

Nourishment for Life

Presented by:
Laura Pole, RN, MSN, Chef
Culinary Translator

What You'll Learn About:

- Basic principles of cancer and nourishment
- The benefit of health supportive eating
- Principles of food selection

My 4 Guiding Principles

- "There are no good or bad foods—food just gives information." (Marc David: [Nourishing Wisdom](#))
- "You can't eat dogma." (Unknown source)
- "Eat food. Not too much. Mostly plants." (Michael Pollan)
- "Eat Your Vegetables" (Our mothers and grandmothers)

Cancer and Nutrition Basics

- About 30-35% of cancers are related to diet.
- Some diets create conditions that increase our risk of getting cancer.
- Some foods we eat make it harder for us to withstand cancer treatment and its side effects.
- Some diets can help us recover from cancer.
- Some diets may lower our chances of getting cancer again or in the first place

Dietary Links to Cancer

Source: Weisburger, Nutrition, 2000; 16(9); 767

•Stomach: salt (nitrites and nitrates)	•Breast: fried foods, trans fats, obesity, alcohol
•Colon: fried foods, fats, red meat	•Uterus: obesity, fats
•Rectum: fried foods, fat, alcohol	•Ovary: fats; obesity
•Pancreas: fried foods, fats	•Prostate: fried foods, fats, obesity
•Liver: mycotoxins; alcohol	Head and Neck: alcohol

Other Dietary Links to Cancer

- Insulin resistance linked to several cancers; is likely a factor in many more cancers
- Chronic Inflammation
- Deficiencies in some vitamins and minerals may increase risk for some cancers
 - Vitamin D
 - Zinc
 - Selenium
 - Folic Acid
- Xeno (foreign) estrogens in food and water
- Food preparation: i.e. Charring food

The Most Evidence

- Strongest link is obesity and increased risk of cancer.
- Alcohol: aerodigestive tract, liver, breast;
 - Risk for breast cancer, even with very low levels of consumption.
- Soy might protect against prostate cancer in men and against breast cancer in women, especially in premenopausal women.

• Source: "Diet, Nutrition and Cancer: The Search for Truth." Presented by Dr. Walter Willett, American Association for Cancer Research (AACR) 100th Annual Meeting: Abstracts LB-224, LB-243, and LB-247. Presented April 21, 2009.

That being said . . .

- Number of recent studies (some large) linking red and processed meat consumption to:
 - Increased prostate ca risk
 - Increased risk of advanced cancer

For example

- “Researchers at the National Cancer Institute found that among more than 175,000 men they followed for nine years, those who ate the most red and processed meats had heightened risks of developing any stage of prostate cancer, or advanced cancer in particular.”
- Source: American Journal of Epidemiology, November 1, 2009.

Overeating

- Leads to obesity, insulin resistance, and oxidative stress (using up our antioxidants to turn calories to fat)
- Prevent weight gain/lose weight if overweight

Obesity and Breast Cancer

- Women who had a BMI in the obese range after diagnosis --twice the risk of dying from breast cancer than women with a normal BMI.
- Study conducted at John Hopkins School of Public Health; Dr. Hazel B. Nichols, Investigator

Cancer Survival and Diet

- Women’s Intervention Nutrition Study:
 - 2,437 postmenopausal women previous tx’d for breast ca
 - Low fat diet reduced recurrence risk by 25%

• Source: J Natl Cancer Inst. 2006 Dec 20;98(24):1767-76.
 • Dietary fat reduction and breast cancer outcome: interim efficacy results from the Women's Intervention Nutrition Study.
 • Chlebowski RT, Blackburn GL, Thomson CA, Nixon DW, Shapiro A, Hoy MK, Goodman MT, Giuliano AE, Karanja N, McAndrew P, Hudis C, Butler J, Merkel D, Kristal A, Caan B, Michaelson R, Vinciguerra V, Del Prete S, Winkler M, Hall R, Simon M, Winters BL, Elashoff RM.

“Sugar” and Its Connection to Cancer

(including high glycemic load carbohydrates)

Glycemic Load

- Glycemic index, or GI is a measure of the effects of carbohydrates in food on blood sugar levels.
- Glycemic load (GL) accounts for the amount of food consumed and other factors influencing the effect of the food in your body.
- A serving of a particular food: a GL value of 10 or lower is considered low; 20 or higher is considered high

Food with Moderate to High Glycemic Load

Foods with High Glycemic Load

- Bread, white
- Cereal
- Crackers
- Muffins
- Bagels
- Cookies
- Pancakes
- Waffles

More Foods with High Glycemic Load

- Soda Pop
- Candy
- Chips
- Sugar
- Flour, white
- Potatoes
- Pretzels
- White Rice

Source:
www.glycemicindex.com
www.nutritiondata.com

Some of these moderate to high glycemic load foods might surprise you

- Bread, whole wheat
- Flour, whole wheat
- Oatmeal
- Rice, Brown
- Fruit Juice
- Dried Fruits
- Honey
- Fat Free foods

Source: www.glycemicindex.com; www.nutritiondata.com

What is Max Recommended Estimated Glycemic Load per Day?

- “100” or less per day, distributed somewhat evenly across your meals and snacks.
- Read More: <http://nutritiondata.self.com/help/analysis-help#ixzz1wqiyluuq>

Coke—The Real Thing?

- Drink 4 eight-oz. bottles of coke and here’s what you really get:
- 100 grams of High Fructose Corn Syrup
- A glycemic load of 136
- An inflammation factor of -1022 (Strongly Inflammatory)



How might high fructose contribute to obesity?

- Fructose -- a form of sugar found in corn syrup, honey and fruit
- Drinking fructose vs. glucose sweetened drink with a meal: released less insulin and leptin and more ghrelin
 - Insulin and leptin—tell your body it’s full
 - Ghrelin—tells your body it’s hungry
- Drinking the fructose drink also raised triglycerides.
- Recommend: Limit your intake of soda and other drinks containing large amounts of fructose
- Source: Telf, K. et al. Endocrine and Metabolic Effects of Consuming Fructose- and Glucose-Sweetened Beverages with Meals in Obese Men and Women: Influence of Insulin Resistance on Plasma Triglyceride Responses. The Journal of Clinical Endocrinology & Metabolism May 1, 2009 vol. 94 no. 5 1562-1569

News Flash: High Dietary Fructose Associated with Hypertension

- Dr. Richard Johnson at the U. of Colorado:
 - “It was “remarkable” how quickly people with high fructose diets developed increased blood pressure and other features of the so-called metabolic syndrome”
 - The good news: Able to reverse with dietary counseling and implementation of a low fructose diet

– Source: Richard J. Johnson, M.D., professor and head, division of renal diseases and hypertension, University of Colorado, Denver; Mariana Morris, Ph.D., assistant vice president, graduate studies, and chairwoman, Pharmacology and Toxicology Department, Boonshoft School of Medicine, Wright State University, Dayton, Ohio; Sept. 23-24, 2009, presentations, American Heart Association High Blood Pressure Research Conference, Chicago

How about water for hydration and a Strawberry Almond Butter Smoothie for a drink treat?

- 1 cup frozen unsweetened strawberries
 - GL: 2
 - IF: + 16 (mildly anti-inflammatory)
- 1 Tbsp. almond butter
 - GL: 0
 - IF: + 38 (mildly anti-inflammatory)
- ½ cup water

“Sugar” and Its Connection to Cancer (including high glycemic load carbohydrates)

- Ca cells consume 10-50 X more glucose than normal cells
- Pancreas releases more insulin—triggers growth hormones that can stimulate tumors
- Contributes to chronic inflammation
- Overconsumption: Obesity
- Steady over-consumption of high glycemic load carbohydrates in the diet: Eventual insulin resistance

What’s the Problem with Insulin Resistance?

- Studies of Mice and Men: Persistently high blood glucose: reduced cancer survival
- Higher risk of cancer recurrence
- More post-op complications
- Immune System Suppression: Higher risk of infection
- Increases estrogen circulating in the blood—“feeding” estrogen dependent tumors

So, What's Left to Eat?

That's coming in just a little bite!

What foods/diets are related to chronic inflammation?

- SAD (Standard American Diet)
 - Lots of sugary or diet drinks
 - Refined grains
 - Processed meats
 - Not enough cruciferous or yellow-orange veggies
- High fat diet (especially trans fats and low quality omega 6 fats)

For Example

Eating a high-fat fast-food breakfast (Egg McMuffin and Hash Browns) increases inflammatory substances in the bloodstream that lasts 3-4 hours.

Other contributors to inflammation?

- Obesity: Body Fat (especially excess fat around abdominal organs) releases inflammatory hormones and chemicals
- Smoking (OK, so it's not a food, but it's a big culprit in inflammation)
- Periodontal disease

Hot Off the Press!

People with high amounts of dental plaque were significantly more likely to die prematurely from cancer.

Source: Söder B, Yakob M, Meurman JH, et al. The association of dental plaque with cancer mortality in Sweden. A longitudinal study. *BMJ Open* 2012;2:e001083. doi:10.1136/bmjopen-2012-001083

What foods help quench the fires of inflammation?

1. Generally, fruits, veggies, whole grains
2. Leafy greens, avocados, beans, whole grains, nuts and seeds (especially almonds, Brazil nuts, pumpkin seeds and sunflower seeds).
 - Many of these foods are high in magnesium, which decreases inflammatory substances in the blood
3. Turmeric
4. Olive oil, flax, hemp, chia seeds and walnut oils
5. Wild-caught salmon and other wild caught fatty fish

Soy and Cancer

- Populations who regularly eat whole soy foods: lower incidence of breast cancer
- Recent Studies: Safe for women with breast cancer to eat whole soy foods
- Women's Health Study: 1 serving of whole soy foods/day: lower risk of breast ca recurrence or dying from breast ca
- Does not interfere with Tamoxifen
- Enhances effectiveness of anastrozole (Arimidex)

References for Soy and Breast Ca

- *Cancer Epidemiol Biomarkers Prev.* 2011 May;20(5):854-8. Epub 2011 Feb 25. Soy food consumption and breast cancer prognosis. Caan BJ, Natarajan L, Parker B, Gold EB, Thomson C, Newman V, Rock CL, Pu M, Al-Delaimy W, Pierce JP.
- *JAMA* 2009;302(22):2437-2443. doi: 10.1001/jama.2009.1783. Soy Food Intake and Breast Cancer Survival, Xiao Ou Shu, MD, PhD, et al.
- Mark Messina, PhD, co-owns Nutrition Matters, Inc., a nutrition consulting company, is an adjunct associate professor in the Department of Nutrition, School of Public Health, Loma Linda University and the executive director of the Soy Nutrition Institute.

Stay Tuned!

Tomorrow, Dr. Lise Alschuler will present some more vital info on nutrition and cancer.

Food and Genes

Supplements

More on Inflammation and Insulin Resistance

Summary on Diet and Cancer

- Some foods/diets have been linked to cancer prevention
- Cancer treatment affects nutritional status.
- Certain foods may reduce or aggravate treatment side effects.
- Some studies have found some foods and diets reduce the growth of cancer cells
- Survival in some cancers is linked to smart food choices

In Other Words . . .

**It does matter
what you eat!**

Yes, but if food is medicine,
won't it be hard to "take" or
won't it taste bad?

Nourishment also means the food is
tasty and you're able to weave it into
your budget and your life.

So you've decided to change the course.

Some guiding principles:

- "Dietary plans have to be affordable, employ readily available foods and fit people's lifestyles to be successful."
 - » Barbara Rolls, Pennsylvania State University
- Eight Principles of Food Selection
 - » From Annemarie Colbin's [Food as Medicine](#)

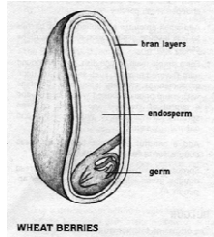
Eight Principles of Food Selection

- Whole
- Fresh
- Natural
- Seasonal
- Local
- In harmony with tradition
- Balanced
- Delicious

Whole Food

Food that nature provides with all its edible parts

Anatomy of a Whole Grain



Where are the nutrients?

- Bran and germ---contain 80% of the fiber and many other nutrients and nonnutrients
 - Phytochemicals in the fiber matrix
 - Polyunsaturated FA's in germ (these oxidize and cause rancidity with longer storage)
 - Few calories
- Endosperm—mostly starch, energy rich; little fiber; nutrient poor

What's lost or changed by refining foods?

When Whole Wheat Flour Becomes White Flour

MINERAL	LOSS (%)	OTHER NUTRIENTS	LOSS (%)
Calcium	60	Selenium	95
Chromium	40	Zinc	78
Cobalt	89	Vitamins B ₁ , B ₂ , & B ₃	72-81
Copper	68	Vitamin B ₆	50
Iron	76	Pantothenic Acid	50
Magnesium	85	Folate	67
Manganese	86	Vitamin E	86
Molybdenum	48	Linoleic Acid	95
Phosphorous	71	Alpha-linolenic	95
Potassium	77	Protein	33
Selenium	16	Fiber	95

The take home

All the parts of the grain act synergistically in the life of the plant—when the whole grain is eaten, this synergism and harmony is passed on to us as nourishment

Examples of Whole Grains

- Quinoa
- Millet
- Brown Rice
- Oats
- Lightly pearled barley
- Bulghar wheat
- ****Sprouted grain bread**

Sprouted Grain Bread

Genesis Bread

Ingredients

- INGREDIENTS: Organic Sprouted Whole Wheat, Filtered Water, Organic Malted Barley, Organic Pumpkin Seeds, Organic Sunflower Seeds, Organic Unhulled Sesame Seeds, Organic Unprocessed Wheat Bran, Organic Sprouted Whole Spelt, Organic Sprouted Whole Kernel Corn, Organic Sprouted Whole Soybeans, Sprouted Whole Chia Seeds, Organic Sprouted Whole Barley, Organic Sprouted Whole Millet, Organic Sprouted Whole Rye, Organic Sprouted Whole Brown Rice, Variety 5-Grain & Seed Blend: (Organic Sprouted Whole Flax Seed, Organic Sprouted Whole Sorghum, Organic Whole Quinoa, Organic Sprouted Whole Teff, Organic Sprouted Whole Amaranth), Organic Wheat Gluten, Fresh Yeast, Sea Salt.

Culinary Wonder!

- Adding vinegar (or other acid) to a carbohydrate-containing food, will decrease the glycemic index.
- “Sprouting” a whole grain by soaking it overnight with 1 Tbsp. of yogurt, kefir, vinegar, lemon juice, will make it more easily digestible, increase mineral absorption, and make it cook faster!

Some Whole Foods that Lower GL and/or Inflammation

- Most vegetables and fruits: Especially brassica family (broccoli, collards, cabbage, etc.), allium family (garlic, onions); avocados; blueberries
- Nuts and seeds, including nut butters and nut flours without sugar added
- Beans: Whole soy beans (tempeh, edamame); lentils, chickpeas, kidney beans

An Apple a Day

Bioactive Compounds	Functions
• Quercetin	• Antioxidant
• Epicatechin	• Decreases LDL, TC, TG
• Chlorogenic acid	• Carcinogen detoxifier
• P-coumaric acid	• Anti mutagen
• Floricidin	• Decreases tumor mutation/promotion
• Pectin	• Decreases platelet aggregation

What Contains the Following Ingredients?

- Amyl acetate, Amyl butyrate, Amyl valerate, Anethol, Anisyl formate, Benzyl acetate, Benzyl isobutyrate, Butyric acid, Cinnamyl isobutyrate, Cinnamyl valerate, Cognac essential oil, Diacetyl, Dipropylketone, Ethyl acetate, Ethyl amyl ketone, Ethyl butyrate, Ethyl cinnamate, Ethyl heptanoate, Ethyl heptylate, Ethyl lactate, Ethyl methylphenylglycidate, Ethyl intrate, Ethyl propionate, Ethyl valerate, Heliotropin, Hydroxy-phenyl-2-butanone (10 percent solution in alcohol), α -ionine, Isobutyl anthranilate, Isobutyl butyrate, Lemon essential oil, Maltol, 4-methylacetophenone, Methyl anthranilate, Methyl benzoate, Methyl cinnamate, Methyl heptine carbonate, Methyl naphthyl ketone, Methyl salicylate, Mint essential oil, Neroli essential oil, Nerolin, Neryl isobutyrate, Orris butter, Phenethyl alcohol, Rose, Rum ether, γ -undecalactone, vanillin, solvent

Fresh

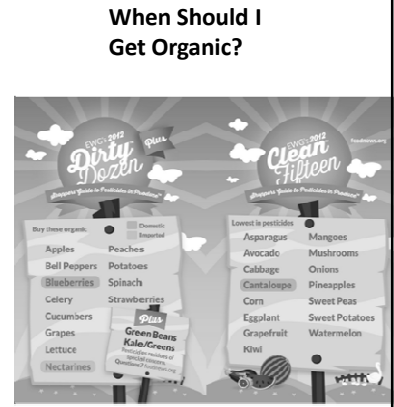
When possible, choose fresh over canned or frozen; dehydrating and naturally pickling foods also leaves more nutrients intact.

Natural

- Food is raised or grown as naturally as possible without pesticides, chemicals, hormones, etc.
- Eating the food as close to the way it looked when it came out of the ground or off the tree/bush (I.e. baked potato vs. potato chip)

Is organic really better?

- Eat a varied diet
- Rinse all produce
- Eat organic when possible



If it's processed, learn to:

Read the Label!

“Anyone who eats a fresh, ripe strawberry does not say anything caustic or cruel for 15 minutes thereafter.”

Garrison Keillor

Local

- Farmer's Markets and Stands
- Natural foods stores
- Some large chain grocery stores carry locally grown/raised foods
- Grow your own—a simple garden or in pots

Some Farmer's Markets Take Food Stamps, WIC and Sr. Citizen Discounts

Picture Source: http://www.peachstand.com/springsfarm_peachfacts.asp

Seasonal

- Eating the foods that are in season helps you adapt to your environment
- These foods “take better care of you” when eaten in season

In Harmony with Tradition

Look back to foods traditionally eaten by your ancestors to get some idea on where to start with whole grains and beans.

Consider food rituals and emotional attachments

What are some food traditions of your faith and culture?



Balanced

A dynamic process.
Your body may require different foods at different times.
Be willing to accommodate and give your body what it needs.

Healthy Balance

- Balance for nourishment: Variety of foods that have complex carbohydrates, protein, and healthy fat.
- A Rainbow of Day: choose fruits and veggies in a rainbow of colors---that's where the phytonutrients are!
- Balance for textures, tastes and cooking methods
- Balance for quantity

The New American Plate

(See AICR booklet)



What's on the New Plate?

The modest 3-ounce serving of meat (fish, poultry or red meat) pictured here fits AICR's guideline for cancer prevention. This plate also features a wider variety of foods, resulting in a diverse assortment of cancer-fighting nutrients. Two kinds of vegetables help increase the proportion of plant-based foods. A healthy serving of a tasty whole grain (brown rice, barley, kasha, bulgur, millet, quinoa[®]) completes the meal.

A Balanced View

- "Americans love to hear good news about their bad habits!" Dr. John McDougall
- Be aware of "overdoing it" when you hear good news about the value of a food---i.e. "Dark Chocolate is good for me---now I can go back to eating a whole chocolate bar everyday"
- No one particular food is either a demon or a panacea.
- Everything in moderation---including moderation

Tastes Great!

Healthy food must taste great to be truly healthy.

The 8 Principles and Your Lunches

- **Chicken Salad or “Move Over Chicken” Tempeh Salad**
 - *Free Range Chicken or Tempeh, Grapes, Walnuts, Romaine Lettuce*
- **Quinoa** Salad
- **Broccoli** Salad
- Fresh Peaches

It’s not just about the food.
What about the “eating experience”?

- **Correlations Between Family Meals and Psychosocial Well-being Among Adolescents** Marla E. Eisenberg, ScD, MPH; Rachel E. Olson, MS; Dianne Neumark-Sztainer, PhD, MPH, RD; Mary Story, PhD, RD; Linda H. Bearinger, PhD, MS

- *Arch Pediatr Adolesc Med.* 2004;158:792-796.
- **Objective** To determine the association between frequency of family meals and multiple indicators of adolescent health and well-being (alcohol use, tobacco use, drug use, mental health, self-esteem, depression, suicidal thoughts, and suicide attempts). Teens who broke bread with their families often also tended to do better in school.

The more family meals teens ate per week, the less often they used drugs, tobacco and alcohol. Family meals were also associated with fewer mental health problems, such as low self-esteem, depression, suicidal thoughts and suicide attempts. Teens who broke bread with their families often also tended to do better in school.

Getting our hands back into our food.

“We have become a society of consumers---not producers”

Nathan Boone
Farmer/Grower

Almost 1/3 of Americans don't know how to cook

Huffington Post Survey, 2011

Stay in the Know

- Media Watch Cancer News Listserv: Latest breaking news in cancer and cancer treatment, including CAM's
- To sign up—Email Laura and ask to subscribe to Media Watch
- Continue your study: DVD, Online or in-class—
 - i.e. The Cancer Fighting Kitchen; AICR Food for the Fight

“One cannot think well, love well, sleep well, if one has not eaten well.”

Virginia Woolf

Contact Information

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More places for information

1. UVa Cancer Center Cooking Videos with Chef Laura
<http://www.healthsystem.virginia.edu/internet/cancer-patients/nutrition/cooking/index.cfm>
2. Help with menu planning and recipes for special needs; Chef Laura is a featured chef
www.myfoodmyhealth.com