

Breast Wellness

*Tools to Prevent and
Heal from Breast Cancer*



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Lenox, MA

WITH

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FUNCTIONAL MEDICINE

- Prevention
- Underlying Causes
- Science Based
- Biochemical Individuality
- Patient Centered (Not Disease Centered)
- Interconnections in our body
 - Inflammation and heart disease
 - Gut and immune system

ASKS WHY???



Not just cancer.....

but cancers

Not just breast cancer.....

but breast

cancers



Create A Healthy Terrain

Remove What Causes Imbalance

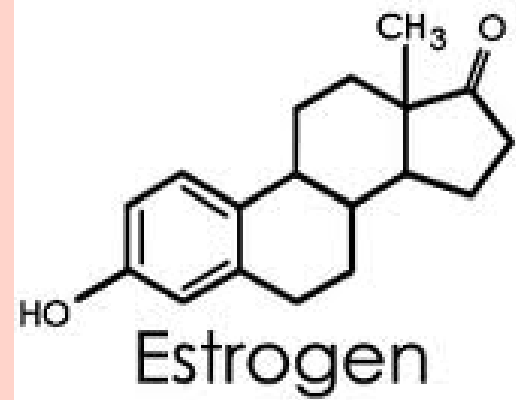
Replace What Is Needed For Balance



The Estrogen Connection



The Estrogen Connection



- As estrogen exposure increases so does our risk of breast cancer
 - Number of periods in your lifetime
 - BCPs >5 years or current use
 - HRT - 8.6% decrease in postmenopausal ER+ breast cancer since 2001
 - Endocrine Disrupters





Endocrine Disrupters -

Substances that mimic or disturb the activity or binding of our hormones

- Xenoestrogen - synthetic chemicals that act as endocrine disruptors
- Plastics -
 - BPA - Bisphenol A - #7
 - PVC - Polyvinyl chloride - phthalates
- Pesticides
carcinogens and endocrine disruptors



A green sign with white text is placed in a garden. The sign is rectangular with rounded corners and a small tab at the bottom. The text on the sign reads: "WE'VE TAKEN THE Pesticide-Free PLEDGE". The garden is filled with various flowers, including red geraniums, yellow marigolds, and white flowers. The soil is dark brown.

**WE'VE
TAKEN THE
Pesticide-Free
PLEDGE**

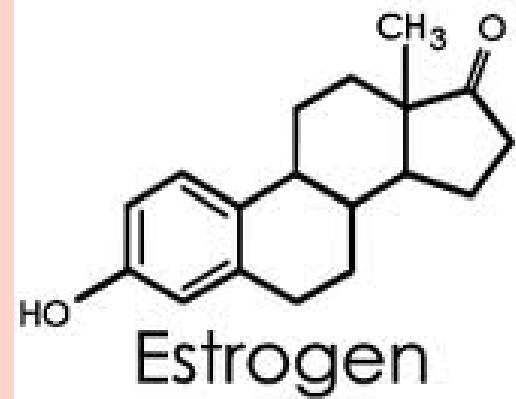
What can you do?



- Buy organic
 - Decreased pesticide exposure
 - Decreased growth hormone exposure
 - Decrease animal products in general
- Use glass whenever possible
- Do not heat or microwave plastic
- Switch to non plastic reusable water bottles
- Avoid pesticides on your lawn and garden



The Estrogen Connection



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 - HRT - 8.6% decrease in postmenopausal ER+ breast cancer since 2001
 - Endocrine Disrupters
 - **Weight - % body fat**



The Underlying Basis for Obesity: Relationship to Cancer¹

George A. Bray²

Pennington Biomedical Research Center, Baton Rouge, LA 70808

ABSTRACT An increase in the risk of cancer is one of the consequences of obesity. The predominant cancers associated with obesity have a hormonal base and include breast, prostate, endometrium, colon and gallbladder

An increase in the risk of cancer is one of the consequences of obesity. The increased release of cytokines from this tissue may play a role in the inflammatory state that is associated with obesity (and cancer).

Bray, G, J. Nutr. 2002; 132: 3451S–3455S.

The risk of cancer has been demonstrated to be increased in individuals with a high body mass index (BMI)³. The risk is increased by the system, normal weight is a BMI of 18.5 to <25, overweight is a BMI of 25 to <30 and obesity is a BMI \geq 30. Table 1 shows the prevalence of cancers for overweight individuals with a BMI > 25 and for those who are labeled as obese with a BMI > 30.

The incidence of cancer of the endometrium, breast, colon and gallbladder is increased in women, and the incidence of cancer of the colon and prostate is increased in men. One explanation for these cancers is the increased production of estrogenic compounds by aromatase conversion of androstenedione, produced in the adrenal gland, into estrone. Be-

nature of obesity. The next section provides an overview of the newer ideas that are directing the current research and develop strategies to control obesity and its related

Newer understanding of obesity

Research over the past two decades has provided a unprecedented expansion of our knowledge about the cellular and molecular mechanisms regulating body weight. The greatest impact has resulted from the discovery of the corresponding to the five mouse monogenic obesity genes and the subsequent characterization of the pathways by these genetic entry points. Extensive molecular genetic studies (mouse knockouts) have helped to identify critical players in energy balance as well as validated the importance for previously identified pathways.

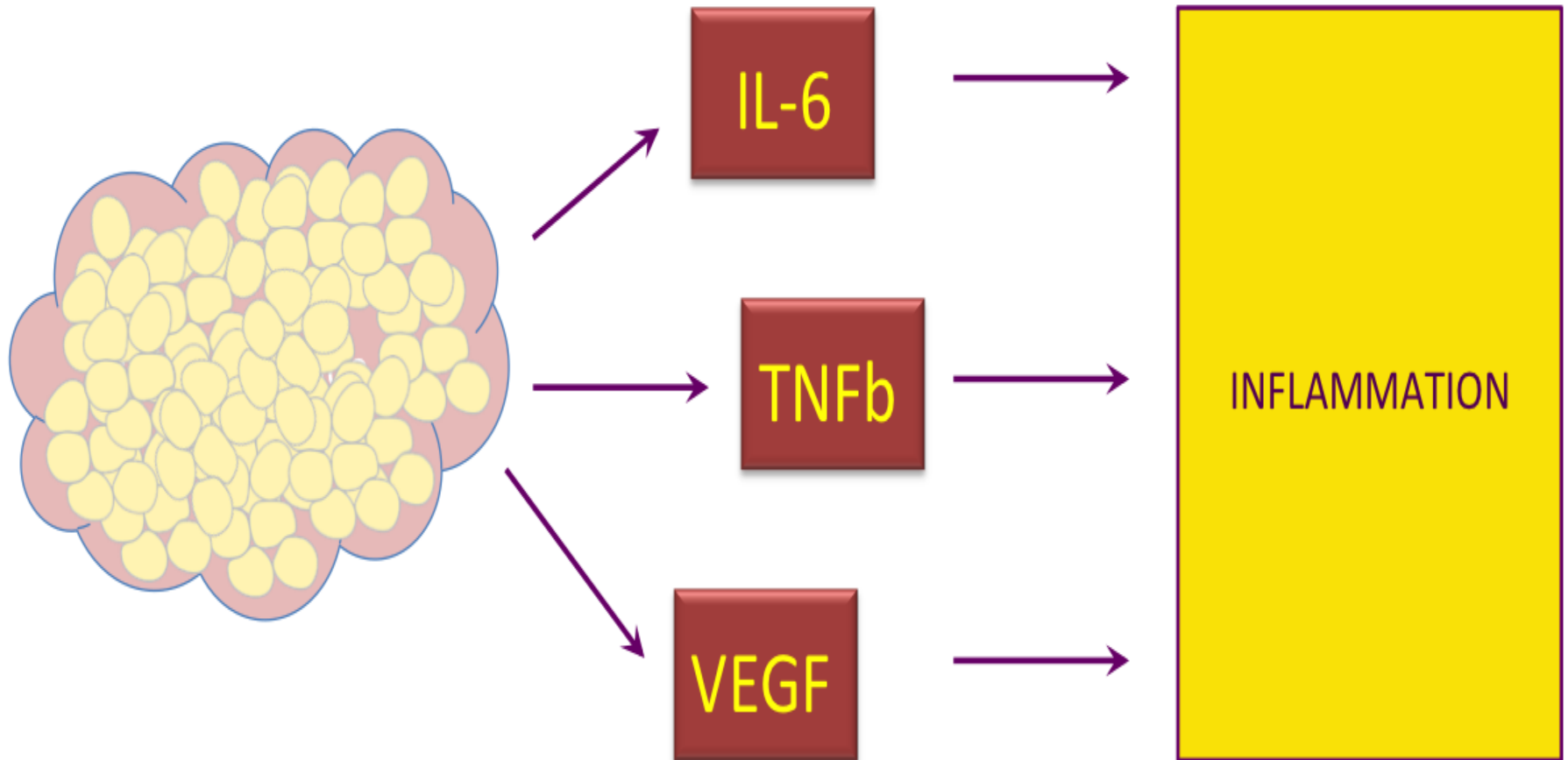
As a framework for this discussion, I will use the mouse model. In such a system, afferent signals tell the brain about the state of the external environment related to food. In turn, this central nervous system transduces these messages into efferent control signals that regulate the search for and acquisition of food as well as its subsequent disposal inside the body. Final disposal involves the system ingests, digests, absorbs, transports, store

¹ Presented as part of a symposium, "International Research Conference on Food, Nutrition & Cancer," given by the American Institute for Cancer Research and the World Cancer Research Fund International in Washington, D.C., July 11–12, 2002. This conference was sponsored by BASF Aktiengesellschaft; California Dried Plum Board; The Campbell Soup Company; Danisco Cultor; Galileo Laboratories, Inc.; Mead Johnson Nutritionals; Roche Vitamins, Inc.; and Yamanouchi/Shaklee/NOBYS. Guest editors for this symposium were Helen Norman and Ritva Butrum, American Institute for Cancer Research, Washington, D.C. 20009.

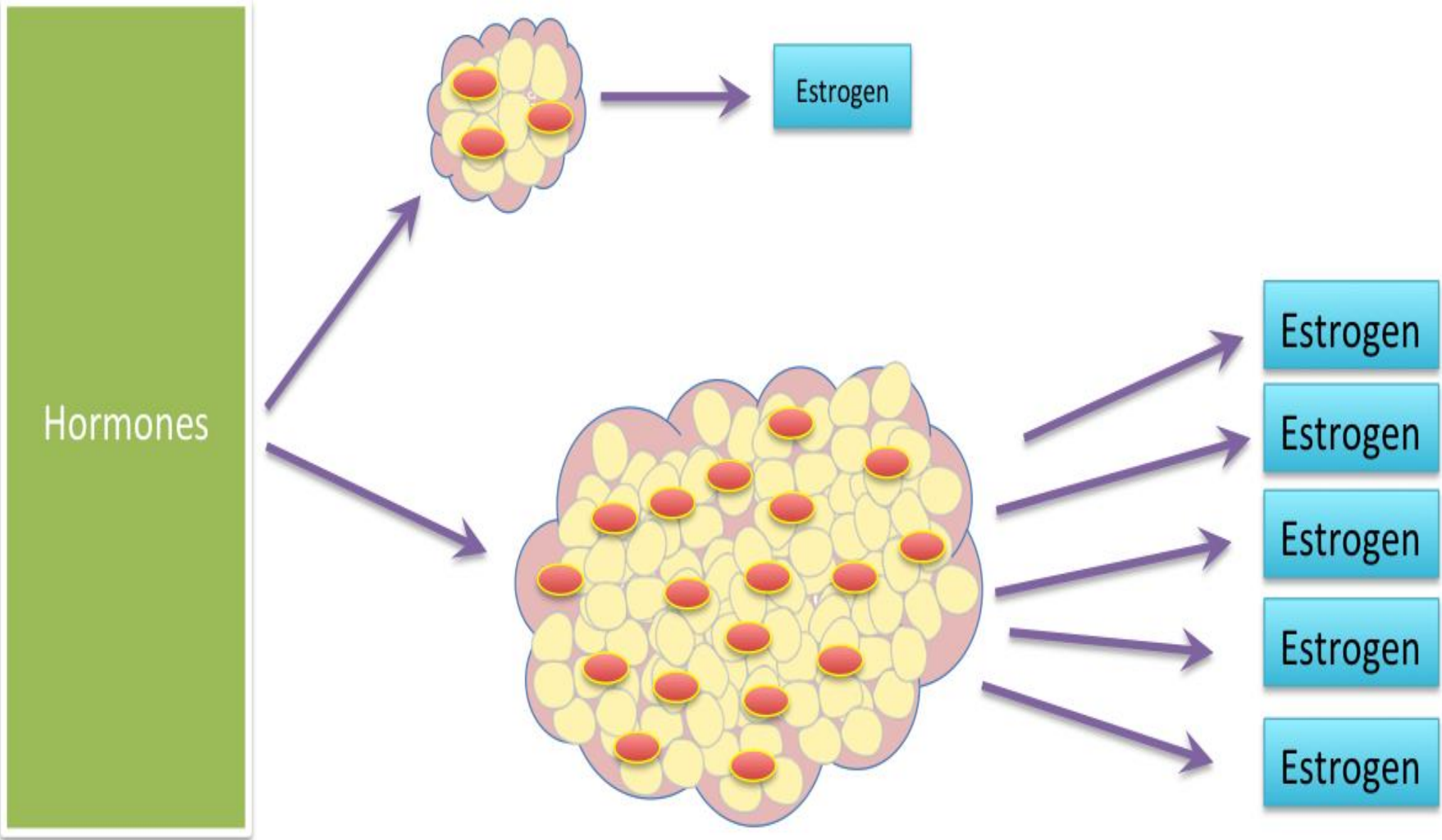
² To whom correspondence should be addressed. E-mail: brayga@pbrc.edu.
³ Abbreviations used: BMI, body mass index; C/EBP- β , CCAAT/enhancer binding protein; GLP-1, glucagon-like peptide-1; α -MSH, α -melanocyte-stimulating hormone; PPAR- γ , peroxisome proliferator-activated receptor; PTP-1B, protein tyrosine phosphatase-1B; UCP, uncoupling protein.



Adipose tissue makes the inflammatory markers **IL-6**, **VEGF** and **TNF**



More Adipose Tissue  = More  = More 



Decrease Aromatase

- Lower % body fat
 - Maintain healthy weight
 - Resistance exercise
- Decrease inflammation
 - Omega 3 fats
 - Avoid trans fats
 - Decrease saturated fat
 - Lower % body fat
 - inflammation made in fat
 - Turmeric



Decrease Aromatase

- Fiber
- Lignans – Flax seed
- Soy
- Resveratrol
- Grape Seed Extract
- Green Tea



Improve Estrogen Metabolism

- Increase cruciferous vegetables
I3C and DIM and Sulforaphane
- Fish oil
- Daily exercise
- Ground flax seed
- Healthy soy



The Concern Over Belly Fat

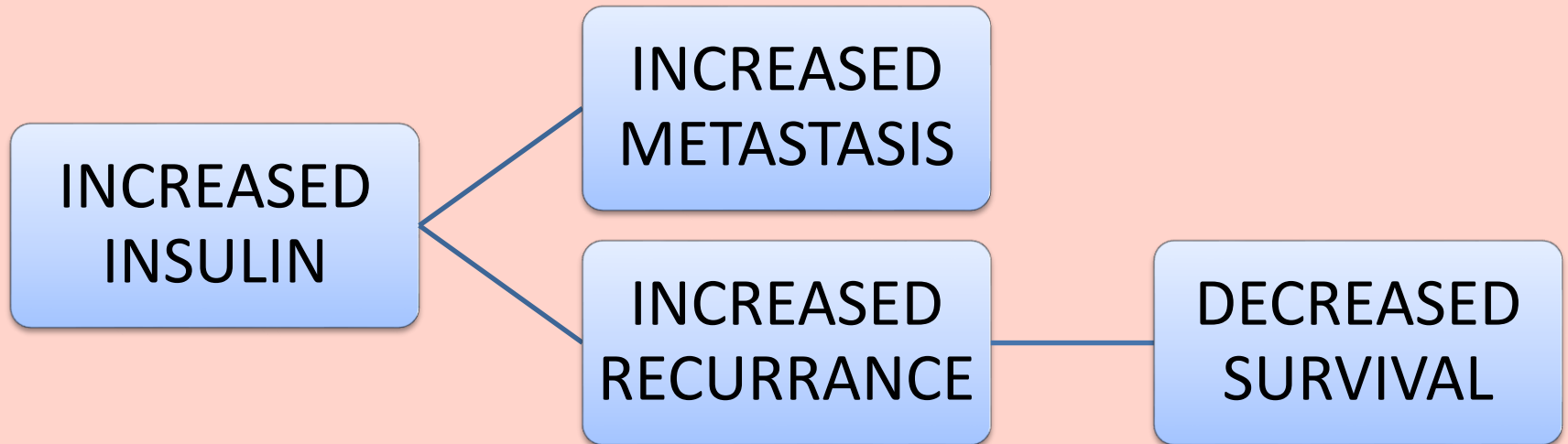


The Concern Over Belly Fat

Women with higher insulin levels have a higher risk of getting breast cancer



Insulin Resistance

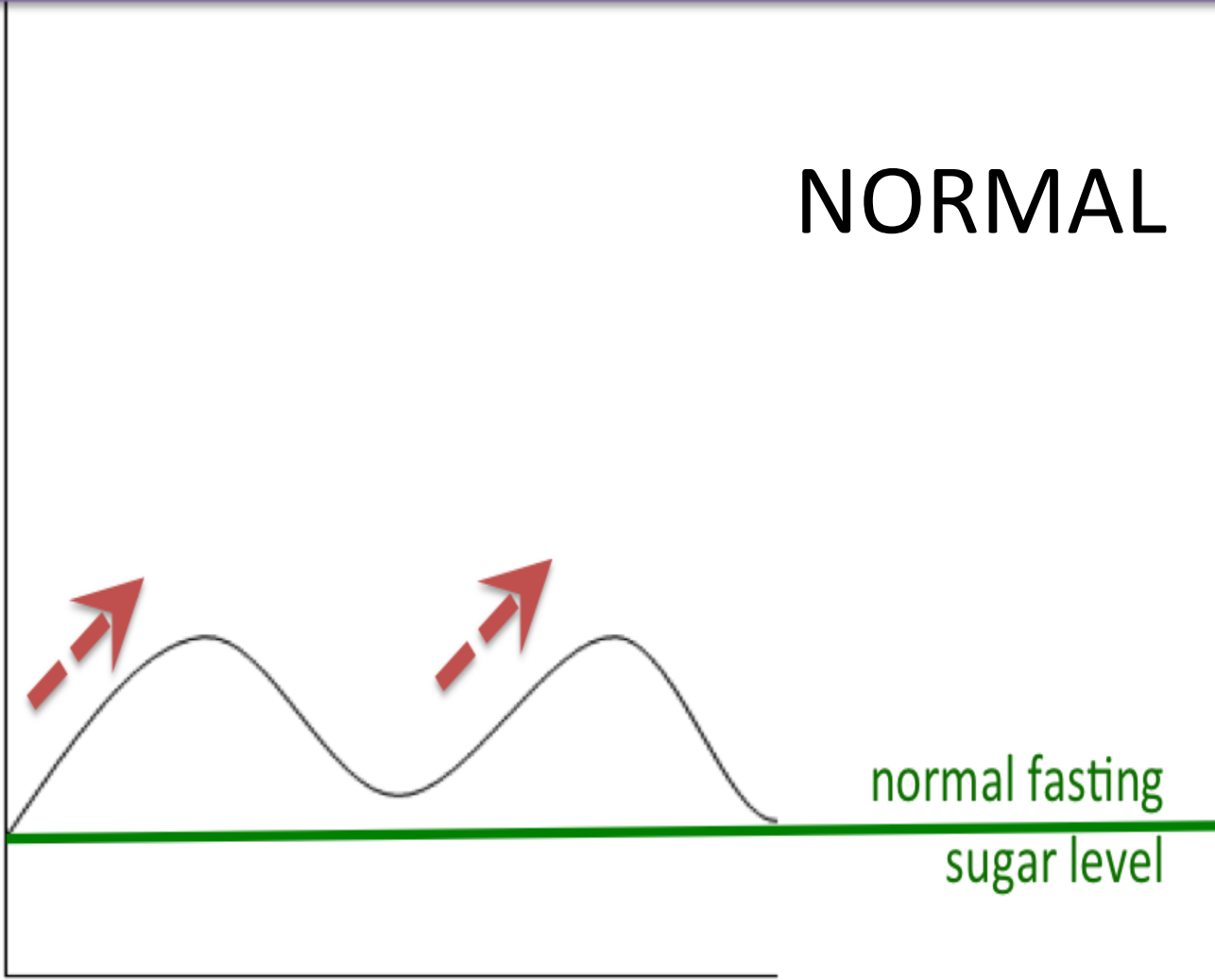


Blood Sugar Cycle and Insulin Levels

NORMAL

Insulin
increases

As blood sugar
increases

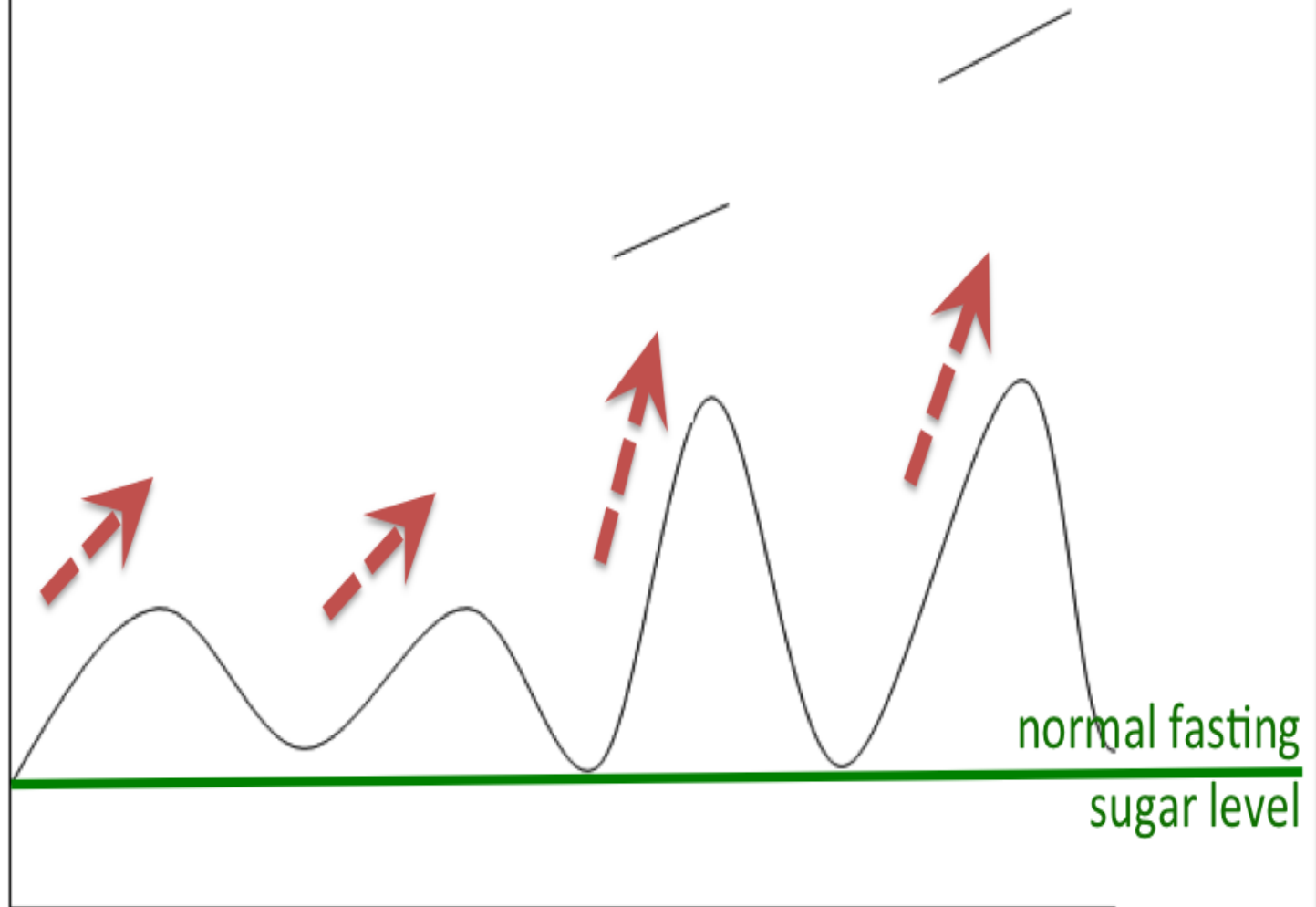


normal fasting
sugar level

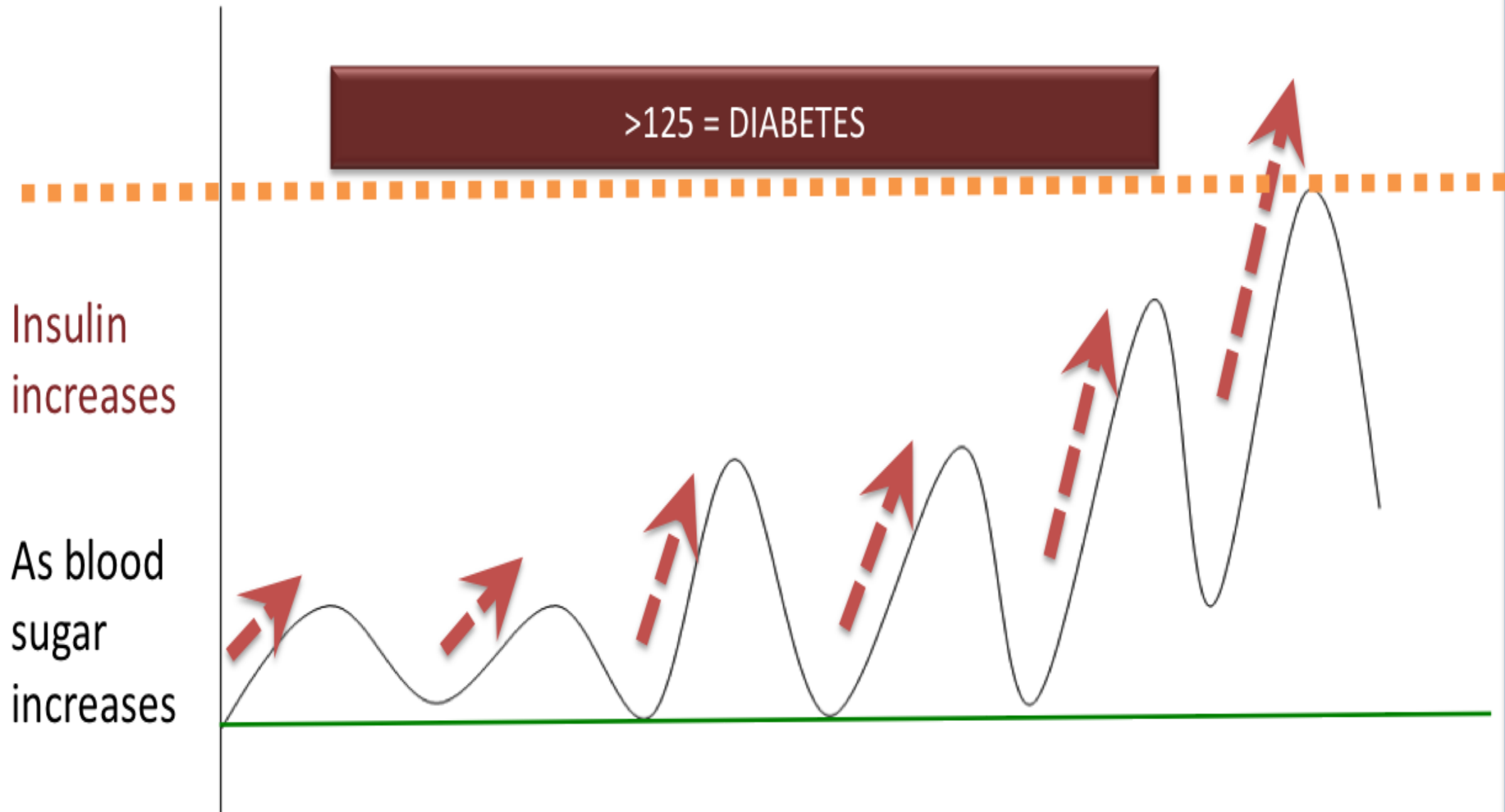
Insulin Resistance

Insulin
increases

As blood sugar
increases



Insulin Resistance



How do I know if I have Insulin Resistance?

- Weight gain around the belly
- Fatigue
- Feeling tired after a meal
- Harder time losing weight
- Cravings for foods
- Hot Flashes
- Energy Swings
- Low blood sugar
- Heart Disease
- Memory Loss



How does my doctor know if I have Insulin Resistance?

- Belly Fat – Waist / Hip ratio > 0.8 for women
- Elevated blood sugar
- Elevated Insulin levels
- Elevated blood pressure $>140/90$
- High triglycerides >150
- Low HDL (good cholesterol) <50 for women
- Elevated CRP



Causes of Belly Fat

- Weight gain
- Poor Diet
- Lack of exercise
- Stress
- Inadequate Sleep
- Dysbiosis
- Toxin



How Can I Improve Insulin Sensitivity?

- Increase **fiber** - 35 grams daily
- Protein - at each meal
- Regular Meals
- Increase omega 3 fats
- Eliminate Trans fats (partially hydrogenated fats)
- Nutrient dense foods
- 40 minutes of **exercise** daily
- Get 7-9 hours of **sleep** per night
- Manage stress
- Eliminate sources of inflammation in the body
- Another reason to avoid BPA



The Immune System and Inflammation



Initiation

Transformation

De-differentiation

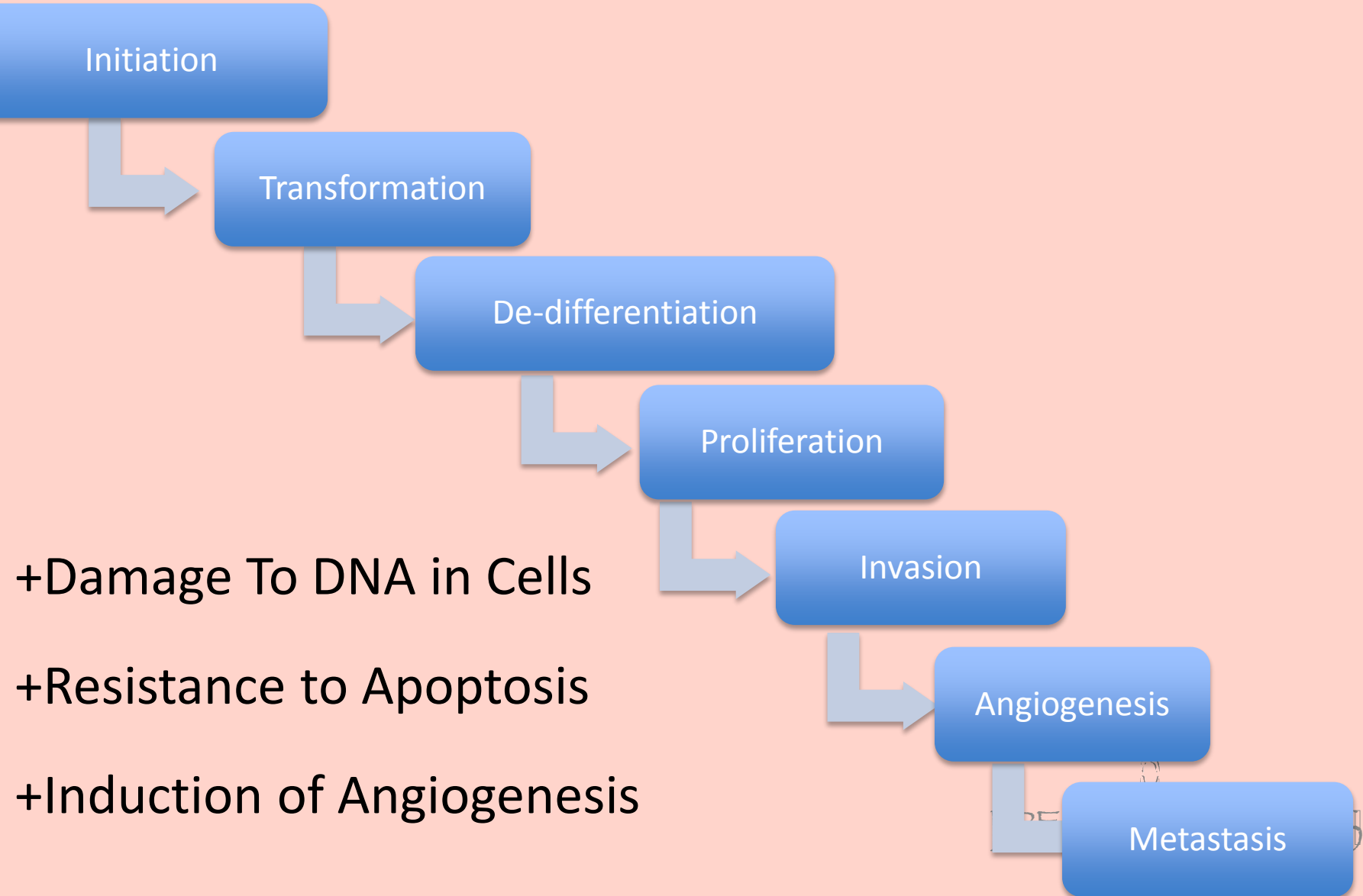
Proliferation

Invasion

Angiogenesis

Metastasis

+Damage To DNA in Cells
+Resistance to Apoptosis
+Induction of Angiogenesis



STOP Progression To Cancer

30-50% of healthy women aged 40-50 premalignant microscopic breast tumors on autopsy.

Some tumors may regress!



Unhealthy Fertilizer and Soil

- High levels of insulin
- High levels of sugar
- Unhealthy fats – high levels of trans fat
- High omega 6 / omega 3 ratio
- Insulin Like Growth Factor (IGF) in milk and meat
- High levels of inflammation



Healthy Fertilizer / Soil

- High intake of Phytonutrients
- Low levels of inflammation
- High omega 3 levels
- Green tea
- Beta glucans



Increase Inflammation = Increase Cancer

Signs of Inflammation

Increased CRP

Increased ESR

Water retention

Bloating

Joint Pain

Asthma

Eczema

Digestive Distress

Abdominal weight gain...



Chronic Inflammation: A Common and Important Factor in the Pathogenesis of Neoplasia

Inflammation may induce, promote, or influence susceptibility to carcinogenesis by causing:

- DNA damage
- Inciting tissue reparative proliferation
- Creating a stromal “soil” that is enriched with cytokines and growth factors



Decrease Inflammation

- Avoid refined and processed foods
- Decrease % Body Fat
- Increase Omega 3 fats
- Decrease Omega 6 and saturated fats and eliminate trans fats
- Low glycemic impact diet
- Turmeric, resveratrol, ginger and green tea
- Decrease stress and increase sleep
- Trial of an elimination diet for some



"Dr. Hyman offers a 10-day energy-boosting weight-loss program
that will transform your health and vitality." —*Entrepreneur*, 10/10

THE **BLOOD SUGAR SOLUTION**

10-DAY DETOX DIET

Activate Your Body's Natural Ability to
Burn Fat and Lose Weight Fast



Mark
Hyman, MD

Author of the #1 New York Times Bestseller
The Blood Sugar Solution



DETOXIFICATION



DETOXIFICATION

TOXINS

Environmental

Endocrine Disruptors

Pesticides / Herbicides

Cigarette smoke

Charbroiled Meats

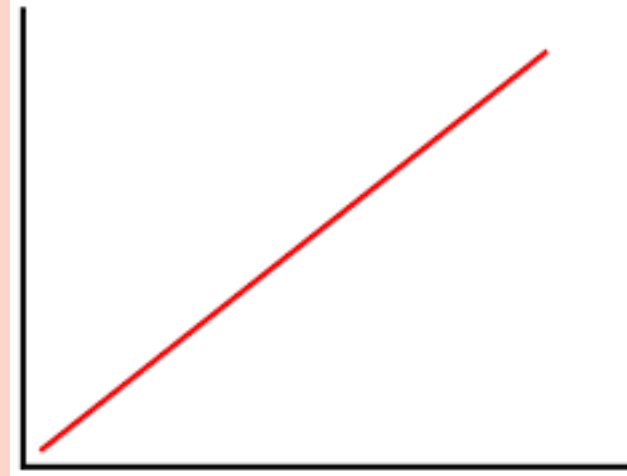
Heterocyclic aromatic amines

Alcohol

Produced In Own Body



ALCOHOL



- As alcohol intake increases so does our risk
- Linear Relationship
- For every 1 drink increase per day, a women's risk of getting breast cancer increased by 12%
- >2 drinks per day = 3x increased risk



ALCOHOL - Why?

- Liver and detox impact
- Increase free estrogen
 - by decreasing SHBG
- Associated with other unhealthy lifestyles
- Decrease B vitamins
 - important for methylation



Strengthen Your Ability To Detoxify

- Fluids
- Fiber
- Protein
- Choose organic
- Eat cruciferous vegetables daily– broccoli, kale, collards, Brussel sprouts
- Garlic, cilantro, parsley, dandelion greens, chlorophyll



Improve Elimination of Toxins

- Have 1 to 2 bowel movements a day.
- Drink 6 to 8 glasses of water a day.
- Sweat regularly.
- Use exercise to help you sweat regularly.
- Use steam baths or saunas—infrared saunas may be even more beneficial.
- Regular exercise, yoga, and lymphatic massage can improve lymph flow and help flush toxins out of your tissues into your circulation so they can be detoxified.

The image shows a large number of blue, rod-shaped bacteria, likely representing gut microbiota. The bacteria are scattered across the frame, with some in sharp focus and others blurred in the background, creating a sense of depth. They have a textured, slightly irregular surface. The overall color is a light blue, and the background is a soft, out-of-focus white.

Gut Microbiota

Antibiotics and Breast Cancer

- 17 year period -
 - > 25 scripts -- 2 x increased risk
 - 1-25 scripts --- 1.5 x increased risk
 - Int. J Cancer 2008. Nov 1: 123(9):2152-5.
- Immune system ?
- Damage to Gut



Heal The Gut

- Limit Antibiotic Use
- High Fiber Diet
- Decrease Red meat - <18 oz/wk (AICR)
- Probiotics
- Nutrients
- Remove inflammatory foods
- Calcium D Glucarate –
 - 1000mg twice daily



Optimal Diet for Breast Wellness

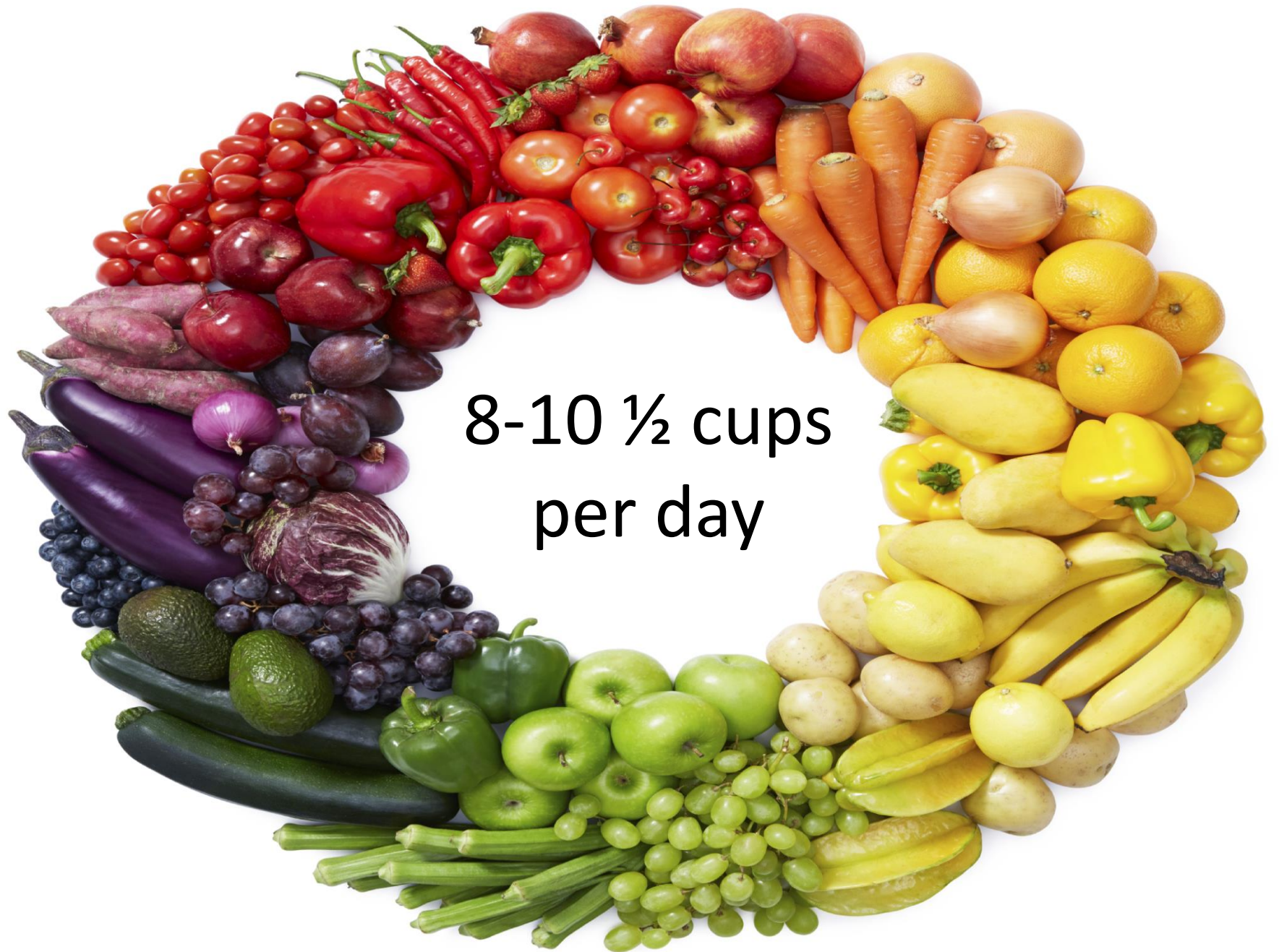


Phytonutrients – **THINK COLOR!**

Phytonutrients - plant metabolites that defend against microbes

- Increase host defense against DNA damaging molecules. Reduce oncogenic potential of carcinogens.
- Organic has more phytochemicals -- Stress
 - J Agric Food Chem, 2009;57:5227-34.





8-10 ½ cups
per day

Phytonutrients – **THINK COLOR!**

- Chlorophyll – green vegetables
- Glucosinolates – cruciferous vegetables
- Xanthophyll – yellow carotenoid pigment
- Isoflavones – phytoestrogen
- Polyphenols – quercetin, lignan, flavonoids
- Flavonoids – Catechins, ECGC = epigallocatechin
- Carotenoids – yellow / orange



Glucosinolates

- Cruciferous vegetable - Give bitter taste
- Pro apoptotic activity
- Estrogen metabolism





Isoflavones

- Phytoestrogens
- Genistein
- Daidzein
- Soy



Soy Food Intake and Breast Cancer Survival

Xiao Ou Shu, MD, PhD

Ying Zheng, MD, MSc

Hui Cai, MD, PhD

Kai Gu, MD

Zhi Chen, MD, PhD

Wei Zheng, MD, PhD

Wei Lu, MD, PhD

ESTROGEN IS BELIEVED TO PLAY a central role in breast cancer development and progression. Blocking the effect of estrogen, either by inhibiting estrogen action or by reducing estrogen production, has been widely used in breast cancer treatment as an adjuvant therapy.¹ Soy foods are rich in phytoestrogens, mainly in the form of isoflavones, which are natural estrogen receptor modulators that possess both estrogen-like and antiestrogenic properties. Soy constituents have also been shown to have other anticancer effects, including the inhibition of DNA topoisomerase I and II, proteases, tyrosine kinases, inositol phosphate, and angiogenesis and may also boost immune response and possess antioxidative effects.^{2,3}

Consumption of soy food has been inversely related to the risk of breast cancer in many epidemiological studies.⁴⁻⁶ However, genistein, a major form of isoflavone, has been shown to enhance the proliferation of breast cancer cells in vitro and to promote estrogen-dependent mammary tumor growth in ovariectomized rats.^{3,7} In addition, breast cancer treatments often lead to a decrease in the endogenous estrogen supply of survivors, and a concern has been raised as to whether soy isoflavones may exert their estrogenic effects, promote cancer recurrence, and, thus, negatively influence overall survival.^{7,8} Furthermore,

For editorial comment see p 2483.

Context. Soy foods are rich in isoflavones, a major group of phytoestrogens that have

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tamoxifen.¹⁴

Among women with breast cancer, soy food consumption was significantly associated with decreased risk of death and recurrence.

The inverse association was evident among women with either ER-positive or ER-negative breast cancer and was present in both users and non-users of tamoxifen.

This study suggests that moderate soy food intake is safe and potentially beneficial for women with breast cancer.

Shu, X. JAMA, 2009;302:2437-43.

both geste with tic at been To logic dem ated the assoc of postdiagnos soy isoflavone intake with cancer recurrence. An inverse association was suggested for postmenopausal women who had used tamoxifen.¹⁴

University Medical Center, Nashville, Tennessee (Drs Shu, Cai, Chen, and W. Zheng); and Shanghai Institute of Preventive Medicine, Shanghai, China (Drs Y. Zheng, Gu, and Lu).
Corresponding Author: Xiao Ou Shu, MD, PhD, Department of Medicine, Vanderbilt Epidemiology Center, 2525 West End Ave, Ste 600, Nashville, TN 37203-1738 (xiao-ou.shu@vanderbilt.edu).

Flavonoids

- Anthocyanidins = Berries (Red, blue and purple)
- ECGC – Epigallocatechin – green tea
- Flavonols = onion and kale



Antiangiogenic properties of natural polyphenols from red wine and green tea.

In vitro investigations have indicated that RWPCs (red wine polyphenolic components) and GTPs (green tea polyphenols) are able to **inhibit several key events of the angiogenic process**



Top 10 Breast Wellness Foods

- Broccoli / Kale– daily
- Asian mushrooms
- Fatty Fish – sardines and salmon
- Ground flax seed
- Green tea - organic
- Pomegranate
- Beans and legumes
- Garlic and Onions
- Blueberries and other berries
- Seaweed – nori



EXERCISE



Exercise and Breast Cancer

- 4 hrs per week = less risk
- 3-5 hours per week = improved survival for women who have had breast cancer
- Vigorous exercise + BMI < 25
 - 20% decreased risk



Sleep



SLEEP DEPRIVATION



Cortisol and Insulin

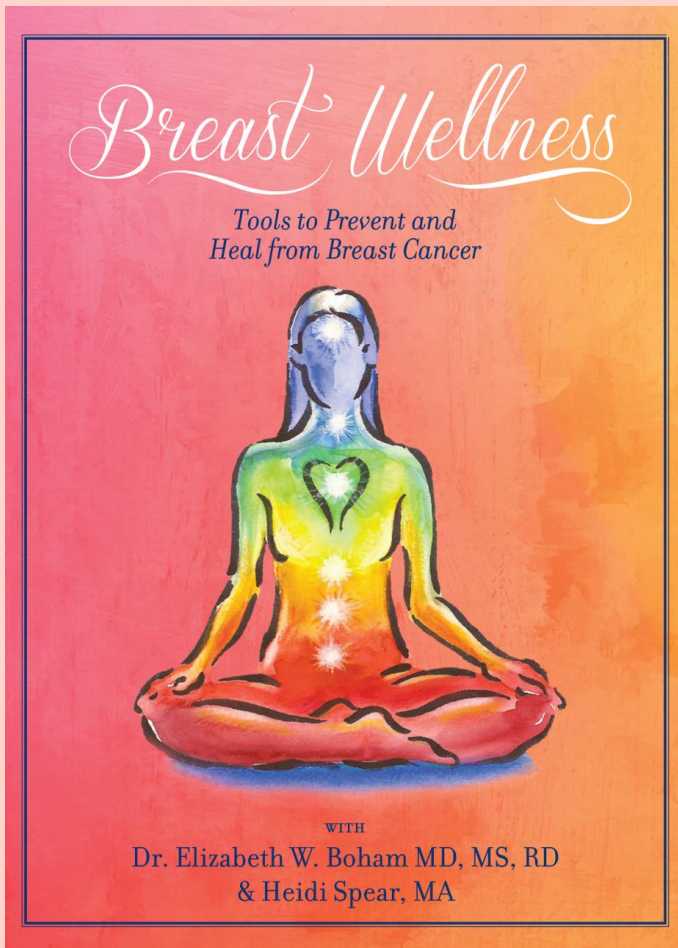
NK cells and melatonin

Melatonin = Anticancer and antioxidant effects

Tips for Getting a Good Night Sleep

- Maintain a regular sleep schedule
- Establish a regular, relaxing bedtime routine
- Create a sleep-conducive environment
- Sleep on a comfortable mattress and pillows.
- Finish eating at least 2-3 hours before bedtime.
- Exercise regularly (at least three hours before bedtime)
- Avoid caffeine, nicotine and alcohol close to bedtime.
- Belly-breathing and visualization
- Turn off the TV, phone and computer 1 hour before bed.





Breast Wellness



Universe by Heidi Spear



STRESS!



BREAST WELLNESS

The logo for Breast Wellness features a stylized line drawing of a woman sitting in a meditative pose (yogi) with her hands resting on her knees. The text "BREAST WELLNESS" is written in a serif font, with the woman's figure integrated into the letter "A" of the word "WELLNESS".

STRESS – Increased Cortisol

- Increased insulin resistance and abdominal fat
- Increased IL-6 - inflammatory cytokine
 - Increased Inflammation = Increase Cancer Risk
- Lower NK (natural killer) cell activity
 - NK cells find and kill new cancer cells
 - Stronger a women's NK cell activity is the higher rate of survival from breast cancer after 12 years
 - Increased Social Support = Increased NK activity



Tumor rejection in rats after inescapable or escapable shock.

Visintainer, M Science, 1982; 216: 437-439.

- Rats with cancer cells grafted to cause 50% to die
- 3 groups
- Shock and no control - 27% rejected tumor
- No electric shock - 54% rejected tumor
- Electric shock but had a lever to stop it
 - 63% rejected the tumor



I am grateful for...

List 3 Daily



Your Top 10...

Things to do for Breast Wellness

1. Choose Whole Foods
2. Get 3-5 hours of Exercise Per Week
3. Increase Fiber Intake to 35gm daily
4. Have Protein at Every Meal - include vegetarian options - beans, nuts as well as fish, lean poultry and eggs.
5. Maintain a Healthy Weight



Your Top 10...

Things to do for Breast Wellness

6. Get a Good Night Sleep

7. Choose Organic Foods

8. Limit Your Alcohol Intake

<1 drink per day or < 5 per week

9. Avoid Excess Toxins

10. Practice a stress reduction technique daily



Learn More...

- DrBoham.com
- FB – Elizabeth Boham, MD
- Twitter - @DrBoham
- Ultrawellnesscenter.com

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- FB- Heidi E. Spear

