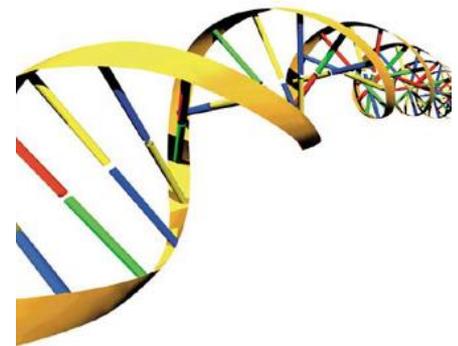
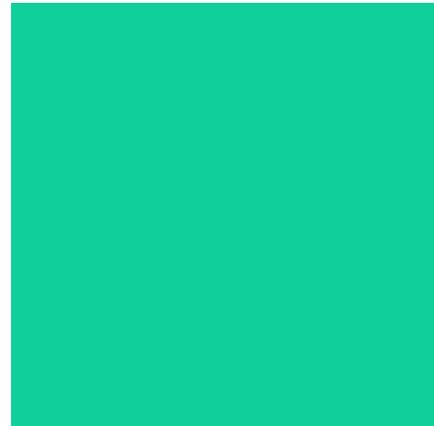




# Nutrition

Eating Well for  
Taste and Health



FA Meeting – Austin, TX  
Sunday, October 28<sup>th</sup>, 2012  
Carol Ceresa, MHSL, RD



***He that takes  
medicine and neglects  
diet, wastes the skill of  
the physician***

***- Chinese Proverb***

## Core concepts:

- **Your food choices have a significant effect on your health and well-being**
- **Healthy food choices start with a plant based diet**
- **Choosing certain foods, food substances and nutrients can be protective against cancer**
- **The good taste of foods and meals shared are an important part of an enjoyable life**
- **Your actions and efforts for healthy eating are a vital part of your health self-care**

# + What should I eat?

## What is the best diet?

- Is plant based - emphasizing fruits, vegetables, whole grains and fat-free or reduced fat milk and dairy products
- Includes lean meats, poultry, fish, beans, eggs and nuts
- Is low in saturated (animal) fats, cholesterol, salt (sodium) and added sugars
- Contains protective foods/spices/herbs to prevent cancer
- Has less than 2,000 mg of sodium (preventing hypertension)
- Contributes to the prevention of “aging” diseases- osteoporosis, cataracts, heart disease, diabetes, obesity



# + What Color Is Your Diet?



## Recommendations

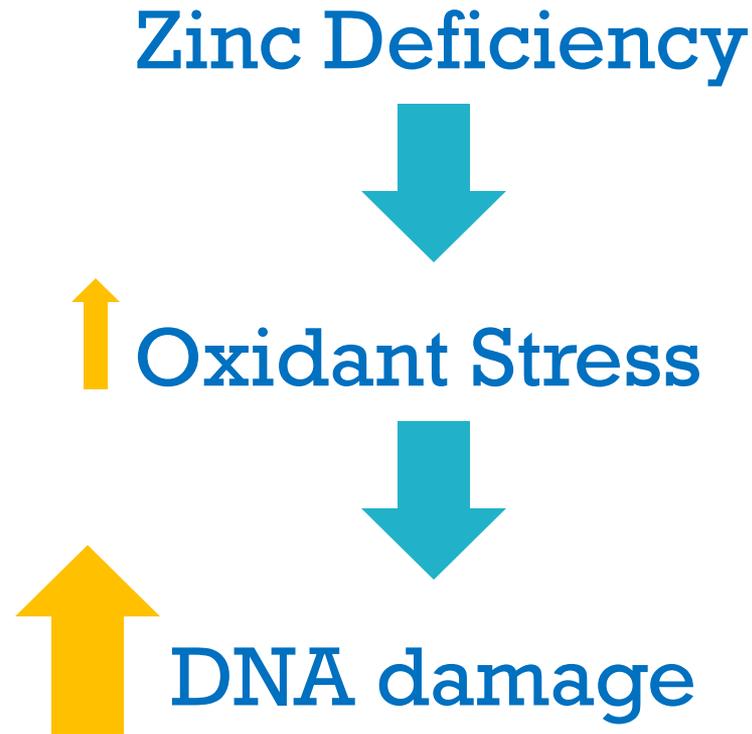
Dr. David Heber, MD, PhD – UCLA Human Nutrition

- Promotes consumption of protective antioxidants
- Each color category represents different nutrients and antioxidants.

Try one serving/day (1 cup raw,  $\frac{1}{2}$  cup cooked),  
from each color

**Goal:** 2 cups for fruit/day **and** 2  $\frac{1}{2}$  cups of  
vegetables

# + Zinc Deficiency and DNA



## Eat rich FOOD Sources of Zinc

<b>Food</b>	<b>Milligrams (mg) per serving</b>
Oysters, cooked, breaded and fried, 3 ounces	74.0
Beef chuck roast, braised, 3 ounces	7.0
Crab, Alaska king, cooked, 3 ounces	6.5
Beef patty, broiled, 3 ounces	5.3
Breakfast cereal, fortified with 25% of the DV for zinc, $\frac{3}{4}$ cup serving	3.8
Pork chop, loin, cooked, 3 ounces	2.9
Baked beans, canned, plain or vegetarian, $\frac{1}{2}$ cup	2.9
Chicken, dark meat, cooked, 3 ounces	2.4
Yogurt, fruit, low fat, 8 ounces	1.7
Cashews, dry roasted, 1 ounce	1.6
Chickpeas, cooked, $\frac{1}{2}$ cup	1.3
Cheese, Swiss, 1 ounce	1.2
Oatmeal, instant, plain, prepared with water, 1 packet	1.1
Milk, low-fat or non fat, 1 cup	1.0
Almonds, dry roasted, 1 ounce	0.9
Cheese, cheddar or mozzarella, 1 ounce	0.9
Peas, green, frozen, cooked, $\frac{1}{2}$ cup	0.5



## **Zinc** - important defense factor in the initiation and progression of cancer



- 10% of the U.S. population consumes less and half of the recommended level of zinc
- Zinc plays a strong role in antioxidant defense & DNA repair
- Dietary deficiencies in zinc can contribute to DNA breaks and oxidative modifications to DNA that increase risk for cancer development
- Zinc protects DNA from damage as an antioxidant & a component of many DNA repair proteins
- Additionally, zinc deficiency can affect eyesight, taste, smell and memory & can decrease appetite and reduce hunger



# Apoptosis – programmed cell death

characterized by cell shrinkage and DNA fragmentation, i.e.,  
DNA damage

Severe Zinc deficiency is rare, mild zinc deficiency is highly prevalent, even in highly developed countries

Zinc deficiency –  
increases susceptibility to infection and weakens the immune system

Causes oxidative DNA damage, DNA strand breaks and DNA fragmentation

Has been suggested as a contributor to the development of esophageal tumors in rats [Carcinogenesis 1997:18:1477-84](#)



# + What is a Cancer Chemo preventive agent?

- A natural substance that fights cancer

**Omega 3 fatty acids** (fatty fish) protect against colon cancer

**Quercetin** (in onions) slows cancer cell growth; can stop cancer cells from migrating to other parts of the body (metastasis) and can force cancer cells to die by cutting off cancer cell blood supply or activating cancer killing genes

82% lower risk of esophageal cancer, 84% lower risk of oral cancer for those who ate more onions

- American Journal of Clinical Nutrition/Italy





# Nutrition Needs & Priorities



- Change your view point with changing circumstances
- Assess your food practices & know your risk factors
- Change food practices, while balancing enjoyment of food/life with priority health goals
- Choose valuable nutrient-dense foods
- Be a mindful eater – savor the aroma, flavor, taste, texture of a wide variety of foods
- Know the links between diet and cancer prevention, for more information – [www.aicr.org](http://www.aicr.org) The American Institute for Cancer Research



# Protect your DNA from Damage Strengthen your Immune System



- Spices contain unique phytonutrients
  - Curcumin has potent anti-cancer properties
  - Rosemary (rosmarinic acid) is a powerful antioxidant
  - Allyl isothiocyanates (AITC) gives mustard seeds, horseradish and wasabi, a distinctive bite and healing power

AITC, found in other cruciferous vegetables and plants help prevent & slow the growth of some cancers (colon, lung, prostate, bladder and ovarian)

# + Turmeric



Active ingredient: **curcumin** - known as the anti-cancer spice

**Over 1,000 studies demonstrate that curcumin can fight cancer on many levels**

- **Inhibit the activation of genes that trigger cancer**
- **Inhibit the spread of cancer cells**





# Curcumin: the Indian solid gold



- Turmeric, derived from the plant *Curcuma longa*, is a gold colored spice. Curcumin gives the yellow color to turmeric

**Curcumin has been shown to exhibit antioxidant, anti-inflammatory, antiviral, antibacterial, antifungal, and anticancer activities. Curcumin exhibits activities similar to recently discovered tumor necrosis factor blockers,**

- Aggarwal, BB, Department of experimental Therapeutics, M.D. Anderson Cancer Center, [aggarwal@mdanderson.org](mailto:aggarwal@mdanderson.org)

# + More Curcumin benefits

- Inhibit the transformation of a normal cell into a cancer cell
- Kill cells that mutate into cancer
- Shrink tumor cells
- Prevent tumors from spreading to other organs
- \*\*Prevent the development of blood supply for cancer cells to form/spread
- Enhance the cancer-destroying effects of chemotherapy

 **Choose foods that are cancer protective**

# + Foods for Cancer Prevention



## **Mushrooms**

- Dr. Shiuan Chen, PhD, director of Tumor Cell Biology at the City of Hope, looked at the extracts of 7 vegetables and found that mushrooms contained the highest levels of linoleic acid, a compound shown to have anticancer properties. Mice fed mushrooms showed a 58% reduction in breast tumor growth
- Mushrooms are a hidden treasure of nutrition – they are the leading source of selenium in the fruit/vegetable groups & a good source of vitamin D
- Selenium forms an antioxidant that helps protect cells from damage (BRAZIL nuts are a great source of selenium!)

# + More Good News?

- **Over 50 studies show that components of Rosemary** (carsanol, carnosic acid, others) can suppress and kill cancer cells.
- Israel, journal, *Oncology* – found that rosemary increased survival time in mice with leukemia

## **Thyme** (phytonutrients, monoterpenes)

Scottish researchers (animal studies) found that thyme oil fed animals had less age-related reductions in the antioxidants superoxide dismutase and glutathione peroxidase





## Synergy

From the Greek word synergia, meaning joint work and cooperative action.

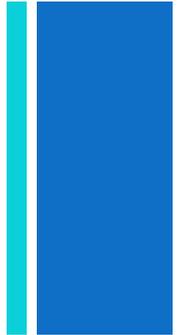
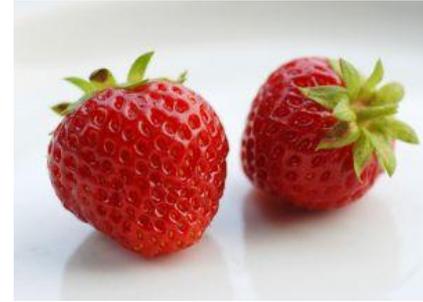
Parsley – uniquely rich in **apigenin** – an antioxidant that helps other antioxidants work better – eating apigenin-rich parsley increased levels of superoxide dismutase (SOD) and glutathione –

- British Journal of Nutrition

- ***Parsley is also rich in vitamin A, C and lutein (helps prevent age related macular degeneration) – and a good source of B-vitamins and the minerals calcium and iron***



# + Foods of Special Interest



## **Strawberries (all berries & cherries)**

- Ohio state researcher, Tong Chen, is studying the potential for strawberries to prevent esophageal cancer
- Freeze dried strawberries (60 gm, dissolved in water/day for 6 months) showed 29 out of 36 study participants had a decrease in grade of a precancerous lesion or a lowering in the growth of the lesion

**Question: How would you use berries or cherries in recipes, or for meals or snacks?**

# + EGCG found in GREEN TEA



- Polyphenols (*catechins*) found in green tea have strong antioxidant properties
- EGCG (*epigallocatechin-3-gallate*) may help certain types of cancer cells to die *J Natl Cancer Inst. 1994;86:855-858*
- FDA concluded in 2011 that it is unlikely that green tea prevents any type of cancer in humans
- Purified EGCG extracts show promise in limited areas, e.g., with early chronic leukemia
- Always check w/your MD and pharmacist re: possible side effects [www.cancer.org](http://www.cancer.org)

# + Pomegranate

- 8 oz of Pomegranate juice/day (UCLA) to men with prostate cancer, showed a 12% decrease in growth of cancer cells and a 17% increase in death of cancer cells and a 23% increase in blood levels of nitrous oxide (which battles cancer)
- Pomegranate extract stopped the growth of leukemia cells (test tube research, Japan, Journal of Medicinal Food) – 80 other studies-breast, skin, lung, colon

Antioxidant activity is 2-3 times > green tea



# + Walnuts – Aces for Antioxidants

- Walnuts top all other nuts for quantity and quality of healthful, polyphenol-type antioxidants

Joe Vinson, PhD (American Chemical Society, 2011)



# Umami

## “deliciousness” factor in many foods

The fifth basic taste in addition to: Sweet – Sour – Bitter - Salt

The umami compounds in nature are: glutamate, disodium inosinate and disodium guanylate.

Where to find this: \* highest sources

Fermented soy (soy sauce)\_

Aged cheese, especially parmesan\*

Worcestershire sauce

Bacon

Vegemite

Mushrooms (dried and fresh)

Tomato ketchup and tomato paste

Anchovies

Fish sauce\*

Kelp\*

Maggi sauce

Those eating an umami rich diet often eat less as there is greater sensory satisfaction



# BONUS !

**Some of the healthiest cancer fighting foods also have mood enhancing compounds!** August 2012, American Chemical Society

- 1,700 food flavoring ingredients were screened with a new tool called chemoinformatics for similarities to approved anti-depressants – the goal!
- To nutritionally moderate mood swings, to support cognitive health, alertness and memory

Chocolate

Blueberries

Raspberries

Strawberries

Teas

Foods containing omega -3 fatty acids

Natural ingredients in these foods have a striking chemical similarity to valproic acid, a widely used prescription mood stabilizing drug.

# + Review of Core Concepts

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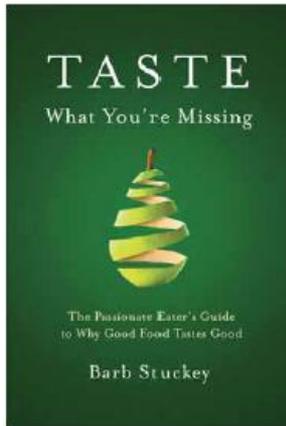
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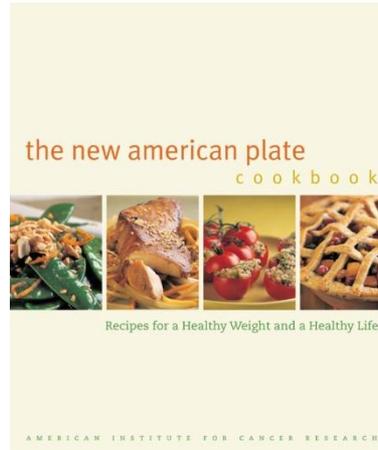
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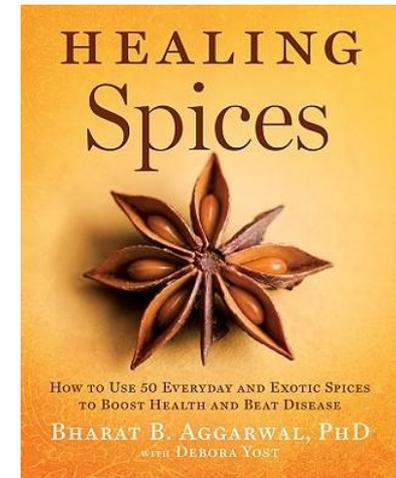
# Resources



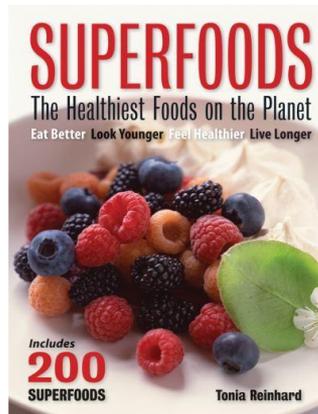
Taste: What You're Missing  
By: Barb Stuckey



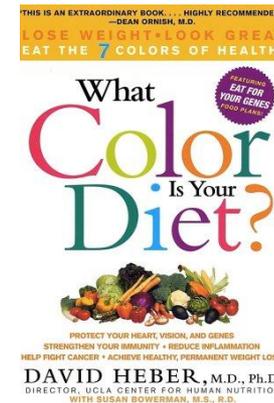
The New American Plate  
Cookbook  
By: American Institute  
for Cancer Research



Healing Spices  
By: Bharat B. Aggarwal, PhD



Superfoods  
By: Tonia Reinhard



What Color is Your Diet?  
By: David Heber, MD, PhD



“One of the very nicest things about life is the way we must regularly stop whatever it is we are doing and devote our attention to eating”

- Luciano Pavarotti

*Great tasting meals can help us all enjoy longer, healthier lives -*

