Cold Brew (12 oz)
40 calories
11 g sugar

Refined vs Natural Sugar

- * Refined sugars include table sugar, confectioners' sugar, brown sugar, corn syrup, high fructose corn syrup, pancake syrup, molasses
- * Natural sugars include raw honey, pure maple syrup, agave syrup, date and coconut palm sugars

Do not be fooled by the label!

Excessive intake of any sugars can lead to obesity

Glycemic Index of Sugars

Sugar	Glycemic index
Glucose (dextrose)	100
Table sugar (Sucrose)	63
High Fructose Corn Syrup	63
Maple syrup	54
Coconut Palm Sugar	54
Honey	48
Fructose	23
Agave	15
Xylitol	7
Stevia	0

High glycemic index diets have been shown to be linked to cancer

Fructose Content of Sugar



Sugar	Glycemic index	Fructose Content
Glucose (dextrose)	100	0
Table sugar (Sucrose)	63	0
High Fructose Corn Syrup	63	42 and 55%
Maple syrup	54	1%
Coconut Palm Sugar	54	9%
Honey	48	50%
Fructose	23	100%
Agave	15	84%
Xylitol	7	0
Stevia	0	0

Fructose is associated with deep belly fat, known as visceral fat. This type of fat has been labelled as a cancer promoter for its ability to produce inflammatory cytokines and estrogen.



RECOMMENDATION ON

SUGAR

Avoid sugary drinks.
Limit consumption of
energy-dense foods



Foods and drinks that are
high in refined carbohydrates,
added sugar, and fat
contribute to obesity-- a
major risk factor for cancer.



Energy Dense Foods

- * **Sugary drinks**—soft drinks, sweetened ice tea, fruit flavored drinks, fruit juice
- * **Baked goods**—desserts, cookies, pastries, and cakes
- * **Candy**
- * **Ice cream and frozen desserts**
- * **Chips**—potato, corn, pita
- * **Processed meat**—hot dogs, salami, pepperoni, bologna
- * **Fast food**—French fries, fried chicken, and burgers
- * **Packaged and processed foods** high in added sugars and fats

Moving away from Sugary Foods

- * Switch sodas for flavored sparkling water without added sugar
- * Opt for unsweetened tea
- * Add colorful fruit like berries, melon and citrus to your water
- * Sprinkle cinnamon or cocoa on your coffee beverages and skip the sugar
- * Carry healthy snacks like nuts, fresh or dried fruit or whole grain crackers and cheese instead of sugary snacks
- * Choose whole fruits and vegetables over juice

Healthy Carbohydrates

- * Choosing whole grain carbohydrates instead of simple carbohydrates will provide your body with more nutrients to maintain good nutrition during and after treatment
- * Whole wheat pasta, brown rice or quinoa, and whole grain bread are good higher fiber alternatives to their “white” counterparts.
- * Increase intake of vegetables, legumes, fruits, nuts and seeds










“Eat food. Not too much. Mostly plants.”

Michael Pollan

The New American Plate



Colorful Fruits, Vegetables, and Phytonutrients

Color	Phytonutrients	Fruits and Vegetables
White and Green	allyl sulphides	Onions, garlic, chives, leeks 
Green	sulforaphanes, indoles	Broccoli, Brussels sprouts, cabbage, cauliflower, kale 
Yellow and Green	lutein, zeaxanthin	Asparagus, collard greens, spinach, winter squash 
Orange and Yellow	cryptoxanthin, flavinoids	Cantaloupe, nectarines, oranges, papaya, peaches 
Orange	alpha and beta carotenes	Carrots, mangos, pumpkin 
Red and Purple	anthocyanins, polyphenols	Berries, grapes, plums 
Red	lycopene	Tomatoes, pink grapefruit, watermelon 

About 60% of the body's immune cells are present in the intestines



Promote a Healthy Gut



- * Complex carbohydrates provide the fuel, *prebiotics*, that maintain healthy gut bacteria which supports immune function
- * Refined sugars can promote growth of opportunistic bacteria such as *C difficile* and *C perfringens*

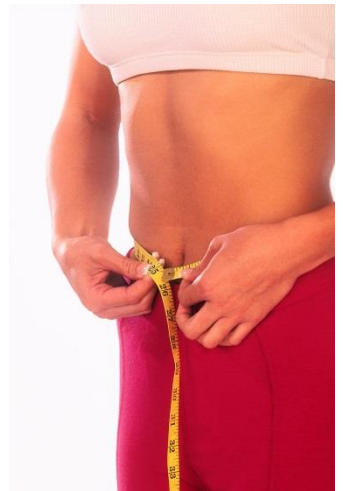
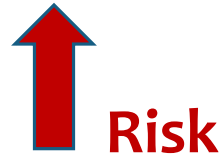
Exercise

- * Aim to exercise for at least 150 minutes per week.
- * Include strength training exercises at least 2 days per week.



Weight Goals

- * Maintain body weight within the normal BMI range
BMI 18.5-24.9
- * Avoid weight gain and increases in waist circumference
>31.5 inches for women
>37 inches for men



Keep a robust “health bank account”

What Choices are YOU Making?



Withdrawals

Too much Junk Food
Little, or No Exercise

Deposits

Nutritious Food
Adequate Exercise

80/20 Rule

* 80% of the time
eat healthy
(AICR guidelines)



* 20% of the time
indulge a little



Nutrition Recommendations

The World Cancer Research Fund/AICR says:

- 1. Be as lean as possible without becoming underweight**
- 2. Be physically active for at least 30 minutes every day**
- 3. Limit intake of energy-dense foods and avoid sugary drinks**
- 4. Eat a variety of vegetables, fruits, whole grains, and legumes/beans**
5. Limit intake of red meat and avoid processed meat
6. Limit intake of salty foods and foods processed with salt
7. Limit alcoholic drinks
8. Don't use supplements to prevent cancer



