

An Update from CBHP's 2nd Annual Breast Cancer Conference

Retrieved from "http://cbhp.org/wiki/Nutrition_and_Breast_Cancer_Part_II"

(thanks to the wayback machine at <http://www.archive.org/web/web.php>)

Thanks to Noma Collins and Courtney Istre of Breast Cancer Connections

(www.bcconnections.org) for reprint permission.

Presented by Natalie Ledesma, MS, RD[1] October 1, 2005

Transcript prepared by Noma L. Collins

In Part II of this nutrition series we will present a transcript of the talk delivered by Natalie Ledesma at CBHP's 2nd Annual Breast Cancer Conference on October 1, 2005. The first section of this article will be a review of the main points from Part I, followed by a detailed discussion of insulin and cancer and fatty acids (omega-3, omega-6, and omega-9), and ending with a list of books and cookbooks that provide further support in the quest for a more healthy diet.

Improved nutrition may reduce the incidence of breast cancer and also reduce the risk of breast cancer progression after an initial diagnosis of breast cancer. A lifelong commitment to a plant-based diet may lower a woman's risk of developing breast cancer. In review, the basic guidelines for a healthy diet are as follows:

- * Eat a primarily plant-based diet including fruits, vegetables, whole grains, beans/legumes, and other plant protein sources
- * Eat a low-fat diet with an emphasis on healthy fats
- * Limit simple and refined sugars
- * Drink adequate fluids
- * Stop smoking or being around second hand smoke
- * Limit alcohol consumption
- * Be physically active to help achieve or maintain a healthy body weight.

A Western lifestyle characterized by low physical activity, and high dietary intake of animal protein, saturated fats, trans fats, and rapidly digestible carbohydrates is associated with increased risks of many cancers. These risks may be mediated by alterations in the metabolism of insulin and insulin-like growth factors (IGFs). Insulin and IGF-1 may promote tumor development by inhibiting apoptosis (programmed cell death), stimulating cell proliferation, stimulating synthesis of sex steroids, and inhibiting the synthesis of sex hormone-binding globulin. Recent studies indicate that high insulin levels, elevated concentrations of IGF-1, and greater abdominal fat are associated with increased risk for breast cancer. Additionally, hyperinsulinemia (too much insulin in the blood) is associated with increased risk of heart disease, type 2 diabetes, and weight gain or obesity. Furthermore, obesity and fasting hyperinsulinemia have been associated with a poorer prognosis in women with established breast cancer.

In order to lower insulin levels and avoid the situation of insulin resistance, simple carbohydrates should be limited in the diet. Simple carbohydrates include foods such as candy, cookies, pastries, and white, refined breads, pastas, or crackers, and alcohol. Other sources of simple carbohydrates include sugars added to beverages and processed foods. High sugar-content foods are usually highly processed and refined, low in nutrient value, and low in fiber content. Eating lots of "fast" or simple carbohydrates may increase a woman's risk of breast cancer by as much as 40%. These simple carbohydrates appear to increase serum insulin and serum IGF-1 levels and contribute to insulin resistance.

A diet rich in natural fiber obtained from fruits, vegetables, legumes, and whole grains may reduce breast cancer risk and reduce risk of breast cancer progression after an initial diagnosis of breast cancer. Fiber binds to toxic compounds and carcinogens, which are later eliminated by the body. Additionally, a low-fat diet, rich in insoluble fiber, has been shown to decrease the circulating levels of estrogen, thereby potentially reducing the risk of hormone-related cancers.

A high-fiber diet should be combined with a low-fat diet. Many studies have investigated the role of fat and the risk of breast cancer, but the results remain inconsistent. The increased cancer risk may be, in part, due to the fact that a high-fat diet stimulates increased estrogen levels. Researchers running a study called Women's Intervention Nutrition Study (WINS) have found that a reduced fat intake improves relapse-free survival by 24% in postmenopausal women with breast cancer compared to women following a standard diet. A 42% lower risk of recurrence was reported for women with estrogen receptor-negative cancers[2]. More research is needed, but in the WINS, study the low-fat group consumed 20% of the total calories/per day from fat, with less than 8% of those calories from saturated fat. Additionally, following a low-fat diet regimen improves insulin sensitivity.

There are four types of free fatty acids: saturated, monounsaturated, polyunsaturated, and hydrogenated. Saturated fatty acids are saturated with hydrogen molecules and are semi-solid or solid at room temperature. Monounsaturated fatty acids (omega-9) contain one double bond and are liquid at room temperature. Polyunsaturated fatty acids (omega-6 and omega-3) contain 2 or more double bonds and are liquid at room temperature. Most hydrogenated fatty acids have undergone an industrial process that hardens edible oils in order to make a product that is hard at room temperature. Summary analyses of case-control studies have suggested that intakes of saturated fat are positively associated with breast cancer risk; however, only a weak positive association has been observed in summary analyses of cohort studies. The recommendation at this point is that use of meats, whole milk dairy products, butter, mayonnaise, and baked goods should be limited to less than 8% of the total kilocalories consumed per day because of their high saturated and total fat content.

The omega-9 fatty acids offer cardio-protective benefits and may offer cancer protection as well. Study results suggest a neutral relationship between these fats and breast cancer. Good sources of omega-9 fatty acids include olives, extra-virgin olive oil, canola oil, avocados, and almonds. Remember, however, to use these oils only in moderation.

The essential fatty acids (EFAs) are the omega-6 (linoleic acid which can be converted to arachidonic acid) and the omega-3 (alpha linolenic acid (ALA), eicosapentanoic acid (EPA), and docosahexanoic acid (DHA)) fatty acids. These fats are essential because humans lack the enzyme needed to catalyze the reaction that incorporates additional carbons into the chain, and therefore cannot manufacture the EFAs from other dietary fats or nutrients. Thus, these EFAs must be consumed in the diet. A deficiency of the EFAs is associated with the development of chronic diseases, such as cancer and heart disease. The omega-3 and omega-6 EFAs are synthesized into a class of compounds called eicosanoids which are precursors to another class of biochemically active molecules, prostaglandins. Prostaglandins regulate many biochemical processes including inflammation, blood flow, ion transport across membranes, synaptic transmission, and sleep. The ratio of the omega-6 to the omega-3 fatty acids consumed in the diet is important because it is critical to proper prostaglandin metabolism, and the balance of these fatty acids can be achieved by altering the relative amounts of the fatty acids consumed. Consuming a diet rich in omega-3 fatty acids can restore the balance between the two fatty acids. The goal is to reduce the level of omega-6 fatty acids and increase the level of the omega-3 fatty acids to help achieve a 1:1 up to 4:1 balance. Increasing the level of the omega-3 fatty acids

actually inhibits the metabolism of the omega-6 fatty acids by competing for enzymes necessary to both metabolic pathways.

Some studies have shown that omega-3 fatty acids could inhibit breast cancer tumor growth and metastasis. There may be an inverse association between the omega-3 fatty acid levels and breast cancer risk (as one goes up, the other goes down). The omega-3 fatty acids are associated with impaired angiogenesis, induction of apoptosis (programmed cell death), and suppression of cancer cell initiation. They also compete with the omega-6 fatty acids for catalytic enzymes. The omega-3 fatty acids can enhance immune function by incorporating into cell membranes, substituting for the omega-6 fatty acids, and producing fewer free radicals. The higher levels of omega-3 fatty acids shift the synthesis of prostaglandins to a less immunosuppressive pathway. Finally, achieving a proper balance between omega-6 and omega-3 fatty acids may reduce the risk of insulin resistance.

Dietary sources of the essential fatty acids are as follows. Dietary sources of the omega-6 fatty acids include: meats (especially grain-fed), butter, whole milk, egg yolk, sunflower oil, safflower oil, cottonseed oil, corn oil, and processed foods made with these oils. Dietary sources of the omega-3 fatty acids include: cold-water fish (e.g., salmon, trout, sardines, herring, sablefish), flaxseed, walnuts, pumpkin seeds, canola oil, and soybeans. When it comes to deciding on the amount of fatty acids in the diet, the research findings are the strongest for EPA and DHA. Alpha-linolenic acid can be converted into EPA. However, this process is not very efficient. Thus, research suggests including all types of omega-3 fatty acids, but particularly EPA and DHA. There is no formal recommendation for omega-3 fatty acid intake in the United States. Consuming at least 2 grams omega-3 fatty acids daily, possibly even ingesting 2% of the total kilocalories/day from omega-3 fatty acids is suggested. Additionally, if someone is suffering from cachexia (a disease-related wasting syndrome), 2 grams/day of EPA is suggested.

In summary, for a healthy fat intake, keep saturated fats to 8% of the total kilocalories, and limit fatty meats, whole milk dairy products, cheese, mayonnaise, butter, and baked goods. Also, avoid hydrogenated oils. Aim for a 1:1 to a 4:1 omega-6:omega-3 fatty acid ratio. Limit processed foods. Inquire about the type of oil used at restaurants. Use olive, almond, or canola oil for cooking and salads. Increase the amount of omega-3 fatty acids consumed daily by consuming flaxseed, fish, walnuts, pumpkin seeds, and an EPA/DHA supplement, if it is appropriate. An overall healthy breast cancer diet according to the UCSF Comprehensive Cancer Center and the Golden Gate Center for Integrative Cancer Care is as follows:

- * Eat 8-10 colorful fruit and vegetable servings daily
- * Eat 25-35 grams of fiber daily
- * Limit processed and refined grains/flours/sugars
- * Limit meats and dairy
- * Eat healthy fats from cold-water fish (salmon, trout, herring, sardines), flaxseed, walnuts, soybeans, olive oil, avocados, and almonds
- * Eat 2 tablespoons daily of ground flaxseed
- * Drink 1-4 cups daily of green tea
- * Moderate consumption of traditional soy foods (edamame, tofu, tempeh, soy milk, soy nuts)
- * Limit alcohol consumption
- * Engage in daily physical activity to help achieve and maintain a healthy body weight

In closing, what can a healthy diet do for you? It may help to prevent and/or inhibit cancer growth. It can reduce the risk of chronic diseases and enhance the immune system. It can increase energy levels and facilitate recovery from treatment, while it reduces the toxicities and side effects of treatment. If you are interested in more resources and support for making diet changes, please refer to the books and websites listed below:

BOOKS

- * The Color Code, by James Joseph, PhD, Daniel Nadeau, MD & Anne Underwood, 2002
- * Natural Health, Natural Medicine: The Complete Guide to Wellness and Self-Care for Optimum Health, by Andrew Weil, MD, 2004
- * How to Prevent & Treat Cancer with Natural Medicine, by Michael Murray, 2002

COOKBOOKS

- * Cancer Lifeline Cookbook, by Kimberly Mathai, & Ginny Smith, 2004
- * One Bite at a Time, by Rebecca Katz, Marsha Tomassi, & Mat Edelson, 2004
- * 12 Best Foods Cookbook: Over 200 Recipes Featuring the 12 Healthiest Foods, by Dana Jacobi, 2005

WEBSITES

- * <http://www.aicr.org>
- * <http://www.cancernutritioninfo.com>
- * <http://www.cancerrd.com>
- * <http://cc.ucsf.edu/crc>
- * <http://www.consumerlab.com>

- * Symposium Highlights—Omega-3 Fatty Acids: Recommendations for Therapeutics and Prevention, Institute of Human Nutrition, Columbia University College of Physicians and Surgeons, New York 2005. Available at http://www.medscape.com/viewprogram/4605_pnt. You will have to create an account with Medscape before you can view this article. CBHP also has the article available in our library.

- * <http://www.issfal.org.uk> This site is run by the International Society for the Study of Fatty Acids and Lipids (ISSFAL). Their "Global Recommendations" section has an interesting table listing recommendations for fatty acid intake made by various nutrition and health associations worldwide, such as the World Health Organization.

1. UCSF Comprehensive Cancer Center & Golden Gate Center for Integrative Cancer Care

2. Chlebowski RT, Blackburn GL, Elashoff RE, et al. Dietary fat reduction in postmenopausal women with primary breast cancer: Phase III Women's Intervention Nutrition Study (WINS). 2005 ASCO Annual Meeting Proceedings. Available at http://www.asco.org/ac/1,1003,_12-002640-00_18-0034-00_19-0031414,00.asp