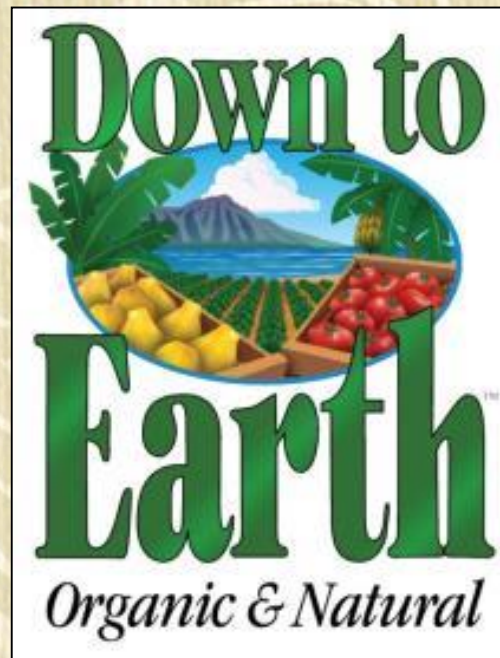


Eating the Rainbow:

How Natural Phytochemicals can
Optimize our Health



Presented by Carmela Wolf,
M.S.O.M., L.Ac.



What do we currently know about food and its impact on our health?

The leading cause of death in America is an unhealthy lifestyle.

2011 - For the first time in world history:
Lifestyle diseases like diabetes, heart disease, some cancers, and others, kill more people than communicable diseases.

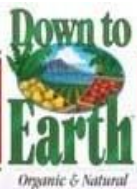
(WHO report)



Western Style Diet Makes You Die Younger

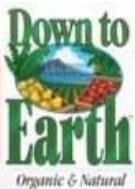
The American Journal of Medicine, May 2013

Data from a 2013 study of over 5,000 British adults (3,775 men and 1,575 women over 24 years) suggest that adherence to a “Western-style” diet (fried and sweet foods, processed and red meats, refined grains, and high-fat dairy products) reduces a person’s likelihood of achieving older ages (particularly in good health and good functionality).



Standard American Diet (S.A.D.)

- “...rich in red meat, dairy products, processed and artificially sweetened foods, and salt; with minimal intake of fruits, vegetables, legumes, and whole grains.”[1]
- “...correlated with an elevated incidence of obesity,[2] death from heart disease, cancer,[3] and other Standard American Diet-related diseases.”[4]



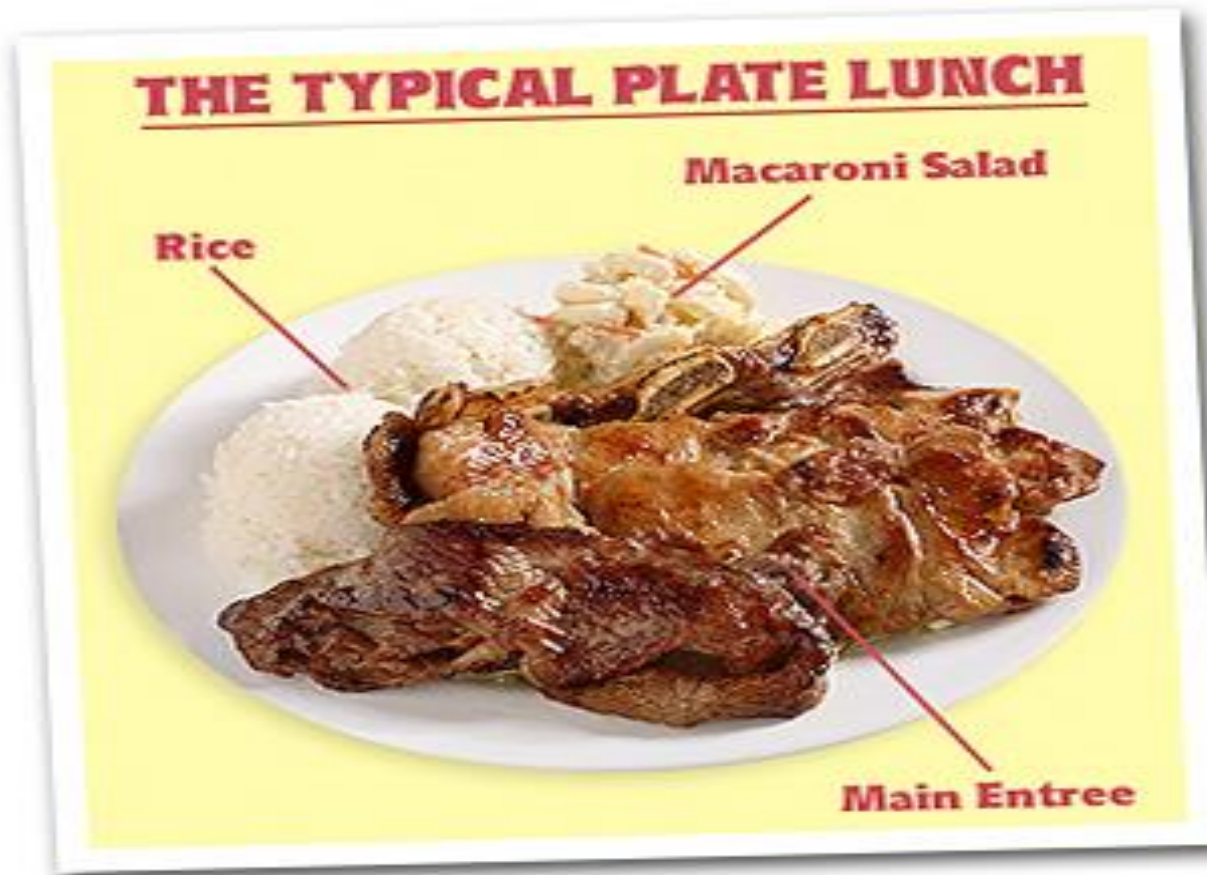
(1) Bloomfield, HE; Kane, R; Koeller, E; Greer, N; MacDonald, R; Wilt, T (November 2015)

(2) Fung, Teresa T; Rimm, Eric B; Spiegelman, Donna; Rifai, Nader; Tofler, Geoffrey H; Willett, Walter C; Hu, Frank B (2001-01-01)

(3) Kesse, E; Clavel-Chapelon, F; Boutron-Ruault, M. (2006)

(4) Heidemann, C.; Schulze, M. B.; Franco, O. H.; Van Dam, R. M.; Mantzoros, C. S.; Hu, F. B. (2008)

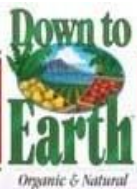
The Typical Plate Lunch



Only 3% of Americans maintain a “healthy lifestyle” ⁽⁵⁾

A “healthy lifestyle” is defined as:

- **Not smoking**
- **Maintaining a healthy weight**
- **Eating right (including a minimum of 5 servings of fruits and vegetables a day)**
- **Exercising at least 5 times a week for 30 minutes**



Dr. Dean Ornish

In 1990 Dr. Dean Ornish proved that a lifestyle regimen, featuring a low-fat vegetarian diet, smoking cessation, regular exercise, and stress management, could not only stop the progression of Coronary Artery Disease, but could actually reverse it. This discovery was notable because it had seemed physiologically implausible, and it suggested cheaper and safer therapies against cardiovascular disease than invasive procedures such as coronary artery bypass surgery and medications.



Heart Disease: #1 Killer of Americans



“Bill Clinton's new diet: nothing but beans, vegetables and fruit to combat heart disease”



In 2010, after the former President's cardiac bypass grafts (from 2004) became clogged, Clinton, encouraged by Dr. Ornish, followed his plan.[6] A few months later he became a Vegan.



Meat Consumption

Can lead to artery damage, atherosclerosis

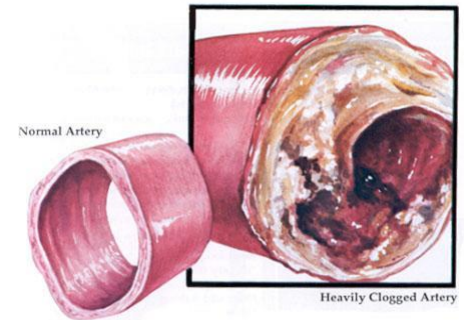
Causes oxidation in the gut (7)

Increases uric acid (8)

Increases the risk for cancer (9)

March, 2012 -- Harvard researchers delved into the diets of more than 120,000 men and women. After 20 years, researchers found that people who ate the most red meat were more likely to die, and die of cancer or heart disease, compared to people who reported eating the fewest daily servings of beef, pork, and lamb.

Processed meats appear to be even more hazardous. A single daily serving of processed meats like bacon (two slices), sausage, or hot dogs (1 piece), raised the risk of dying of heart disease by 21% and dying of cancer by 16%.



(7) Am J Physiol Cell Physiol. 2004 Jun 2

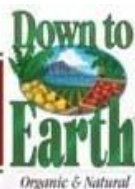
(8) Choi HK, et al. *N Engl J Med*. 2004 Mar 11;350(11):1093-103.

(9) National Institutes of Health and the AARP, Dec. 2007

Study Reveals the Diets That Help You Live Longer - New England Journal of Medicine, July, 2017

Researchers at the Harvard T.H. Chan School of Public Health monitored the eating habits of almost 50,000 women and more than 25,000 men from the Nurses' Health Study and the Health Professionals Follow-up Study over a 12-year period.

People whose point tallies improved by 20 percent over the 12-year follow-up period (meaning their diets contained more healthy elements and fewer unhealthy ones) were 8 to 17 percent less likely to die during that period of time. Eating more whole grains, vegetables, and fruits, resulted in the largest improvements in diet scores. What's more, even small shifts in your daily diet can help add years to your life. For example, according to the researchers, swapping one serving of red meat a day for a serving of nuts or beans would lead to a 20 percent improvement in diet quality. And just eating more fruits and vegetables—going from no daily servings to four servings of fruit or five servings of vegetables—raised the scores by 10 percent. Other changes that can make a difference include cutting out sugar-sweetened drinks, consuming one less alcoholic drink a day, and eating more foods high in healthy fat, such as olive oil and avocado.



From Medical News Today, June 2018

New data presented at Nutrition 2018 (the flagship meeting of the American Society for Nutrition, held in Boston, MA) bolster the evidence that a plant-based diet is linked to a wealth of health benefits.

The study from the Netherlands looked at almost 6,000 people; the team found that those who ate a high ratio of plant-derived protein to animal-derived protein were at lower risk of developing [coronary heart disease](#) later in life.

The Brazilian study looked at around 4,500 people and concluded that people who had a diet rich in plant-based protein were **60 percent less likely** than people who had a diet rich in animal-based protein **to develop a buildup of plaque in the arteries of the heart.**

The U.S. study found that vegetarianism was associated with fewer risk factors for [diabetes](#) and [heart disease](#). Compared with their nonvegetarian peers, vegetarians exhibited:

- smaller waist circumference
- lower amounts of abdominal fat
- lower [cholesterol](#)
- lower blood sugar
- lower body mass index ([BMI](#))
- They were also less likely to gain weight and had a lower mortality rate.



**The American Heart Association
states:**

**"A healthy diet and lifestyle are
your best weapons in the fight
against heart disease."**



American Heart Association recommends a plant based diet.

AHA/ASA Major guidelines include:

- Consume a variety of fruits and vegetables, and grain products, including whole grains.
- Limit the intake of foods with a high content of saturated fatty acids and cholesterol. Substitute with grains and unsaturated fatty acids from vegetables, legumes, and nuts.



American Heart Association



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SHOP | CAUSES | ADVOCATE | GIVING | MEDIA



A major report published by the World Cancer Research Fund recommended already in 1997, we lower our risk of cancer by choosing predominantly plant-based diets rich in a variety of vegetables and fruits, legumes, and whole grains.



World Cancer Research Fund International (wcrf.org):

- **Eat more grains, vegetables, fruits, and beans!**
- **This is best made up from a range of various amounts of non-starchy vegetables and fruits of different colors including red, green, yellow, white, purple, and orange, including tomato-based products and allium vegetables such as garlic.**



**Cancer is the
#2 killer of Americans.**



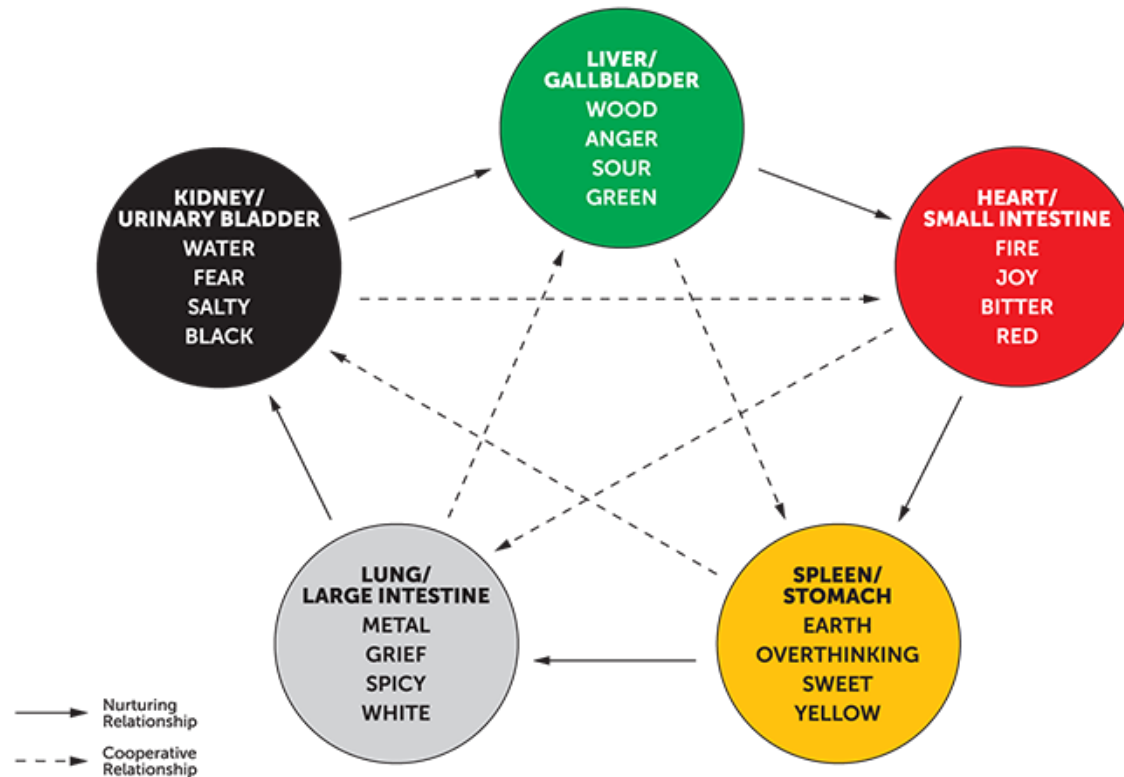
Why eat a rainbow of colors?

Phytochemicals
(plant chemicals) not only protect plants, they protect us too! From Cancer to anti-aging, heart disease to eyesight, scientists find they focus on a range of health benefits.



The Five Element Energetic Framework

THE FIVE ELEMENT ENERGETIC FRAMEWORK



Phytochemicals' Role in Good Health

By Densie Webb, PhD, RD

Today's Dietitian Vol. 15 No. 9 P. 70

Studies suggest that consuming foods and beverages rich in these compounds may help prevent disease.

Naturally occurring compounds, known as phytochemicals are thought to be largely responsible for the protective health benefits of plant-based foods and beverages, beyond those conferred by their vitamin and mineral contents. These phytochemicals, which are part of a large and varied group of chemical compounds, also are responsible for the color, flavor, and odor of plant foods, such as blueberries' dark hue, broccoli's bitter taste, and garlic's pungent odor. Research strongly suggests that consuming foods rich in phytochemicals provides health benefits and may prevent many diseases.

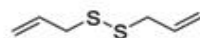
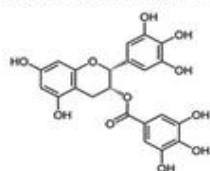
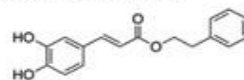


Phytochemicals

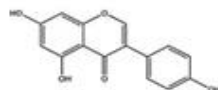
Broccoli (*Sulphoraphane*)



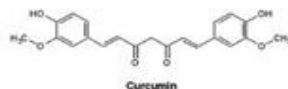
Garlic *Diallyl sulphide*

**Green Tea** *Epigallocatechin-3gallate***Honey** *Caffeic acid phenethyl ester*

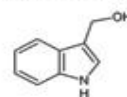
Soybeans *Genistein*



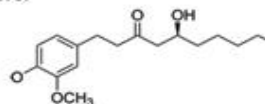
Tumeric Curcumin



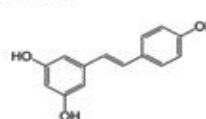
Cabbage *Slndole-3carbinol*



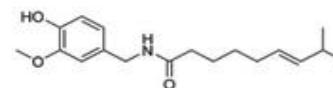
Ginger *Gingerol*



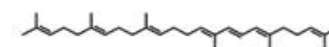
Grapes *Resveratrol*



Chilli peppers *Capsaicin*



Tomatoes *Lycopene*



RED



- The **Red** group offers Phytochemicals such as **polyphenols, lycopene, & anthocyanins**. These provide antioxidants & anti-aging effects.
- Helps maintain **memory function, healthy heart, urinary tract health, & lowers the risk of some cancers.**

What delicious **RED** foods should I try?

- red apples
- cherries, berries
- cranberries
- pomegranates
- watermelon
- beets
- red peppers
- tomatoes, etc.



Yellow/Orange



- **Yellow & Orange** fruits & vegetables contain **carotenoids (lutein) & bioflavonoids**.
- Help maintain **heart health, vision health, a strong immune system, & lower risk of some cancers**.

What delicious **Yellow/Orange** foods should I try?

- papaya/mangos
- pineapples
- oranges/tangerines
- pumpkin/carrots
- yams/sweet potato
- yellow squash & corn
- orange/yellow peppers
- turmeric, etc.



Green



- **Green** vegetables contain **chlorophyll**, **isothiocyanates** (sulforaphane), & **indoles**.
- Have the potential to **lower the risk of some cancers, detoxify** & is a natural **deodorant**, plus improve blood quality.

What delicious **Green** foods should I try?

- avocados
- honeydew melon
- limes & kiwi
- artichokes
- broccoli/kale
- brussel sprouts
- lettuce/spinach
- okra, etc.



Blue/Purple



- The **blue/purple** foods contain **flavonoids (anthocyanins)** and **ellagic acid**.
- These help **memory function, protect cells from oxidation, & lower the risk of some cancers.**

What delicious **Blue/Purple** foods should I try?

- black & blue berries
- acai & maqui berries
- plums, figs
- purple grape/raisins
- purple cabbage
- purple carrots
- eggplant, etc.



White



- **White** foods are high in **allicin, quercetin, & polysaccharides.**
- Benefitting the **immune system, cholesterol and blood pressure levels**, thus lowering some risks of **cancer & heart disease.**

What delicious **White** foods should I try?

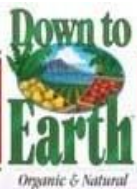
- garlic
- all types of onions
- shallots, ginger
- bananas & pears
- shitake & other edible mushrooms
- taro, coconut
- cauliflower, nuts...



2015 Study Results

A study was published 2015 in the journal *Obesity* from researchers at the University of Georgia have shown in studies that a mix of phytochemicals, along with vitamin D, may help protect the liver against inflammation caused by the accumulation of fat.

The plant compounds used by the UGA researchers—resveratrol, found in grapes; genistein, found in soybeans; and quercetin, found in apple peels and onions—have all been shown in previous studies to be fat-busters, causing fat cells to burst and release their contents, and in this case preventing fatty liver disease. Also noted was that together they have a synergistic effect that "cuts the doses you need."



Industrial Hemp:
The Plant of the Thousand and One Molecules
Frontiers in Plant Science. 2016; 7:19.

- Hemp is indeed a treasure trove of hundreds of phytochemicals, including cannabinoids, terpenes and phenolic compounds. ([Flores-Sanchez and Verpoorte, 2008](#))
- Attention is currently drawn toward non-THC *Hemp* active components, which act synergistically and contribute to the pharmacological power and entourage effects of medicinal-based *Hemp* extracts ([Russo, 2011](#)).
- Most of the biological properties related to cannabinoids rely on their interactions with the endocannabinoid system in humans. The ECS includes two cannabinoid receptors, CB1 and CB2, as well as two endogenous types, anandamide and 2-arachidonylglycerol (2-AG). Endocannabinoids are thought to modulate or play a regulatory role in a variety of physiological processing including appetite, pain-sensation, mood, memory, inflammation, insulin, sensitivity and fat and energy metabolism ([De Petrocellis et al., 2011](#); [Di Marzo and Piscitelli, 2015](#))



5 Common Household Ingredients That Contain Cannabinoids

1. **Black Pepper** - Not only does it also contain a large amount of the terpene that gives some marijuana strains that cracked black pepper smell, it's also got major anti-inflammatory properties to ease ailments like osteoporosis and arthritis.
2. **Rosemary** - Along with black pepper, both share a compound called BCP (beta-caryophyllene) that acts like a cannabinoid. It's the same compound that gives the plants a peppery flavor.
3. **Kava** - Typically used somewhat as a sedative (i.e. in tea), it's effects are similar to cannabis in that it contains a compound that binds to the same receptor as THC — primarily in areas of the brain related to cravings, which makes kava a desirable aid in treating addiction.
4. **Maca** - Contains compounds that emulate CBD by prohibiting an enzyme that breaks down endocannabinoids, which in turn increases the amount of them in your system causing a boost to your overall system, including mood.
5. **Cacao** - *This fan favorite superfood* contains many therapeutic chemicals that boost mood. It's also rich in anandamide, a naturally occurring endocannabinoid that regulates mood, memory, appetite, and pain perception.



Sources and Action of Select Phytochemicals

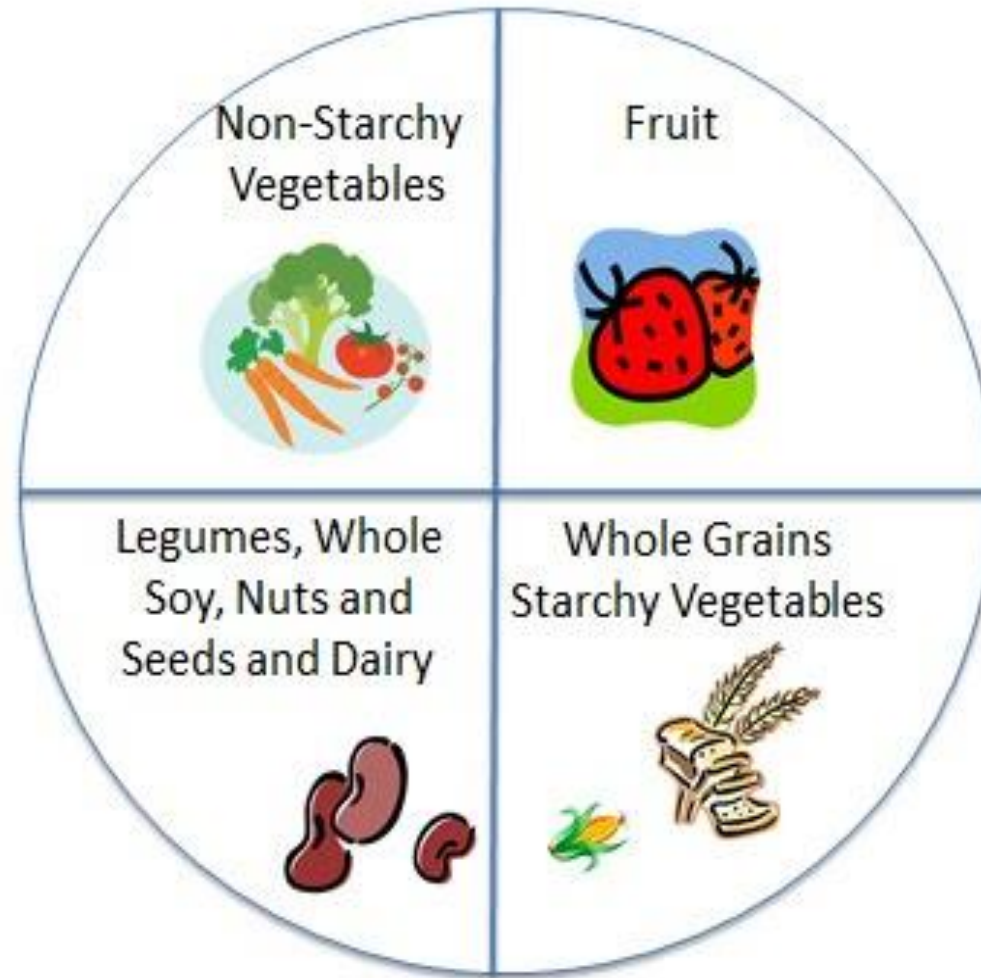
Susan M. Kleiner, PhD, RD, FACN, CNS, FISSN

Phytochemical	Food Source	Protective Action
Allyl Sulfates	Garlic, onions, shallots, leeks, chives	Lower risk of stomach and colon cancers
Sulforafanes, indoles, isothiocyanates	Broccoli, cabbage, Brussels sprouts, cauliflower, kohlrabi, watercress, turnips, Chinese cabbage	Lower risk of breast, stomach, lung cancers
Carotenes	Carrots, dried apricots and peaches, cantaloupe, green leafy vegetables, sweet potatoes, yams	Lower risk of lung and other cancers
Lycopene, p-coumaric acid chlorogenic acid	Tomatoes	Lower risk of prostate and stomach cancer
Alpha-linolenic acid Vitamin E	Vegetable Oils	Lower risk of inflammation and heart disease
Monoterpenes	Cherries, orange peel oil, citrus peel oil, caraway, dill spearmint, lemongrass	Lower risk of breast, skin, liver, lung, stomach, and pancreatic cancers
Polyphenols	Green tea, berries, cherries	Lower risk of skin, lung, stomach cancers, and CVD
Phytoestrogens	Soy foods (especially tofu), miso, and tempeh	Lower risk of breast and prostate cancers



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The “Plate Method”



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