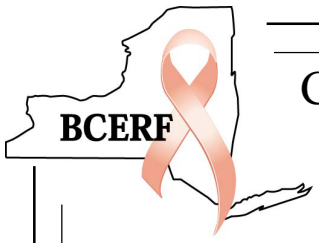
May 2002
FACT SHEET #44



Cornell University Program on
Breast Cancer and Environmental Risk Factors
in New York State (BCERF)

Diet and Lifestyle and Survival from Breast Cancer

While diet and lifestyle have been associated with the risk of getting breast cancer, little is known about the effect of diet and lifestyle on breast cancer survival. Understanding the consequences of diet and lifestyle on breast cancer survival is important to survivors of breast cancer who want to make choices to improve the length and quality of their lives. Far too little is known about the effects of diet and lifestyle after diagnosis on breast cancer survival. Nonetheless, the results of studies examining these effects are promising although still preliminary.

What is the survival rate for women with breast cancer?

The current five-year survival rate for women with breast cancer is 86%. (The survival rate is the percentage of women who are still living a period of time after they are diagnosed with breast cancer.) The current ten-year survival rate is 76%. These rates include women at all stages or levels of severity of breast cancer. Women with cancer that has not metastasized – that is, the cancer has not moved to the lymph system or other parts of the body – have a five-year survival rate of 96%. Women whose breast cancer has metastasized to other parts of the body have a five-year survival rate of 21%.

From 1976 and 1997, there was a statistically significant improvement in the five-year breast cancer survival rate of eleven percentage points (from 75% to 86%). This was largely the result of improvements in the detection of breast cancer at early stages although advances in the treatment of breast cancer have also contributed.

How is breast cancer survival described?

Breast cancer survival is described in several ways. The terms used focus either on: a) how long a woman lives after being diagnosed with breast cancer (the five- or ten-year survival rate); b) her risk of getting a second tumor (recurrence); or c) her risk of death compared to other women with breast cancer. Most studies compare risk of dying among breast cancer survivors who differ in diet and lifestyle practices, so we use this term "risk of death" when possible.

When in a woman's life has the effect of diet and lifestyle on breast cancer survival been studied?

Studies of survival from breast cancer have looked at diet and lifestyle both before and after diagnosis. The examination of diet and lifestyle before diagnosis can provide information about the potential outcome of treatment and possibly the biology of cancer formation. But examination of diet and lifestyle after diagnosis has the distinct advantage that it evaluates behaviors that can be changed once a woman learns she has cancer. We discuss studies that examined diet and lifestyle before and after diagnosis separately.

Does a woman's diet after her diagnosis with breast cancer affect her survival?

There are only two published studies that have investigated the relationship between diet after breast cancer diagnosis and survival. Although the results are promising, it is much too early to tell if these results will be confirmed until more research is done.

One extensive study examined diet after diagnosis and survival of women enrolled in the Nurses Health Study.

In this study, the 1,982 women who developed breast cancer were followed an average of 13 years.

1,237 of these women had breast cancer that had not metastasized (128 of these women died during the study period). Women in this group who ate the largest amounts of poultry, total protein, and omega-3 fatty acids (from oils found in fish) had a statistically significant lower risk of death than women who ate the least amounts of these foods and nutrients. Women who ate more fiber, fish, and vegetables also had a lower risk of death than women who ate less of these food and nutrients. For the women without cancer metastases, a statistically significant higher rate of death was reported among those who ate larger amounts of hydrogenated oils found in processed baked foods (18:2 trans fatty acids).

The association of diet with survival was different for the 745 women whose cancer had metastasized (250 of these women died during the study period). Women who ate the largest amounts of dairy products and had high levels of calcium in their diets had a significantly lower risk of death. In addition, women with metastasized tumors who ate more protein, in general, had a lower risk of death. For both groups of cancer survivors, little or no association with risk of death was seen for fruits, grains, red meat, or vitamin supplements.

A second, smaller study followed 374 women with early stage breast cancer (women with no metastasized tumors beyond the lymph nodes around the breast) for eight to ten years. This study reported that postmenopausal women who ate more vegetables and who got more vitamin C from food had lower risks of death.

The effect of diet <u>after</u> cancer diagnosis is an area of research that calls for much more study. The results of these two studies are preliminary but they are nonetheless encouraging. Some foods or nutrients were associated with as much as a 50% decrease in the risk of death. If these results prove to be correct, they could be quite important, as diet <u>after</u> diagnosis is something over which cancer survivors have some control.

Is there enough evidence for a breast cancer survivor to expect to decrease her risk of death by eating more or less of some type of food?

More studies are needed before recommendations for diets for breast cancer survivors can be made. It is important to recognize that these studies are only reporting <u>associations</u>. The aspects of the diet that had a positive or a negative influence on survival may have had their effect by acting alone. Or, the foods may be representative of the women's lifestyle in general. Good examples from the above studies are the changes in the risk of death reported with the highest consumption of poultry (associated with lower risk) and hydrogenated oils (associated with higher risk). Poultry products, like chicken and turkey, are often viewed as healthier choices than red meat. Women who ate more poultry may also have been making other efforts toward a healthier lifestyle. Likewise, eating more hydrogenated oils may have been something done by the women who ate more processed baked foods (where these oils are found) and who were less concerned with healthy lifestyles. The associations reported may thus reflect the overall lifestyle led by these women rather than the foods themselves.

Does a woman's diet <u>before</u> her diagnosis with breast cancer affect her survival?

Currently it is uncertain if aspects of diet <u>before</u> diagnosis affect breast cancer survival. Twelve studies have examined the effect of diet <u>before</u> breast cancer diagnosis on various aspects of survival from the disease. All of these studies examined fat consumption; their results were not in agreement. Four studies reported no association of survival with dietary fat consumption <u>before</u> diagnosis. However, five studies reported that eating high levels of dietary fat was associated with a statistically significant increase in the risk of death or clinical measures associated with reduced survival, such as the presence of tumor cells in lymph nodes. The effect of fat on the risk of death from breast cancer and the risk of getting breast cancer are both areas of controversy, and more studies can be expected in the future. It is not possible to draw conclusions about associations between fat in the diet <u>before</u> diagnosis and survival at this time.

Some of these studies also examined the intake of some vitamins from food, not supplements, before cancer diagnosis. Women who ate foods with the highest content of vitamin C and beta-carotene (vitamin A from vegetable sources) were found to have a decreased risk of death in two studies, but no association with risk was found in a third study. Vitamin E intake from food was reported to be associated with a decrease in risk of death in one study, and an increase in risk in another and had no association with risk in a third study. Clarification of the role of these vitamins in the diet before diagnosis and breast cancer survival will require more study.

How does weight gain or loss after breast cancer diagnosis affect survival from breast cancer?

Although obesity at the time of diagnosis has been associated with decreased survival, it is undecided if weight gain after diagnosis affects survival from breast cancer. Weight gain is common in breast cancer patients after diagnosis. It has been reported to occur in from 50 to 96 percent of all early stage breast cancer patients receiving cytotoxic chemotherapy (treatment which uses cell poisons). Weight gain may also occur in patients being treated for more advanced breast cancer. It is unclear if women who are receiving hormonal chemotherapy (treatment which uses anti-hormones, such as tamoxifen) also experience weight gain. The effect of weight gain on survival among women receiving cytotoxic chemotherapy is uncertain. Two studies have not found any association between weight gain and an increased risk of the recurrence of tumors, but two other studies have reported an association of weight gain with an increased risk of tumor recurrence. Weight gain has other effects, as well. Several studies have reported that weight gain is psychologically troubling and reduces the quality of life of breast cancer patients.

The effect of low body weight at the time of diagnosis and weight loss following diagnosis have been studied less often. Three studies have reported poorer survival for women of low body weight at the time of diagnosis; two of these reports saw this effect only in women with advanced breast cancer. One study reported that the loss of eleven or more pounds in women of any body size was associated with poor survival. This may be because women with advanced breast cancer often lose a lot of weight.

Does exercise affect breast cancer survival?

The effect of exercise on breast cancer survival is not known. It may improve the quality of life of breast cancer survivors but no studies have directly examined how exercise after cancer diagnosis affects breast cancer survival. Only one study has examined the effect of recreational exercise before diagnosis on survival. This study followed 412 Australian women with breast cancer for as long as 7 years (median of five and a half years) and found no association between the level of recreational exercise before cancer diagnosis and survival.

Several studies have reported associations between exercise and improvements in the quality of life of breast cancer survivors, including improved mood, self esteem, and sleep patterns and less nausea and fatigue. These studies differed greatly in their study design, so comparisons between the studies are difficult. The results, although currently indefinite, show promise. More study is needed to determine if exercise after diagnosis can affect breast cancer survival and to further evaluate exercise for life quality effects. For more information on exercise and breast cancer also see BCERF Fact Sheet #19, *Exercise and the Risk of Breast Cancer*.

Do smoking tobacco and drinking alcoholic beverages affect breast cancer survival?

Although smoking has been associated with numerous health problems, its effect on breast cancer survival is, as yet, not resolved. Well-conducted studies have demonstrated an association between smoking and an increase in the risk of death and others show no association with the risk of death from breast cancer. Smokers may be at increased risk for the spread of cancer. Two studies have reported an increase in the metastasis of tumors from the breast to the lung in smokers. Survival of women who have stopped smoking has been examined in one study and found to be similar to that of women who never smoked.

Drinking alcoholic beverages is a risk factor for getting breast cancer. However, most but not all studies, have reported no association between drinking alcoholic beverages and breast cancer survival. More information

on this subject see BCERF Fact Sheet #13, *Alcohol and the Risk of Breast Cancer*.

Do risk factors for getting breast cancer affect survival from breast cancer?

Survival from breast cancer may be dependent on different biological effects than those involved in developing breast cancer. Many of the risk factors that are associated with breast cancer risk have not been associated with breast cancer survival, but there are exceptions. The age at which a woman begins having regular menstrual periods (age at menarche) is a weak risk factor for breast cancer but it has not been associated with breast cancer survival. A second risk factor for breast cancer, the age when a woman stops having menstrual periods (age at menopause), has also not been found to be associated with survival. Having a child decreases the risk of breast cancer, but no studies have found any effect of having a child on the risk of death from breast cancer. However, the age at which a woman has her first child may affect her risk of survival from breast cancer differently from her risk of getting breast cancer. Having a child before age twenty leads to a substantial decrease in the risk of getting breast cancer. Studies have examined the survival of the small number of women who had children before age twenty, and got breast cancer. A number of these studies have reported that the few women in this group who get breast cancer have a higher risk of death than women who had children at later ages.

Does group psychological therapy affect survival of women with breast cancer?

It currently appears that group psychological therapy does not affect the survival of women with metastasized breast cancer. A recent, well designed study, along with two other studies, disagree with an early study that found that group therapy increased the survival of women with metastatic cancer. Studies examining group psychological therapy for patients with other types of cancer have also reported mixed results.

Yet, the support of fellow survivors and the encouragement to express concerns and feelings during group psychological therapy have been shown to have positive effects on breast cancer survivors' quality of life. Nonetheless, studies of patients with other types of cancer have reported either temporary or no psychological benefits from group psychotherapy.

Are there types of alternative medicine that can affect breast cancer survival?

Alternative medical practices have not been studied sufficiently to determine whether they can affect breast cancer survival. Few epidemiological studies or clinical trials have examined alternative therapies for breast cancer survivors.

More than a quarter of the women diagnosed with breast cancer use alternative medicine. Alternative medicine covers a range of different treatments including: a) ones that modify behavior, such as relaxation methods and spiritual practices; b) ones that utilize alternative medicines, such as megavitamin treatment, herbal medicines and homeopathy; and c) other healing therapies such as massage, chiropractic, acupuncture, and energy healing. More study is needed of these practices. To this end, the National Institutes of Health have established a National Center for Complementary and Alternative Medicine (http://nccam.nih.gov/) to fund and encourage the study of alternative medicine in various areas including cancer treatment.

Does eating more soy products change breast cancer survival?

There are no published studies that have examined the effect of eating soy products on breast cancer survival. A concern about these products is that studies of women eating soy products daily have shown that soyfoods can act like estrogen and cause cell proliferation in the breast. This could have a negative effect on breast cancer survival. Phytoestrogens in soy have also been reported to both oppose and complement the effects of tamoxifen in breast cancer cells. More study is needed in this area. At this time, it is a good idea for breast cancer survivors to avoid soy supplements and use soy foods in moderation. For more information please see BCERF Fact Sheet #1, *Phytoestrogens and Breast Cancer*.

What studies need to be done?
Most studies of breast cancer survival to date have looked at diet and lifestyle before diagnosis. Studies are greatly needed that examine diet and lifestyle after diagnosis. These studies can define factors that can affect survival in both a positive and negative manner. Most importantly, women can use this information to adjust their diet and lifestyle and potentially affect their survival. The few studies that have examined the effect of diet and lifestyle after diagnosis show great promise.

What can breast cancer survivors do now?
The preliminary studies looking at diet and lifestyle after diagnosis are encouraging and support the idea that diet and lifestyle choices can make a difference for breast cancer survival, as well as help women feel better. There is limited evidence on specific diet and lifestyle behaviors women can use to increase survival, even so living a healthy lifestyle is a sensible choice for breast cancer survivors. This is especially true in light of the fact that these studies found increases in breast cancer survival from eating a diet that contained not excessive but, rather, what are generally considered as healthy amounts of vegetables, fruits and foods containing fiber. Avoidance of the regular use of soy supplements and the use of soy products in moderation (less than 4 times per week) is at this time recommended because of their potential to interfere with therapy and increase breast cell proliferation.

Although the effect of exercise on survival is unknown, studies in breast cancer survivors indicate that exercise leads to an improvement in the quality of survivor's lives. A reasonable suggestion for exercise would be that of the United States Surgeon General, who recommends that everyone participate in moderate physical activity for at least 30 minutes 5 days a week.

What are sources for dietary recommendations during treatment for breast cancer?
The studies described did not examine diet among women during treatment for breast cancer. Sources for recommendations on diet and lifestyle during treatment can be found at the web site of the National Cancer Institute and the American Cancer Society. The addresses for these sites are:

National Cancer Institute
Nutritional Concerns: Eating Hints for Cancer Patients: Before, During, and After Treatment
http://www.cancer.gov/cancer_information/coping/

American Cancer Society
Nutrition for Patients and Survivors
http://www.cancer.org/eprise/main/docroot/MH/MH_0

Prepared by:
Barbour S. Warren, Ph.D.
Research Associate, BCERF
and
Carol Devine, Ph.D., R.D.
Division of Nutritional Sciences and
Education Project Leader, BCERF

An extensive bibliography on "Diet and Lifestyle and Survival from Breast Cancer" is available on the BCERF web site:

http://www.cfe.cornell.edu/bcerf/

Funding for this fact sheet was made possible by the US Department of Agriculture/Cooperative State Research, Education and Extension Service, the New York State Departments of Health and Environmental Conservation, and Cornell University. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author and do not necessarily reflect the views of the US Department of Agriculture, the New York State Departments of Health or Environmental Conservation.

We hope you find this Fact Sheet informative. We welcome your comments. When reproducing this material, credit the Program on Breast Cancer and Environmental Risk Factors in New York State.

Printed on recycled paper with soy-based ink.

Program on Breast Cancer and Environmental Risk Factors (BCERF)
College of Veterinary Medicine
Cornell University
Box 31
Ithaca, NY 14853-5601

Phone: (607) 254-2893
Fax: (607) 254-4730
email: breastcancer@cornell.edu
WWW: http://envirocancer.cornell.edu

CORNELL Cooperative Extension