

Diet as a Modifiable Risk-Management Strategy in Breast Cancer Prevention

John Maher, DC, DCBCN, BCIM

Excluding cancer of the skin, breast cancer is the most common form of cancer in women, accounting for one in every three diagnosed cancers in the U.S.¹ Ninety-four percent of new breast cancer cases and 96 percent of breast cancer deaths reported between 1996 and 2000 occurred in women over the age of 40.² The highest incidence of breast cancer occurs in women ages 75-79, with an incidence rate of 4.9 per 1,000.³ An estimated 211,300 women were diagnosed with invasive breast cancer in 2003, along with 55,700 cases of in situ cancer. Almost 40,000 will die from their cancer; only lung cancer is responsible for a greater number of fatalities.⁴

It is interesting to note that although only 1 percent of breast cancers occur in males, it can be reasonably argued that almost all of the same nutrients suggested below for modifying breast cancer risk may also be valuable in lowering prostate cancer risk.

Modifiable lifestyle factors that may lower one's risk of breast cancer, especially after age 40, include avoiding obesity, inactivity, and combinations of synthetic estrogens and progestins, while minimizing alcohol consumption.⁵ Two drinks of alcohol a day have been shown to increase breast cancer risk by 21 percent.⁶ Cutting down on alcohol increases the liver's ability to regulate blood estrogen levels. However, a study published in the Journal of the American Medical Association found that high folic acid intake was associated with a lower risk of breast cancer among women who consumed more than 15 grams a day of alcohol (approximately one beer, five ounces of wine, or one "shot" of liquor).⁷ Green-leaf vegetables, fruits, brown rice, chicken, barley, dates, and certain seafood (salmon and tuna) are all good sources of folic acid, and many multivitamins provide the recommended daily requirement.

Recent studies by New York University scientists suggest that adding phytonutrient-rich foods from dark greens and brightly colored fruits and vegetables to your diet may lower the risk of developing breast cancer significantly.⁸ Consider adding the phytonutrient-rich foods noted below while lowering "fake fats" (such as hydrogenated trans-fats and highly processed polyunsaturated vegetable oils), high-calorie junk foods, and smoked, salt-cured and nitrate-cured foods. Perhaps even try to minimize inorganic, grain-fed red meat and other non-organic sources of animal fat (including dairy fat in cheese, milk and ice cream, which may contain stored hormones (exo-estrogens) or pesticides (xeno-estrogens)).^{9,10}

Below are 19 likely "breast-protective" foods for you to enjoy:

1. Yellow-orange vegetables - NYU's researchers, among many others, found that eating foods high in beta-carotene is linked to lower rates of breast cancer. Tip: the beta-carotene in baby carrots is more absorbable than in cooked carrots, and cooked carrots' beta-carotene is 500 percent more absorbable than raw carrots' beta-carotene.
2. In a well-referenced article in this publication [www.chiroweb.com/21/17/14.html], James

Meschino, DC, MS, explained how cruciferous vegetables (including radishes, broccoli, cauliflower, rutabagas, cabbages, turnips and turnip greens) contain indole-3-carbinol, which lowers women's levels of a type of possible breast cancer-promoting estrogen (16-hydroxy-estradiol and 16-hydroxy-estrone). Tip: Look for broccoli sprouts.

3. Enjoy a warm mug of organic, hormone-free milk. Add 1 tablespoon of ground almonds, pumpkin seed or walnuts, or one-fourth tablespoon natural almond extract. According to a report in the *International Journal of Cancer* (2001), women who drank milk as children and continued drinking it as adults had half the rate of breast cancer of non-milk drinkers. (I suggest organic milk, but the studies used regular supermarket milk.) Galactose, the primary sugar in milk, slows ovarian production of estradiol, a cancer-promoting hormone. Additionally, milk is rich in CLA (conjugated linoleic acid), a fat known to suppress breast tumors in animals, so make sure you don't go fat-free.¹¹
4. The NYU researchers also recommended eating tomatoes in any of the following preparations: raw, cooked, dried, soups, juice, sauces (even ketchup), to fill up on a carotenoid called lycopene. Eating these items with fat, such as olive oil, will enhance absorption.
5. Limit intake of red wine and eat grapes instead, as more than one alcoholic beverage a day increases your risk of breast cancer. Concord grapes have cancer-fighting antioxidant power. Red wine polyphenols (RWPs) are compounds derived from grape tannins and anthocyanin pigments, that belong to the most powerful antioxidants in the world. In 2000, Elias Castanas, professor of experimental endocrinology at the University of Crete's School of Medicine in Iraklion, published important papers on the inhibitory action of red wine polyphenols on human breast cancer cells and human prostate cancer cells.
6. Eat cold-water fish (salmon, tuna,* anchovies, swordfish,** pollock, crab, sardines) and omega-3 rich nuts and seeds (including walnuts, pumpkin and flax seeds and oils). Research suggests that women with higher tissue levels of omega-3s have lower rates of breast cancer.¹²
7. Women whose diets are higher in vitamin D have less breast cancer. To ensure that you get the recommended level, many experts advise you add vitamin D to a healthy diet, especially in climates or lifestyles that lack year-round sun (at least 20 minutes a day).¹³
8. Eat a small bowl of dark cherries. Cherries are a top source of ellagic acid, a phytonutrient that, according to the Hollings Cancer Institute, may inhibit mammary cancer in rats.
9. Phytonutrients called limonoids, found in the peel and white membrane of oranges, inhibit breast cancer in test tube studies. According to Edward Miller of the Baylor College of Dentistry, more than 20 epidemiological studies have shown that the consumption of citrus is protective against many cancers in humans. (Tip: Eat whole fruit oranges and tangerines.) Look for herbal teas made with orange lemon peel. Use real orange and lemon oils in cooking and health drinks.
10. Avoid refined grains. Choose whole grains instead. At least one study has shown that women who ate the most refined grains had higher incidence rates of breast cancer. Another study showed that women who ate one serving a day of a cereal high in wheat bran lowered their level of a breast cancer-promoting estrogen.¹⁴ Almost all seeds and unrefined seed foods provide phytoestrogens - plant chemicals thought to compete with more "toxic" estrogens inhibiting mammary tumors. Women who eat the most "phytoestrogenic" foods are four times less likely to be diagnosed with breast cancer than those who eat the least. "No study has shown a degree of risk reduction similar to that found for phytoestrogens. ..." (*Lancet*, Oct. 4, 1997). Unrefined seed foods include whole grains, beans, nuts, edible seeds (including fruit and vegetable seeds), and spices like cumin, coriander, caraway, anise, and dill seeds.
11. Use butter sparingly instead of margarine. Butter contains CLA (mentioned in point #3). One study suggests that a diet higher in trans-fats may increase the risk of breast cancer. Margarine, most French fries (both frozen and fast-food), and many processed and fried foods made with hydrogenated fats are top trans-fat sources. If you prefer margarine, use a

trans-fat-free brand.

12. Drink green tea, either hot or cold. Green tea is rich in EGCG, a compound that inhibits breast cancer cells.¹⁵ Caffeinated brands are twice as potent as decaffeinated brands. Mix with herbal teas and lemon peel for taste, or naturally sweeten with a little Concord grape juice or super-low glycemic blue agave. Tip: Most bottled brands of green tea have little EGCG, so try to stick with freshly brewed tea.
13. Instead of commercial "olive oil" dressings, which are usually made with a mixture of oils, make your own easy dressing with half olive oil, half balsamic vinegar. Studies show that Mediterranean women who eat lots of olive oil have low rates of breast cancer.¹⁶
14. In laboratory studies at Memorial Sloan-Kettering Cancer Center in New York City, researchers have shown that four of garlic's pungent compounds stop cancerous human breast cells from multiplying rapidly. To get these benefits, include one-half to one clove of garlic in your diet several times a week, says John Pinto, PhD, associate professor of biochemistry at Cornell University Medical College and director of the nutrition research laboratory at Memorial Sloan-Kettering Cancer Center, both in New York City. Tip: If you're going to cook garlic, always peel and chop, then let it rest for 10 to 15 minutes before you heat it. (Heating right away doesn't allow time for the cancer-fighting compounds to develop.)
15. Take a hint from Popeye and "eats yer spinach." Women in the NYU study referenced above who ate a serving of spinach at least twice a week had half the rate of breast cancer of women who avoided it.¹⁷
16. Add flaxseed! Why? Because flaxseed is the richest of all nuts and seeds in omega-3 fatty acids and the phytoestrogen lignin.
17. Add soy. The isoflavones derived from soy are also phytoestrogens that work as weak estrogens, blocking the more powerful estrogens from stimulating estrogen-sensitive cancer cells. Flavorful veggie burgers and sausage won't form the same polycyclic hydrocarbon compounds that meat does when it's being cooked, and with these items, you add more soy isoflavones to your diet. The popular Asian soy products tofu and tempe are also good choices.
18. A team of Agricultural Research Service-funded investigators - Reza Hakkak, Martin J.J. Ronis and J. Craig Rowlands - led by neuroendocrinologist and nutritionist Thomas M. Badger, found that a modified whey protein, which Badger developed, prevented breast cancer in some laboratory rats. Badger stresses that the research is preliminary and that researchers would need to study thousands of women for years to determine the benefits of a particular dietary factor on breast cancer prevention (but adding a little whey, flaxseed, and soy to your fruit smoothie certainly shouldn't hurt).
19. Phytoherbs (such as red clover, fennel and black cohosh) are also weak estrogens that compete with stronger estrogens for cells' estrogen receptor sites. These are found in many "change of life" formulas.¹⁸

The above information is referenced by just a tiny fraction of the huge volume of research that suggests a minimally processed, plant-based diet that includes at least five (preferably nine) servings of dark greens and brightly colored fruits and vegetables a day will significantly lower the risk of developing the most common cancers. And as you might have noticed, these recommendations will likely lower the risk of what is still public enemy number one: cardiovascular disease.

To learn more about breast cancer prevention and diet, visit the following links:

www.cancer.org/docroot/PED/content/PED_3_2x_Sample_Menu_to_Include_5_A_Day.asp?sitearea=PED

www.breastcancer.org/research_diet_070001.html

www.breastcancer.org/research_diet_071603.html

www.clarian.org/content/rodales/5742.jhtml

<http://olive.oil-in.gr/info/baf/cfa/Mediterranean-Diet-and-Cancer-Prevention.html>

- not light tuna.
- possible mercury contamination.

References

1. *Breast Cancer Facts and Figures, 2003-2004*.
www.cancer.org/downloads/STT/CAFF2003BrFPWSecured.pdf.
2. *American Cancer Society Surveillance Research Report, 2003*.
3. Ries LAG, Eisner MP, Kosary CL, et al. (eds.) *SEER Cancer Statistics Review, 1975-2000*.
Bethesda, MD: National Cancer Institute, 2003.
4. Jemal A, Murray T, Samuels A, Ghafoor A, Ward E, Thurn MJ. Cancer Statistics 2003.
California Cancer Clinic January/February 2003;53(1):5-26.
5. Ibid, pg 1.
6. Ellison RC, Zhang Y, McLennan CE, Rothman KJ. Exploring the relation of alcohol consumption to risk of breast cancer. *Am J Epidemiol*, Oct. 15, 2001;154 (g):740-747.
7. Zang S, et al. A prospective study of folate intake and the risk of breast cancer. *Journal of the American Medical Association* 1999;281:1632-1637.
8. Paolo Toniolo, Anne Linda Van Kappel, Arslan Akhmedkhanov, Pietro Ferrari, Ikuko Kato, Roy E. Shore and Elio Riboli. Serum carotenoids and breast cancer. *American Journal of Epidemiology* vol. 153, no. 12:1142-1147.
9. SA Bingham, et al. High levels of animal fat in diet might increase breast cancer risk. *The Lancet* July 19, 2003.
10. Cho E., et al. *Journal of the National Cancer Institute*, July 16, 2003.
11. Byrnes S, ND, RNCP. The role of essential fatty acids in breast cancer prevention.
www.positivehealth.com/permit/Articles/Nutrition/byrnes64.htm
12. *Int J Cancer* March 2002;98(1): 78-83.
13. Human breast cancer cells *in vitro* and *in vivo* animal study. *Endocrinology* August 1991.
www.annieappleseedproject.org/vidtanditsan.html
14. LaMont S, ND. Fiber, fat and breast cancer prevention. www.healthy.net/asp/templates/article.asp?PageType=Article&ID=763
15. Liang Y, Lin-Shiau S, Chen C, Lin J. Inhibition of cyclin-dependent kinase 2 and 4 activities as well as induction of CDK inhibitors p21 and p27 during growth arrest of human breast carcinoma cells by (-) epigallocatechin-3-gallate. *J Cell Biochem* 1999;75:1-12.
16. <http://olive.oil-in.gr/info/baf/cfa/Mediterranean-Diet-and-Cancer-Prevention.html>
17. Ibid to reference #8.
18. Reichert RG. Phyto-estrogens. *Quarterly Review of Natural Medicine*, March 31, 1994:27-33.

John Maher, DC, ABAAHP
Del Mar, California
jmaher@doctorsfornutrition.com
www.greensfirst.com

FEBRUARY 2004