



## **Diets & Breast Cancer Risks**

In this issue of "Ask the Doctor" I would like to explain how a diet rich in unrefined grains (like Chia and Flax Seeds, wheat, rye, and many others) has the potential to reduce breast cancer risk, improve endurance, and promote weight reduction. I will also explain how the sustained energy released with a diet that meets or exceeds U.S. Dietary Guidelines can be used as an energy boost that allows for a more intense exercise program, which can also have a positive effect on reducing breast cancer risks.

One of the major goals of the Be Aware Foundation is to educate, motivate and inspire women to identify their personal risks for breast cancer, and to take necessary steps to reduce them. Most breast cancer risks are fixed, and there is nothing a woman can do to reduce them. Examples of fixed risk factors are: family history, breast density, and ethnicity. Other risk factors are modifiable risk factors. Two of the most important modifiable risk factors that relate to every woman are diet and exercise. There is convincing evidence that proper diet and a program of vigorous exercise can lower breast cancer risks.

A major health problem in today's society is that we eat too much, and we eat the wrong things. In addition, the conveniences of modern society result in lower energy expenditures, i.e. we don't exercise enough. The goal in this month's "Ask the Doctor" is to inspire readers to take the challenge to convert to a diet rich in whole grains. In subsequent editions I will explore the issue of exercise in more detail.

A brief review of history will provide insight into how the American diet has evolved. For over 100,000 years grains and seeds were essential dietary components of primitive diets. Survival was a constant challenge and food supplies were unpredictable. Being slightly over-weight may have had a theoretical advantage, at least eating all you could when it was available was an effective strategy for survival before humans learned to store food.

In the past two centuries, major societal changes have taken place. For one thing, food is in abundance, and we do not need to worry about starvation. Furthermore, we can obtain food with limited physical effort.

In addition, there have been major alterations to how food is processed. One important example of the alteration of traditional foods is the processing of grains (such as wheat, rice, and barley). In the refining process the bran, the outer layer, which is a primary source of vitamins, minerals (including omega 3 and 6, anti-oxidants, and fiber) is removed in the milling process. The refining process results in a finer texture, more appealing taste, and longer shelf life, according to MayoClinic.com. However, in addition to removing valuable nutrients, the refining process results in important alterations in how glucose is absorbed which in turn has a major impact on blood sugar and insulin levels.

Eating refined grains (pasta, potatoes, white breads, and most cereals) has much the same influence on blood sugar as does eating candy, honey, or pure sugar. Refined grains are composed primarily of carbohydrates which are rapidly broken down by the intestine to glucose. The glucose is then rapidly absorbed, which in turn leads to a rapid rise in insulin levels. Over time the insulin brings the glucose levels down. When the glucose levels fall, hunger returns.

This problem of rapid absorption associated with refined grains is accentuated by the approach that many overweight individuals take to attempt to lose weight. Rather than respond by eating when they are hungry, they postpone eating as long as tolerated. This restriction of food in response to hunger sends a message to the brain that starvation is pending and that the metabolism should slow down. In addition, the brain sends out signals to convert available glucose to fat in an effort to have adequate energy stores for the future.

The situation is quite the opposite when eating whole grains. The fiber in the bran is essential to slowing the

absorption of the carbohydrate component of the grain. As a result of slower absorption, there is a less vigorous insulin response. Blood sugar levels rise more slowly and are sustained longer, allowing for a longer interval between eating and subsequent hunger. Once you are on a high fiber diet you should never go hungry. When you are hungry you are encouraged to eat and most people will eat 6 or more small meals a day. Think about it. You never go hungry, you eat until you are satisfied, and you lose weight and gain energy. Not a bad combination.

Another important consideration from a breast cancer risk perspective is the issue of the elevation of insulin levels. The following is a series of recent quotes from respected research institutions:

- “Higher-than-normal levels of insulin place postmenopausal women at increased risk of breast cancer, researchers at Albert Einstein College of Medicine of Yeshiva University report. Their findings, published in the January 7 issue of the Journal of the National Cancer Institute, suggest that interventions that target insulin and its signaling pathways may decrease breast cancer risk in these women.” (YU.edu, Jan. 2009)

- The Einstein researchers go on to state: “Obesity is a well-established risk factor for postmenopausal breast cancer, but just how obesity and breast cancer are connected is unclear... One such imbalance is elevated levels of insulin, which stimulates the growth of breast cells in tissue culture. The Einstein study is the first to prospectively identify insulin’s role in breast cancer while controlling for estrogen levels.

Researchers from Yale have come to similar conclusions: There is growing evidence that weight and physical activity affect breast cancer outcomes, and our findings suggest that the mechanism linking lifestyle factors and breast cancer may be the insulin pathway,” Irwin said. “Our findings are timely in that therapeutic trials of insulin-lowering medications in women treated for breast cancer are being conducted. Previous research of ours conducted at Yale also showed that a daily brisk walking program decreased insulin levels. Women treated for breast cancer who are overweight or not currently exercising should definitely seek lifestyle counseling and/or talk with their physician about additional therapeutic options.” (Yale.edu, Dec 2010)

A second important issue that complicates the issue of weight control is the issue of dietary enhancements. Some are obvious to the consumer such as super-sized portions, and others go largely unnoticed such as the addition of high fructose corn syrup to an ever increasing proportion of food products (for more detailed and entertaining information see: Omnivores Dilemma). This recent trend to “enhance” produce with HFCS is not only one of the major contributors to childhood obesity, but has the potential to add to the risk of breast cancer and other health care issues. (For more information see: American Journal of Clinical Nutrition, Vol. 79, No. 4, 537-543, April 2004).

What to do? The basic goal for every American should be to have a well balanced diet. Not only is it easy, it is cost effective. Unprocessed grains, seeds, and beans should provide the bulk of calories and are highly nutritional. The U.S. Dietary Guideline recommends at least three servings of whole grains per day totaling 48 grams.

In my first personal attempt to reach 48 grams per day I tried flax seeds. One problem with flax seeds is, as with most seed and grains, they must be ground or soaked before they can be eaten. Also, by the time I reached the 48 grams per day level my foods were starting to taste like sawdust. The advantage of chia seeds is that they can be eaten raw or by just adding water, but only need to soak for a few minutes. The following section summarizes some of the recently available medical data on chia seeds. The goal of this discussion is to provide the reader with confidence that chia seeds represent a very easy and inexpensive way to meet or exceed US dietary guidelines.

## **The Chia seed: Nutritional value**

Chia seeds are so rich in vitamins (including higher omega 3 than found in flax seeds), minerals, and anti-oxidants that many food authorities have labeled them as super foods. For a more detailed explanation of the nutritional benefits of chia seeds see: [eHow.com](http://eHow.com)

One of the most recent articles describing the value of chia seeds comes from the European Journal of Clinical Nutrition that concluded: ....eating chia helps lower postprandial (after meal) blood sugar levels in people with type 2 diabetes and chia increases satiety (makes you feel fuller). Also, as a possible result of lower blood sugars: blood pressure, blood coagulation and inflammatory markers are improved. V Vuksan, AL Jenkins<sup>1</sup>, AG Dias, et. al. European Journal of Clinical Nutrition (2010) 64, 436–438.

The following link provides detailed information on the nutritional value of chia seeds: [Nutritiondata.self.com](http://Nutritiondata.self.com)

The history of chia seeds is fascinating and is summarized on [eHow.com](http://eHow.com). One quote from this reference is of particular interest: "A major food crop of indigenous peoples, such as the Mayans, Incas, and Aztecs, chia seeds were once so highly valued that they were used as currency. Chia seeds were a vital source of energy and nutrition during long marches, since as little as one to two tablespoons was sufficient to sustain a person through 24 hours of hard exercise. Easily stored and transported chia seeds were also used in the everyday diet, often ground into flour to be used in breads and other recipes, or roasted to be eaten out of hand, or mixed with water to make gruel. However, chia seed production was nearly eradicated during the Spanish Conquest, and the value of this once common food was largely forgotten."

Recent research from the University of Arizona suggests that the chia diet dramatically decreased triacylglycerol levels and increased HDL cholesterol and  $\omega$ -3 fatty acid contents in rat serum. These findings suggest that  $\alpha$ -linoleic-rich chia oil may be an alternative to  $\omega$ -3 sources for vegetarians and people allergic to fish and fish products.

The above outline should convince the most skeptical reader of the potential value of chia seeds. The thing that sets chia seeds apart from most other seeds and grains is that they are so convenient. They can be eaten raw, sprinkled on salads, or combined with water. In Mexico they are combined with fruit juices to create a drink known in Mexico as chia fresca. One recent study from the Journal of the American Dietetic Association found that replacing some oil or eggs in baking cakes with chia gel did not diminish the quality of the cake! In 2009, the European Union approved chia seeds as a novel food, allowing up to 5% of a bread product's total matter.

Chia seeds can be used as a primary source to achieve the U.S. Dietary Guideline of 48 grams per day. However, by converting to other tasty and readily available whole grain products like bulgur wheat, rye, unprocessed rice, it becomes even easier to meet or exceed these guidelines. As with any "super food," they work as part of an overall balanced diet that includes a variety of fresh fruits, vegetables, healthy fats and lean protein, not as a replacement for or supplement to a poor diet.

Just a note of caution:

Chia seeds can lower blood pressure. Individuals taking blood pressure meds should consult with their physician. Individuals who have a reaction when eating chia seeds must avoid them completely.

People who take blood thinners like warfarin should also consult their physician since Chia seeds might increase the risk for bleeding. For more information visit [Chiaseeds.us](http://Chiaseeds.us)

Hopefully, this extended version of Ask the Doctor will help you better understand the problems of the “modern” American diet and more importantly, I hope it will inspire you to introduce some of these concepts into your own diet.

Feel free to Ask The Doctor if you have any questions, or you can contact us.