



# The BreastWatch Times

Fall 2000 Issue

Volume 1, Issue 2

Fall 2000

## A word from Henry

### Special points of interest:

- Research update
- Research opportunities
- AHA dietary guidelines
- The pill and breast cancer

Welcome to our Fall 2000 Newsletter. Thanks for all of your helpful and positive comments about our first newsletter. We are excited about incorporating your many ideas into subsequent issues, and we encourage you to continue sharing your many suggestions with us.

In this issue we present more information about the results of our ongoing work, a schedule of upcoming research projects, and practical information about plant foods and health. We are also providing you with the American Heart Association's recently revised dietary guidelines and an analysis that we received concerning the recent publication of data concerning the use of oral contraceptives and risk for breast cancer in women at high risk for the disease. We hope that you find this information of value.



## So, what's up with soy?

There is considerable interest in the use of soy products for their health benefits. While some very exciting research findings have been published, there is considerable disagreement among many studies and clearly a need for additional research. So what should you do? First, under certain conditions your physician may recommend that you take a particular soy product. As always, we encourage you to follow the advise of your physician. If you are deciding for yourself, the American Heart Association as well as the American Dietetic Association suggest people should try to consume a serving of soy per day. Currently, available data do not support the use of soy supplements. These recommendations raise two practical questions: 1) what is a serving of soy, and 2) in what form should I consume it?

Soy can come from a number of different foods. The following is a list of foods containing soy, as well as the amount that is considered to be one serving.

We recommend that you consume a variety of soy products to benefit from the many chemicals these foods contain.

1/2 cup Tofu	1 cup Soybeans, boiled
1/2 cup Miso	1 cup Soy Milk
1/2 cup Tempeh	1 cup Soy Yogurt

For more information on Soy, please refer to the following articles:

Messina, MJ. Legumes and soybeans: overview of their nutritional profiles and health effects. *American Journal of Clinical Nutrition*. 1999; 70 (supplement): 439S-450S

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## Research Program Update

As we did in our first newsletter, we will continue to present data from our ongoing research projects. The following work is the result of an investigation in the Cuisine for Cancer Prevention research program. This work underwent peer review and was recently published. Our approach is to provide you with the literature citation, and also present a lay summary of the work.

**Citation:** A.D. Heagele, C. Gillette, C. O'Neill, P. Wolfe, J. Heimendinger, S. Sedlacek, and H.J. Thompson. Plasma xanthophyll carotenoids correlate inversely with indices of oxidative DNA damage and lipid peroxidation. *Cancer Epidemiology, Biomarkers and Prevention* 9:421-425, 2000.

**Background:** As individuals joined our Cuisine Program, we noticed that they vary considerably in their levels of plant food consumption. This created an ideal situation in which to ask the question, "Do individuals who normally eat more plant foods have a lower level of oxidative damage to cellular molecules?" As you may recall from our first newsletter, our current hypothesis (educated guess) is that oxidative damage to cellular molecules is a risk factor for cancer. In this study we hypothesized that people who normally eat more plant foods, especially vegetables and fruit, would have lower levels of oxidative damage. Rather than rely on self reported intake of vegetables and fruit, we used data that we collected on plasma levels of carotenoids. Levels of plasma carotenoids correlate positively with vegetable and fruit consumption. We measured 5 carotenoids; different plant foods contain different amounts of these carotenoids. Therefore we were able to estimate, in a crude way, the type and amount of vegetables and fruit that an individual had recently eaten. We also reported on other aspects of our work in the cited paper, but for simplicity, we will limit our discussion in the newsletter to our findings from the first collection of blood and urine that we obtained from our subjects before they began the Cuisine dietary intervention.

**Results:** For all the carotenoids measured we found an inverse relationship between plasma carotenoids and measurements of oxidative cellular damage made on either DNA isolated from lymphocytes (blood) or on a metabolite of lipid peroxidation measured in the urine. This means that the higher the level of plasma carotenoid(s), the lower the level of oxidized chemicals that we measured. Of particular interest was that the strength of the inverse relationship was not equal among the carotenoids measured. Because of their chemical similarities we grouped alpha and beta carotene together (carotenes), and lutein and beta-cryptoxanthene together (xanthophyll carotenoids). Lycopene was considered separately. Overall, the strongest inverse relationship with oxidative DNA damage was seen with the xanthophyll carotenoids, followed by lycopene and then the carotenes. These findings have served to guide the development of new diets that are currently being evaluated in the Nouveau Cuisine Program.

**Implications:** These data support the hypothesis that increased plant food consumption is associated with reduced levels of oxidative damage to cellular molecules. However, it is possible that other factors common to individuals who consume more plant foods in their diets could account for these effects. It is for reasons such as this that we have individuals in our Cuisine Program follow specific menus that vary in their plant food composition. In so doing, we hope to determine the specific contribution of vegetables, fruit, cereals and grains to the regulation of oxidative cellular damage. Until more is learned we continue to recommend the consumption of 5 to 9 or more servings of vegetables and fruit from a variety of sources. We also encourage you to follow the USDA Food Guide Pyramid. We will talk more about the Food Guide Pyramid in our next newsletter. As many of you know, we are evaluating the value of using botanically defined diversity in the selection of a variety of vegetables and fruit. The information presented in the next text block is intended to help you improve the botanical diversity of your diet.

## Get to know your botanical families!

In the next few issues of our newsletter, we will give you a listing of a number different botanical families of edible plants along with the foods that they contain. To achieve a healthy balance of vegetables and fruit, we suggest choosing from a variety of plant families.



**Cruciferae**  
 Broccoli  
 Brussels sprouts  
 Cabbage  
 Cauliflower  
 Collard greens  
 Horseradish  
 Kale  
 Kohlrabi  
 Mustard greens  
 Radishes  
 Rutabagas  
 Turnips



**Rosaceae**  
 Apple  
 Apricot  
 Blackberry  
 Cherry  
 Strawberry  
 Loganberry  
 Nectarine  
 Peach  
 Pear  
 Plum  
 Prune  
 Raspberry

**Musaceae**  
 Banana  
 Plantain



**Vitaceae**  
 Grape  
 Raisin



**Actinidiaceae**

Kiwi  
 Chinese Gooseberry



## Commentary

Burke, W. Oral contraceptives and breast cancer: A note of caution for high risk

### THE PILL: LINKED TO BREAST CANCER IN HIGH-RISK WOMEN

Among first-degree relatives (daughters and sisters) of women with breast cancer, those who have ever used oral contraceptives (OC's) are three times more likely to develop the disease than those who have never used birth control pills, according to a study in \*this week's Journal of the American Medical Association. Researchers from the Rochester, Minn.-based Mayo Clinic studied 426 families of patients diagnosed with breast cancer between 1944 and 1952. The Mayo researchers concluded that, among women with a first-degree relative with breast cancer, a history of OC use -- ever -- was associated with an increased relative risk of 3.3.

"[R]esults suggest that women who have ever used earlier formulations of OCs and who also have a first-degree relative with breast cancer may be at particularly high risk for breast cancer," study authors noted. The risk was not mirrored among second-degree relatives (granddaughters, nieces, or "marry-ins"), perhaps due to the younger age of these women. Furthermore, the more relatives diagnosed with breast or ovarian cancer, the higher a woman's relative risk of breast cancer: Among sisters and daughters from "high-risk" families (at least 3 blood relatives diagnosed with breast or ovarian cancer), OC use carried a relative risk of 4.6, while among "very high-risk families" (at least 5 blood relatives), the risk was 11.4. According to the authors, this is the first multigenerational study to examine the relationship between a family history of breast cancer and OC use. Previous studies have suggested a "weak" association between OCs and breast cancer in the general population, and although some studies have indicated a higher risk for breast cancer with OCs among those with a family history of the disease, women from "high-risk breast-ovarian cancer families" are often advised to take OCs, which have been shown to reduce the risk of ovarian cancer.

### IMPLICATIONS UNCLEAR FOR WOMEN ON NEWER, LOW-DOSE OCS

Researchers found that an elevated risk was most evident among women with a first-degree family history of breast cancer who used the pill before 1975, when it contained higher concentrations of estrogen and progestin. While the study found no evidence for an increased risk among women using OCs after 1975, there were only 60 women who fell in that category. Consequently, the authors consider relative risk estimates "somewhat unstable for this group of younger women," and urge further studies of women with a strong familial disposition for breast cancer who have used the more recent lower-dosage OCS (Grabrick et. al., JAMA, 10/11).

### 'BAD NEWS'

In an accompanying editorial, Dr. Wylie Burke of the University of Washington in Seattle calls the findings "bad news" for women with a family history of breast cancer. She says that women with BRCA1 or BRCA2 genetic mutations, which indicate a predisposition for developing breast or ovarian cancer, already have very few proven options for reducing risk; "the efficacy of tamoxifen is not yet known for this group," and while prophylactic mastectomy appears to reduce risk significantly, it is an unpopular option. Burke advises that "oral contraceptives cannot be viewed as an established measure to reduce ovarian cancer risk, nor can they be considered contraindicated in women with a family history of breast cancer. Rather, the use of OCs needs to be considered on an individual basis, taking into account baseline risk for breast and ovarian cancer, alternative strategies for cancer risk reduction, and other benefits that OCs may provide" (Burke, JAMA, 10/11).

\*Grabrick, D.M. et al. Risk of breast cancer with oral contraceptive use in women with a family history of breast cancer. JAMA. Oct. 11, 2000; 284(14):1791-1798

## New Dietary Guidelines from the AHA

The American Heart Association (AHA) recently published a revision of their dietary guidelines.

### **Achieve an overall healthy eating pattern:**

- Choose an overall balanced diet with foods from all major food groups, emphasizing fruits, vegetables and grains.
- Consume a variety of fruits, vegetables and grain products.
- At least 5 daily servings of fruits and vegetables.
- At least 6 daily servings of grain products, including whole grains.
- Include fat-free and low-fat dairy products, fish, legumes, poultry and lean meats.
- Eat at least two servings of fish per week.



### **Achieve a healthy body weight.**

- Avoid excess intake of calories.
- Maintain a level of physical activity that achieves fitness and balances energy expenditure with caloric intake; for weight reduction, expenditure should exceed intake.
- Limit foods that are high in calories and/or low in nutritional quality, including those with a high amount of added sugar.

### **Achieve a desirable cholesterol level.**

- Limit foods with a high content of saturated fat and cholesterol. Substitute with grains and unsaturated fat from vegetables, fish, legumes and nuts.
- Limit cholesterol to 300 milligrams (mg) a day for the general population, and 200 mg a day for those with heart disease or its risk factors.
- Limit *trans* fatty acids. *Trans* fatty acids are found in foods containing partially hydrogenated vegetable oils such as packaged cookies, crackers and other baked goods; commercially prepared fried foods and some margarines.



# Research Opportunities

We have two continuing Cuisine for Cancer Prevention opportunities coming up in January. These studies are:

## Nouveau Cuisine for Cancer Prevention III

Research indicates that eating vegetables and fruit is an important aspect in living a healthy lifestyle. However, many questions remain to be addressed. In the Nouveau Cuisine project, we are asking the following question: How important is diversity of vegetable and fruit consumption?

The Nouveau Cuisine for Cancer Prevention study consists of a 2 week food plan in which you will be randomly assigned to one of three groups. Each group will be eating a different amount of vegetables and fruit as well as different families of vegetables and fruit.

You will be asked to purchase, prepare, measure, and eat the meals prescribed throughout the 2 week period. You will also be asked to attend a meeting before and after the study for blood and urine collection as well as group discussion and overall support.

The dates for the Nouveau Cuisine meetings are as follows:

Saturday, January 20, 2001

Saturday, February 10, 2001

(The diet will begin January 27 and end February 10th)

**For more information or to sign up for participation, please call Becky Meinecke at 303-242-3421 or 303-336-5116 or email at [meinecke@amc.org](mailto:meinecke@amc.org)**

## Challenge Cuisine II

The Challenge Cuisine is designed to study the longer term effects of eating a healthy diet low in fat and high or low in vegetables and fruit. This diet will help participants learn how to adapt healthy eating patterns into their daily routine.

This study is an 8 week program in which participants will either be assigned to a reduced fat, high vegetable and fruit group, or a reduced fat, low vegetable and fruit group, which is high in grains.

To make the 8 week program easier to follow and more convenient for participants, we will be working with Wild Oats Markets (1111 S. Washington, Denver), who will be providing about half of the entrees to subjects free of charge.

We will also allow participants to eat 2 free meals a week in which they can eat what they choose. We have also designed a new cookbook which allows exchanges and more freedom for the participants.

Participants will be asked to purchase, prepare, measure, and eat food that is not provided by Wild Oats. Participants will also be required to attend 5 meetings on Saturday mornings for blood and urine collection as well as discussion and support.

January 6	February 24
January 27	March 10

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### Cranberry and Sweet Potato Bake

- |   |  |
|---|--|
| 2 (15 oz) cans sweet potatoes, drained  | 1/8 tsp. ground nutmeg                             |
|   | Dash black pepper                                  |
| 1 (8 oz) can crushed pineapple, drained | 1 large egg  |
| 2 Tbs. margarine, melted                | 1 (16 oz) can whole berry cranberry sauce, divided |
| 1/4 tsp salt                            | Cooking spray                                      |

Preheat oven to 350° F. Combine the sweet potatoes and pineapple in a large bowl, mash with a potato masher. Stir in margarine, salt, nutmeg, pepper and egg. Swirl in 1 cup of cranberry sauce. Spoon 1/3 c of the sweet potato mixture into each of 8 ramekins coated with cooking spray. Top each with 1 Tbsp. cranberry sauce. Bake for 40 minutes. Note: a 1 quart casserole can be substituted for the ramekins. Makes 8 servings.

Per serving:

Calories: 230

Total fat: 4 grams

1 3/4 servings of vegetables and fruit

### Cranberry Wild Rice

- |   |  |
|---|--|
| 1 c cranberries                         | 1 c cooked brown rice (1/4 c raw rice) |
| 1/2 c brown sugar                       |  |
| 1/4 c sliced almonds                    | 1/2 c chopped celery                   |
| 2 c cooked wild rice (1/2 cup raw rice) | 1/3 c fresh orange juice               |
|   | 2 Tbs. Red wine vinegar                |

In a medium non-stick skillet, cook the cranberries, sugar and almonds over medium heat, stirring constantly until the sugar melts and coats the cranberries and almonds, about 6 minutes. Stir in the remaining ingredients. Cook until heated through, about 5 minutes, stirring frequently. Serves 10

Per serving:

Calories: 130

Total fat: 2 grams

1/3 serving of vegetables and fruit

# AMC

Cancer Research Center

**Center for Nutrition in the Prevention of Disease**

## Holiday Recipe Contest

Do you have a favorite holiday recipe that's loaded with fruits and/or vegetables? Your recipe could be a winner in our ongoing recipe contest. So get your creative juices flowing and stir up something really special!

Contest Rules:

- ◆ Each recipe should include at least 1 serving of fruits and/or vegetables per serving of the recipe and low in fat
- ◆ Mail entries to Ann Diker, AMC Cancer Research Center, 1600 Pierce Street, Denver, CO 80214 or email to [dikera@amc.org](mailto:dikera@amc.org)
- ◆ Enter your recipe into one of the following four categories:
  - \*Entrée
  - \*Salad/Side Dish
  - \*Dessert
  - \*Quick 'n Easy

## Questions, Comments, Suggestions....

If you have any questions, comments or suggestions regarding this publication, please contact Becky Meinecke at 303-242-3421 or by email at [meinecke@amc.org](mailto:meinecke@amc.org)

## If you are interested in supporting Breast Cancer Prevention research...

Donations towards our research activities would be welcome. Please send a check made payable to:

AMC Cancer Research Center,  
BreastWatch account

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