

# The BreastWatch Times



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## A word from Henry

Change is in the air. Summer fun has been brought to closure and there are new efforts at school and in the workplace. Yes, there also is sadness about those who have fallen to terrorism and about the potential loss of some aspects of our American way of life. But in such times of trial, a sense of rebirth, recommitment, and resolve can prompt us to chart new routes through our journey of life. It is in the spirit of continuing our journey with new purpose and direction that we bring you our Fall edition of *The Breast-Watch Times*. In this issue, we report on the Nouveau Cuisine for Cancer Prevention program and provide you with some practical information that represents the translation of that study to daily life. We also want to give you an update on the availability of members of staff given the number of folks involved in maternity leaves, and we want to ask for your help in identifying individuals who would like to participate in our Challenge Cuisine program. This is the last call for our "Final Challenge" intervention which will begin on January 5, 2002. Don't miss out on this opportunity to participate in breast cancer prevention research. Please, encourage relatives, friends, and acquaintances to sign up today.

### Special points of interest:

- Research update
- Research opportunities
- Botanical Family Table
- Serving Size Information



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## Research Update

The Nouveau Cuisine for Cancer Prevention research project was designed to address the general question, "If I eat a lot of vegetables and fruit, are there particular health benefits associated with eating large amounts of a few specific foods, or would it be better for me to eat smaller amounts of a lot of different vegetables and fruits?" To answer this question an experiment was conducted in which participants were divided into one of two diet groups. Each diet group ate a lot of vegetables and fruit, 10 or more servings per day. However, one group obtained all their vegetables and fruit from five botanical families that we thought would contain very powerful phytochemicals that have been reported to have health benefits. The other group obtained their 10 or more servings of vegetables and fruit on average, from 17 different botanical families. This was what we have referred to as the "Mom knows best" group since this dietary approach was based on the concept that variety and moderation are the key ingredients for health promotion.

There are an abundant number of approaches that can be taken to define health promotion. Our approach was based on the idea that it is healthy to prevent the oxidation in the cell of DNA, our genetic material. "Why?", you ask. The type of oxidation that we study is chemically equivalent to the process resulting in the rusting of your car or that accounts for the browning of an apple when it is sliced. By way of comparison, if you don't stop your car from rusting, a hole may result in the car,

## Research Update (Continued)

and some folks refer to this hole as cancer. If you take care of your car, you can prevent rusting and “car cancer”. Similarly, we hypothesize (take an educated guess) that if rusting (oxidation) of our body’s chemicals, such as DNA, is not controlled, that it also can increase the risk of cancer. In the body, this would be an indirect effect, in that there is considerable evidence that oxidation of DNA increases the risk for mutations, and that increased rates of mutation can increase the risk for cancer.

The science underlying the Nouveau project is based on data indicating that the vegetable and fruit components of the diet are a rich source of phytochemicals (plant chemicals) that can inhibit the process of cellular oxidation. Such chemicals are termed antioxidants. We know that most foods are comprised of thousands of these chemicals. As a general principle, foods derived from the same botanical family have greater chemical similarity than foods obtained from different botanical families. So, yet another way to think about the question evaluated in the Nouveau project is, “What’s best, exposure to larger amounts of a smaller number of phytochemicals with antioxidant activity (the 5 family group), or exposure to smaller amounts of a larger number of antioxidant phytochemicals (the 17 family group)?”

A total of 106 women completed our Nouveau project, 54 in the 5 family group and 52 in the 17 family group. Women who volunteered for the project, once they were divided into groups, were given a cook book that specified everything they were to eat for a 14 day period. These women provided a sample of blood and 3-day urine collections before the dietary study began and the day after completing the dietary program. These samples were then processed and evaluated for biochemical evidence of oxidative damage to the body’s chemicals. Since this work has not yet been submitted for peer review for publication, we won’t provide any numerical data in this report. However, we will share the “big picture” and what we judge that we have learned thus far from our data analyses.

Urine was analyzed for 8-isoprostane F-2-alpha (8-EPG). This chemical is an end product of lipid oxidation and the concentration of 8-EPG in the urine has been reported to reflect the overall level of oxidation occurring in the body. We found that levels of urinary 8-EPG were lower in both dietary groups the second time urine was collected

in comparison to concentrations determined in the samples collected before the study began. Interestingly, the degree of reduction was clearly not greater in the 5 family group and the reduction was numerically somewhat larger in the 17 family group. What this means is the both groups were “protected against rusting”. Of course we would like to attribute the reduction in levels of urinary 8-EPG to following our diet. However, we must acknowledge that simply participating in a study could conceivably contribute to the changes observed.

Blood that was collected was divided into its components and the DNA that was subsequently isolated was evaluated for the amount of an oxidized form of DNA that it contained. The name of the oxidized form of DNA is 8-hydroxy-2-deoxy-

guanosine. In general, levels of this compound also were reduced by the dietary intervention, but the degree of reduction was not improved in participants eating the 5 versus 17 botanical family diet.

So, what did we learn? Other than confirming that increasing vegetable and fruit intake reduces the oxidation of body chemicals, we found no evidence that there is an advantage to eating large amounts of foods from just a few botanical families. As we discussed in our participant debriefing meetings, it appears that “Mom had the right idea”! We recommend variety and moderation as the key principles to follow in your efforts to get the greatest health benefit from the vegetables and fruit that you consume. To help you increase the variety of the plant foods you incorporate into your diet, try using the chart of botanical families enclosed in this newsletter (insert). We challenge you to expand the botanical diversity of your diet by increasing the number of families from which you select your veggies and fruits and by choosing a wider selection of foods within each botanical family. And remember, try to follow the national guidelines for vegetable and fruit intake: eat five to nine OR MORE servings per day. We have also included a handy guide to serving sizes for your reference (page 3). We continue to learn from the data obtained in the Nouveau project and will share more as our results are accepted for publication.

In closing, THANK YOU Nouveau participants from the community of individuals who will ultimately benefit from your hard work.

## Research Opportunities

### Challenge Cuisine V—The Final Challenge

The Challenge Cuisine is designed to study the longer term effects of eating a healthy diet low in fat and high in vegetables and fruit or low in fat and high in whole grains. 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, that is high in whole grains.

To make the 8 week program easier to follow and more convenient for participants, we will be working with Spinelli's Market (4621 E. 23rd. Ave. in Denver), who will be providing approximately 1 meal per day, free of charge to the participant. Meals will also be provided upon request (free of charge) for a spouse or significant other in order to support an individual's participation.

We will also allow participants to eat 2 free meals a week in which you may eat what you 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 Spinelli's Market. Participants will also be required to attend 5 meetings on Saturday mornings for blood and urine collection as well as discussion and support.

**The dates for The Challenge Cuisine meetings are: January 5, January 26, February 9, February 23, March 9. For more information or to sign up for participation, please call Tamra Kielman at 303-239-3421**

Many people are unaware of how large (or small) a serving of vegetables and fruit really is. Please feel free to cut out the serving size information below and stick it on your fridge to remind you to eat at least 5-9 servings of vegetables



# Fruit and Vegetable

## SERVING SIZES

*A serving size can be considered:*

- 1 medium piece of fruit
- 1/2 cup fruit or vegetable (raw, cooked, canned or frozen)
- 1 cup leafy green salad
- 1/4 cup dried fruit
- 3/4 cup or 6 ounces 100% fruit or vegetable juice
- 1/2 cup cooked or canned dried peas or beans





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# AMC

Cancer Research Center

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

### **Cuisine for Cancer Prevention Research Team Update**

It sure appears that 2001 is the year for new babies! At least it seems that way in the Cuisine for Cancer Prevention research group.

Ann Diker, one of our dietitians working on the Cuisine project, had a baby boy this past May. Ann is now back at work (part time). Our Clinical Coordinator, Becky Meinecke, had her baby girl in October. We expect that she will return to work on January 1. Finally, another project dietitian, Caitlin O'Neill, is expecting her baby at the end of December, so she will be unavailable for a few months thereafter.

With all these new babies and maternity leave to go with them, it may be difficult to reach a specific person on our project. Please know, however, that there will always be someone willing to chat with and answer any questions or concerns that you may have either regarding contents of the newsletter or other project topics.

### **Questions, Comments, Suggestions . . . .**

If you have any questions, comments or suggestions regarding this publication, please contact

Tamra Kielman at 303-239-3421  
or by email at [kielmant@amc.org](mailto:kielmant@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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