Nutrition and Survivorship

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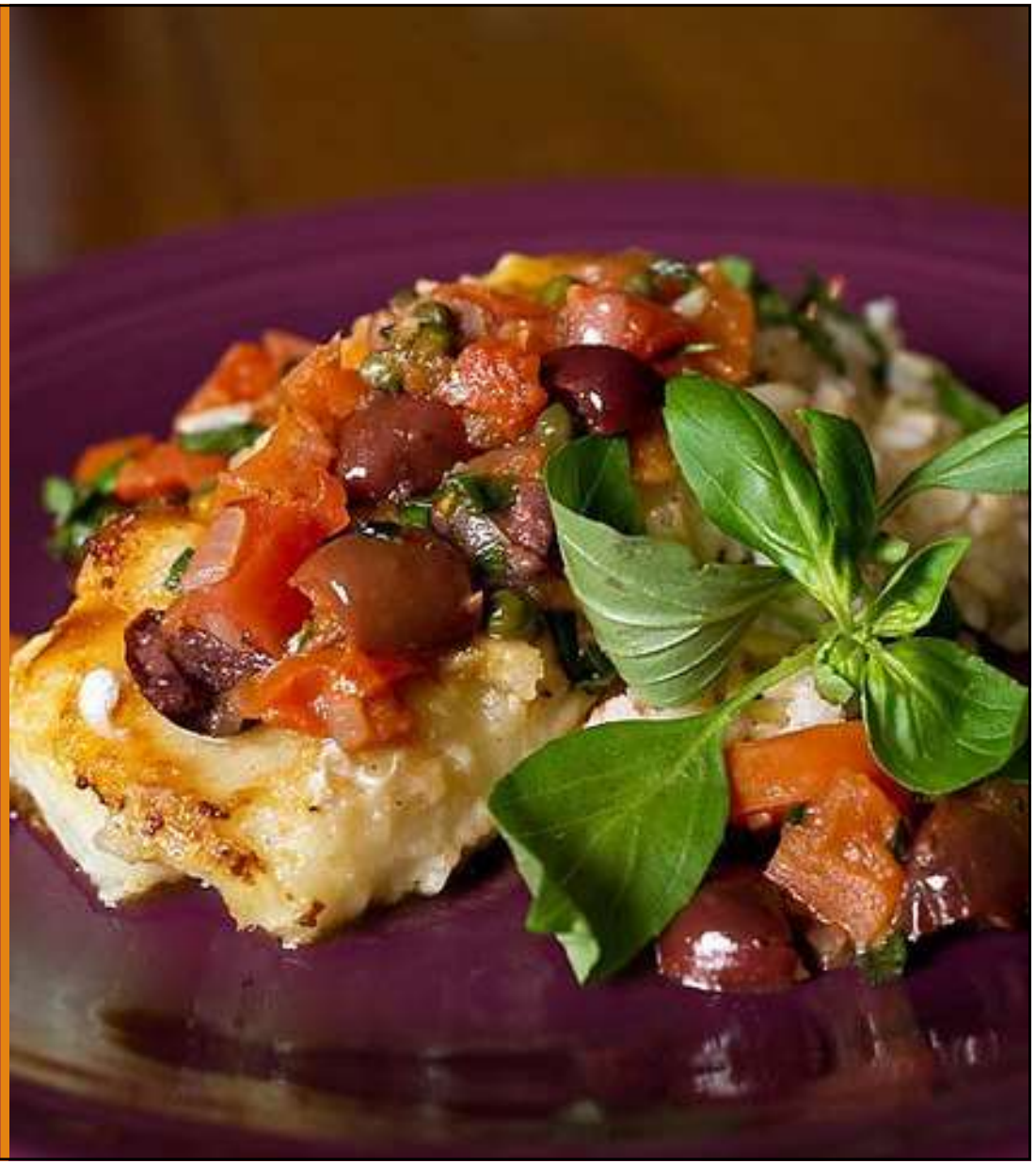

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Disclaimer

- This discussion is for general information only
- The presenter does not endorse or repudiate specific products discussed herein
- The information is not intended for individual advice or to suggest a course of treatment or dosage
- Discuss any changes in your treatment regimen with your doctor and health care professionals

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Learning Objectives

- Identify how nutrition is involved in cancer development
- Maximize diet choices for the best outcomes associated with cancer risk reduction
- Clear up any misconceptions related to nutrition and cancer

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Cancer: The Cellular Level

Initiation – Pro-carcinogens enter the cell

- Nutrients can block the change

Promotion

- Promoters of the proliferation of cells
  - Smoke, exposure to asbestos, etc.
- Results in increased number of mutated (changed) cells

Progression

- Latent initiated cells can be transformed into differentiated cells that progress into tumor
- May be a process that happens over years
- Can often be reversed with lifestyle choices

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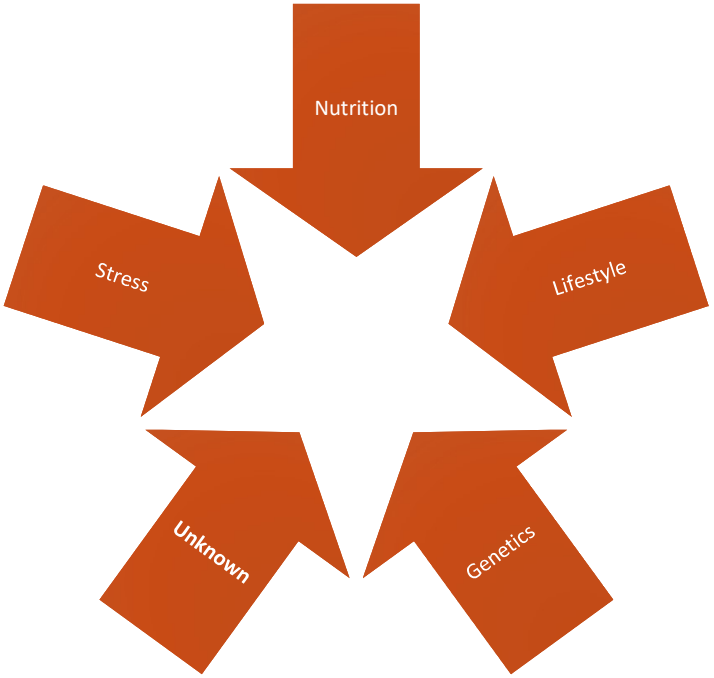
Cancer: The Cellular Level



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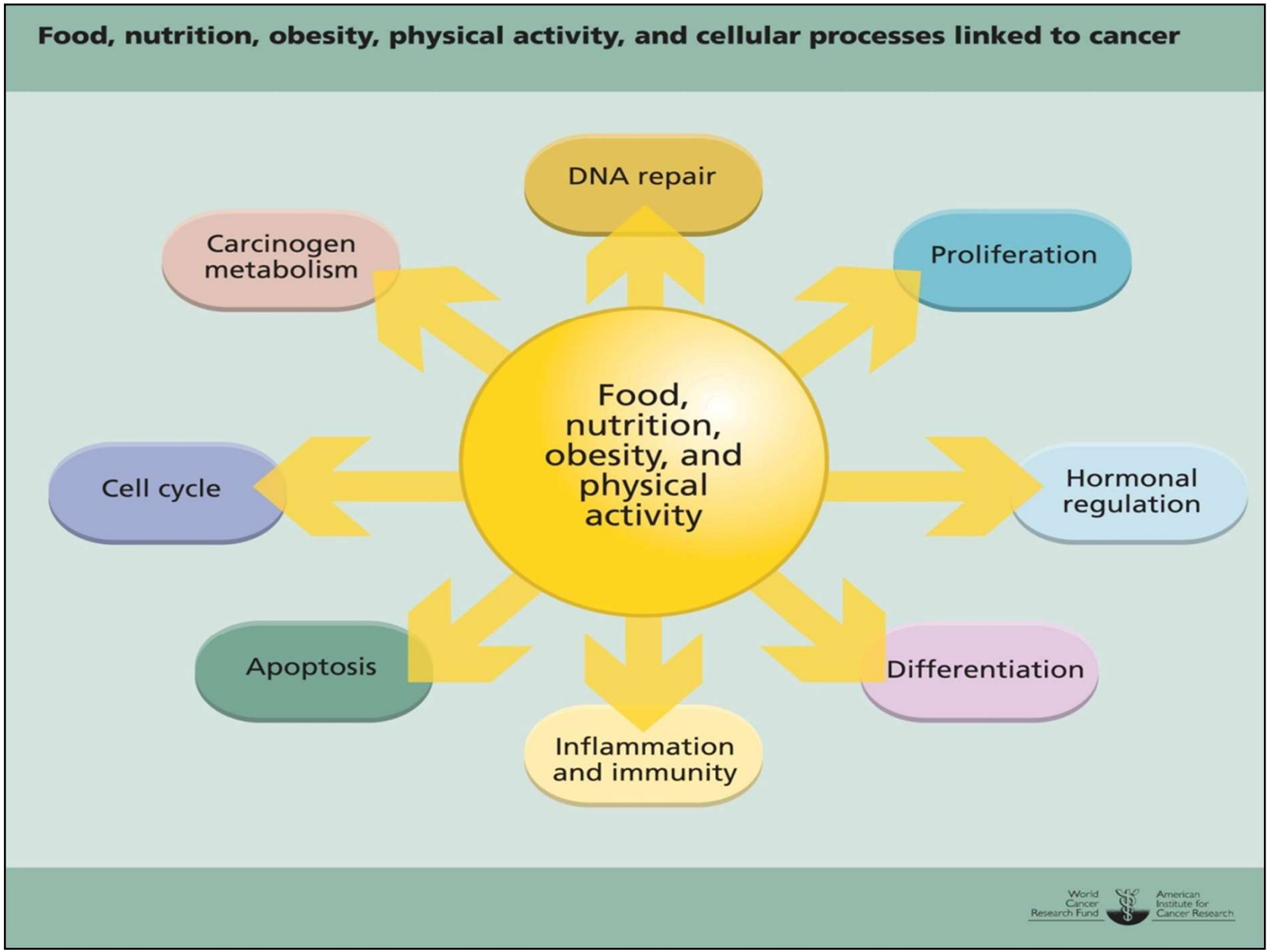
Food, nutrition, obesity, physical activity, and cellular processes linked to cancer
DNA repair
Carcinogen metabolism
Proliferation
Food, nutrition, obesity, and physical activity
Cell cycle
Hormonal regulation
Apoptosis
Differentiation
Inflammation and immunity
World Cancer Research Fund
American Institute for Cancer Research

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Nutrition: The Cellular Level

In vitro studies suggest nutrients may play a positive role in early carcinogenesis processes:

- **Vitamins C and E**: Protect DNA from oxidative damage
- **Folate**: DNA synthesis and repair
- **Selenium**: DNA protection and repair, induces cell cycle arrest
- **Curcumin**: May induce programmed cell death (apoptosis), decrease blood vessel formation (angiogenesis)
- **Indole-3-carbinol**: May influence programmed cell death, suppress inflammatory responses

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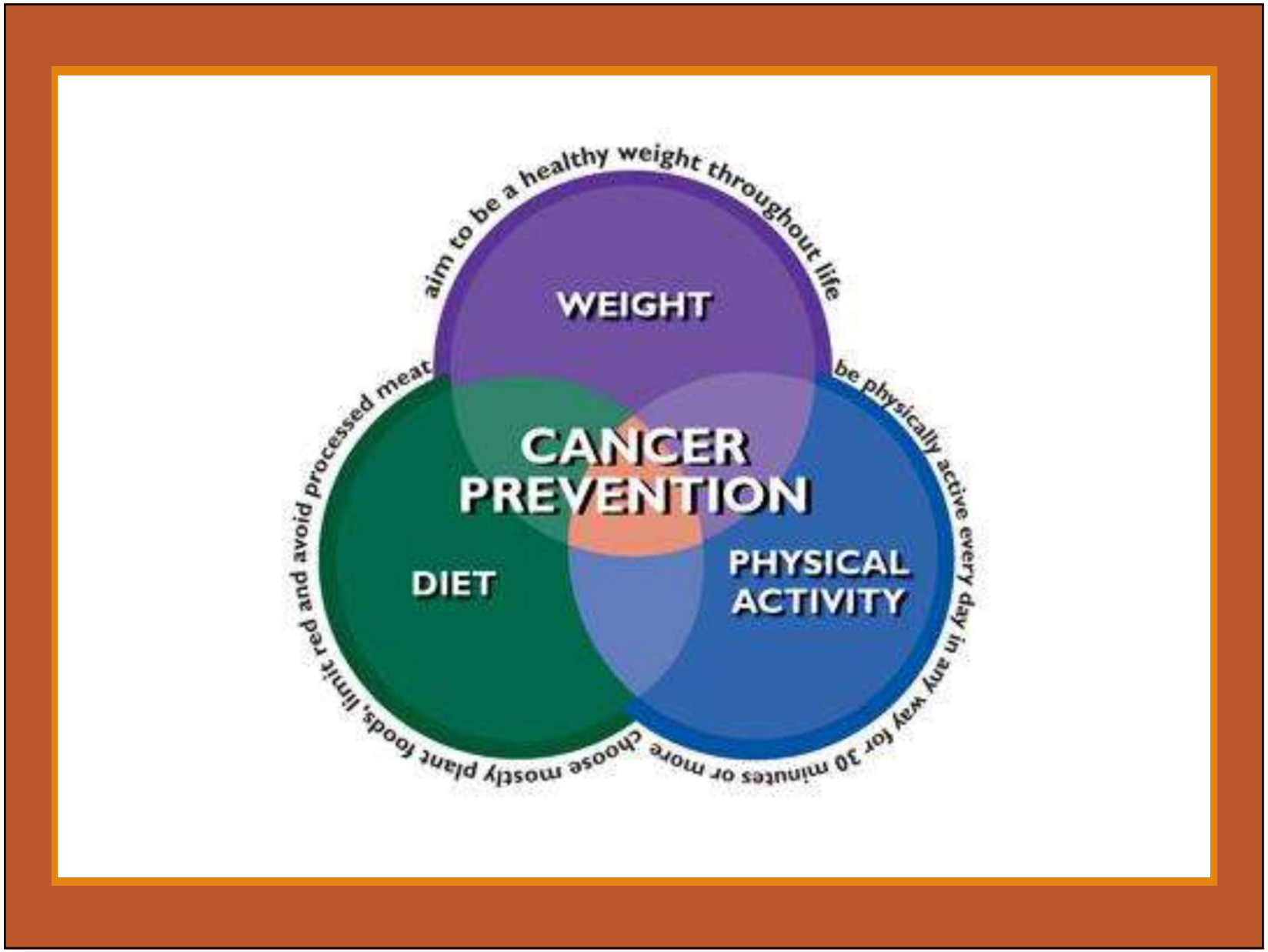
aim to be a healthy weight throughout life
WEIGHT
be physically active every day in any way for 30 minutes or more
CANCER PREVENTION
DIET
PHYSICAL ACTIVITY
choose mostly plant foods, limit red and avoid processed meat

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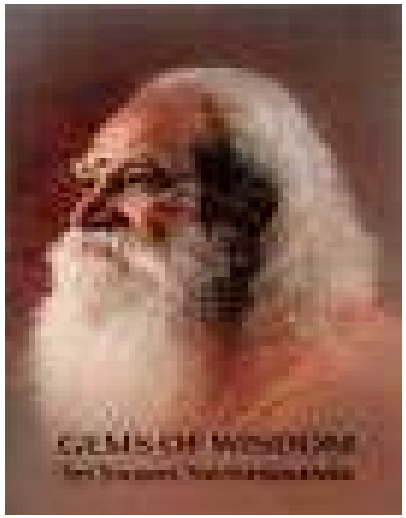
"Let food be your medicine and medicine be your food"

Hippocrates 337 BC



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Nutrition *Before* Treatment

Goals are similar to those after cancer treatment

Focus on incorporation of a wide variety of foods

Be Active

Limit time spent on the internet, reading books, etc.

- Ask Questions!

Don't use supplements for cancer prevention, or to "help" the treatments work

Nutrition Recommendations are Individualized

Nutrition *Before* Treatment

Plan Ahead

- Ask friends and family to help when you are too tired to grocery shop
- Consider grocery delivery, meal delivery services
  - Coborn's Delivers
  - Shipt/InstaCart
  - Open Arms
- Purchase foods you gravitate towards when feeling "under the weather"
- Educate family – Let them know that your preferred foods, appetite may vary
- Think outside the box – your favorite foods today may not be tomorrow

Nutrition *During* Treatment: Goals

Weight Maintenance

- Maintain within 6%

Calorie and Protein Needs

- Hypermetabolism

Adequate Hydration

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Nutrition *During* Treatment

Remain as physically active as able: Avoid bed rest!

Liberalize diet as needed, manage treatment-related symptoms

- Taste and Odor Sensitivities
- Constipation/Diarrhea
- Nausea/Vomiting
- Fatigue
- Sore/Dry Mouth
- Poor Appetite

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Now what?

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Nutrition *After* Treatment

Maintain, or Obtain, a Healthy Weight

- Per AICR, "…is the single most important factor in cancer prevention"
- Overweight/Obesity increases insulin resistance, estrogen production, chronic inflammation, etc.
- Even small changes can have big impact!

Be Active

- Start with as little as 10 minutes
- 150 Minutes moderate activity, 75 minutes vigorous activity weekly
- 2 days per week strength training
- Improved insulin sensitivity, decreased estrogen, improved immune function

Limit Energy-dense Foods and Fluids

- Soda, Chips, Candy, Fast Food
- Ice cream, milkshakes
- Hotdogs, salami, pepperoni
- Processed foods high in added sugars and fats

Nutrition *After* Treatment

Eat a Plant-based Diet

- Goal: 5 or More Fruits and Vegetables per day (2 ½ c.)
- Non-starchy fruits/vegetables protect against head and neck, esophagus, stomach and lung cancers
- Garlic, onions, leeks protect against stomach cancer
- Garlic and fiber protect against colorectal cancer
- Components within foods work better together than when taken separately (i.e. supplements)

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Group/Food	Examples	Phytochemicals	Purpose
Cabbage Family	Cabbage, cauliflower kale, brussels sprouts spinach broccoli bok choy	Brassinin and sulforaphane	boost enzymes that remove carcinogens
		Indoles and fibers	affect estrogen and lipids
Carotenoid Family	Sweet Potato Carrot Winter Squash	B-carotene	Change a cancer cell or prevent a normal cell from becoming cancer
Tomato		p-Coumaric acid	Chlorogenic acid remove nitrites before they can become nitrosamines
		Lycopene	may prevent cancer of the colon, bladder, breast, and prostate
Red Grapes and Grape Juice		Cox-2 inhibitors: resveratrol	may suppress a tumor's production of growth factors

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Group/Food	Examples	Phytochemicals	Purpose
Raspberry		Ellagic Acid	Berries may modulate tumor development, inhibit growth
Blueberries		Powerful antioxidant	Lower cholesterol, boost brain power
Citrus	Oranges, Lemons, Limes	Limonene	Boosts enzymes that may stimulate the immune system and break down carcinogens
		Glucarase	Inactivates carcinogens
Onions, Garlic and Scallions		Allium Antioxidant Allicin	Work to get your own defense system functioning Protection from heart disease and cancers

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Nutrition *After* Treatment

Limit Refined, Starchy Foods

- Choose whole grains, beans/lentils, etc.

Limit Animal Foods

- 18 ounces or less per week
- Beef, pork, lamb, sausage, bacon, lunchmeat

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Nutrition *After* Treatment

Limit	**Limit, or Omit, Alcohol** •Men – 2 drinks per day, Women – 1 drink per day •12 oz 5% ABV beer, 1.5 oz spirits, 5 oz of wine •May increase risk of recurrence, or new primary diagnosis
Limit	**Limit Salt, Processed Foods** •1tsp salt per day – if no HBP •½-3/4 tsp salt per day if HBP/Cardiac diagnosis •Most sodium comes from processed foods
Do Not Use	**Do Not Use Supplements for Cancer Prevention** •Research not currently showing benefit •May increase risk of cancer

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Hot topics

- Sugar and Cancer
- Alkaline Diet
- Juicing
- Soy
- Organic vs Conventionally Grown
- Vitamin D Supplementation
- Herbal Supplements/Vitamin Supplements
- Ketogenic (Keto) Diet

Questions???

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