

# Every Bite Counts

Nutrition Tips for  
Breast Cancer Survivors



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*improving the lives of women globally*

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[www.servings.org](http://www.servings.org)



[www.foodandfriends.org](http://www.foodandfriends.org)

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## Introduction

Breast cancer remains the most common cancer among women in the United States. Fortunately, due to earlier detection and improved treatments, it is also more treatable than ever before. Overall breast cancer death rates have dropped each year since 1990. The National Cancer Institute estimates that there are 2.4 million breast cancer survivors in the US today. If you are reading this, you may be one of these women.

### THE ROLE OF NUTRITION FOR THE BREAST CANCER SURVIVOR

Your diet is important not only during periods of intense treatment, but also during recovery and throughout the rest of your life. Nutritional needs and capabilities will fluctuate, depending on your situation. After diagnosis and during treatment, the main objective is to make it through, and ultimately, survive. Surgery, radiation, chemotherapy or hormonal therapy, can all be very challenging to the body. Nutritional counseling can help you manage side effects and get through this difficult period. After finishing treatment as you begin to rebuild strength, your focus may shift, as you get back to your regular activities. Lifestyle and eating choices can help the body's repair process. As time passes, and you are feeling stronger, your outlook and purpose may again shift to preventing cancer recurrence. This publication focuses on your nutritional needs as a survivor: promotion of overall health, well-being and the prevention of tumor re-growth.



## Plant-Based Diet

Making fruits, vegetables, whole grains, legumes (beans and lentils), nuts, and seeds a priority in your diet provides a number of health benefits. These plant-based foods are rich in phytochemicals, naturally occurring compounds that have numerous health-protecting actions.

Phytochemicals work in combination with each other, as well as with vitamins and various nutrients, to prevent, halt, or lessen disease. To get the greatest benefit from phytochemicals, eat whole foods, that is foods that are minimally and simply processed. Compared to processed foods or supplements, whole foods retain more of their original nutrients that work together to promote health.

Phytochemicals are often found in the pigments of fruits and vegetables, so eating brighter colored varieties has many benefits. Not that less colorful foods should be ignored. Onions, garlic and corn all contain health-promoting phytochemicals. By eating a wide variety of fruits and vegetables, you can make sure that you are getting as many different nutrients as possible.



# Focus On

## CRUCIFEROUS VEGETABLES

### Common Cruciferous Vegetables:

- Kale
- Collard greens
- Chinese broccoli
- Cabbage
- Brussels sprouts
- Broccoli
- Cauliflower
- Bok choy
- Broccoli rabe
- Rutabaga
- Watercress

Members of the Brassicaceae family, cruciferous vegetables are good sources of vitamin C and soluble fiber. Additionally, they contain several phytochemicals, notably glucosinolates, crambene, indole-3-carbinol and isothiocyanates, which give these vegetables their pungent and spicy taste. These phytochemicals are possible anti-cancer agents. Some of the ways that they may fight cancer include: detoxifying carcinogens, stopping growth of tumor cells, and changing the activity of estrogen. To date, research looking at the effect of cruciferous vegetables on cancer risk has found mixed results, but it remains an area of tremendous interest. Given the possible benefits, adding cruciferous vegetables to your diet as a survivor is simply a good choice. This is especially true as these vegetables can easily fit into the overall daily recommendation to eat a variety of five to nine servings of fruits and vegetables. Although it is best to eat these vegetables lightly steamed to retain the highest amount of healthful phytochemicals, there are many ways to prepare them, including roasting, boiling and sautéing.



### Easy ways to include cruciferous vegetables in your diet:

Cook rutabagas with potatoes and mash together.

Roast halved Brussels sprouts with garlic, olive oil, salt & pepper.

Add a handful of watercress to salads.

## FLAXSEED

Flaxseed shows promise as a food that reduces the risk of breast cancer, and thus possibly a recurrence.



Flaxseed has two components that are thought to be effective in this regard. One is lignans. They are called “phytoestrogens” because they are derived from plants and mimic human estrogen. The second major component is an omega-3 fat, called alpha-linolenic acid (ALA).

Many studies done with flaxseed indicate that it can prevent the initiation of a tumor, as well as its growth. Theories of how this happens include blocking the estrogen receptor on breast tissue, starving the tumor, killing off tumor cells and protecting cells from being damaged in the first place.

Though results are mixed in human studies, it appears that flaxseed may be most effective in premenopausal women with estrogen-receptor negative cancers. There may also be a genetic component, meaning that women with a particular genetic makeup will have a more beneficial effect than others.

Whole seeds, which are about the size of sesame seeds, must be ground for the body to take advantage of their properties. It is important to keep in mind that lignans are converted to phytoestrogens in the intestine. If there is any long-term disturbance in the intestine, including use of antibiotics, the flaxseed will not be as effective.

### Tips for incorporating flaxseed into your diet:

Buy whole, fresh flaxseed and grind using a coffee grinder, or purchase it already ground as flax meal.

Refrigerate or freeze flaxseed to keep it fresh, and use it within three months of grinding.

Sprinkle on food or mix into hot foods, like oatmeal or other cooked cereals, soups, stews, etc.



## ORGANICS

Try to eat organic foods if you can. Produced without the use of synthetic fertilizers, bio-engineering, radiation, herbicides, fungicides, or pesticides, organic food is recommended because it contains less pesticide residue, which may be a carcinogen. Organically grown foods are also a better nutritional choice and provide better flavor than conventionally grown foods. Organic farms use soil-building programs that enhance soil fertility and promote environmental quality for future generations.

Fruits and vegetables naturally contain phytochemicals, which both protect the plant from predators as well as act as cancer-fighting antioxidants. The addition of pesticides reduces the need for these natural chemicals, so the plant produces less, thus reducing the level of antioxidant activity in the plant.

While results from studies examining the link between pesticide exposure and cancer risk and recurrence are inconclusive, pesticides are toxins that affect every individual differently and have no positive effects. Therefore, it is wise to minimize your exposure as much as possible. By eating organic, not only do you reduce your exposure to toxins, but you also reap the benefits of higher antioxidant activity.

One way to check for organic products is to look for the U.S. Department of Agriculture organic seal on produce and food items. This seal signifies that the item contains at least 95% certified organic ingredients. Products that are “Made With Organic Ingredients” must contain at least 70% certified organic ingredients but do not bear the USDA seal.



Organic products can be harder to find and more expensive than conventional products. Keep in mind that a plant-based diet has many benefits, so eating any produce, whether organic or not, is healthier than eating none at all. You can at least avoid the most heavily contaminated fruits and vegetables, and remember to wash all produce thoroughly before consumption.



## CONSIDER...

- Buy organic produce and products as much as possible, and look for the USDA organic seal, which means that the product contains at least 95% certified organic ingredients.
- If you cannot buy all organic, avoid the fruits and vegetables with the highest levels of pesticide residues.

## SHOPPER'S GUIDE TO PESTICIDES IN PRODUCE

Highest in Pesticides <i>(try to buy as organic)</i>	Lowest in Pesticides
Peaches	Onions
Apples	Avocado
Sweet bell peppers	Sweet corn - frozen
Celery	Pineapples
Nectarines	Mango
Strawberries	Sweet peas - frozen
Cherries	Asparagus
Lettuce	Kiwi
Grapes - imported	Bananas
Pears	Cabbage
Spinach	Broccoli
Potatoes	Eggplant

Use the Shopper's Guide to Pesticides in Produce developed by the Environmental Working Group ([www.ewg.org](http://www.ewg.org); accessed Dec 7, 2007) to help you determine what popular fresh fruits and vegetables you should try to buy as organic.



# Soy

Soy foods contain many potential anti-cancer compounds, most notably isoflavones and other phytoestrogens (plant estrogens). However, there is much controversy about including soy foods and supplements in the diet of breast cancer survivors. Research on soy and breast cancer shows conflicting results. For example, laboratory and animal model studies using genistein (a type of isoflavone) point to an increase of breast cancer cells. On the other hand, other studies have shown genistein to be protective against tumor growth. The reasons for these opposing results are not exactly known but may relate to the form of the phytoestrogen (whole soy food or supplement), or the age and menstrual status of the study participant. No well-designed studies have specifically examined whether phytoestrogen supplementation reduces the risk of breast cancer recurrence.

The bottom line is that soy and soy products should not be considered lightly in breast cancer survivors. While questions remain, there are some well-regarded recommendations that are coming out of the research:

- Timing of exposure to soy may be important, with the most protective effect coming from consumption before puberty.
- Women with a history of breast cancer or who are at high risk should not use high-dose supplements of isoflavone products.

- This is especially true for those taking the drug tamoxifen, which may be less effective in the presence of high doses of isoflavones.
- For those who want to include soy in their diets, it is recommended to favor soy foods that are minimally processed (such as tofu, tempeh, miso or soy milk), rather than supplements.
- The benefits of one to two servings of soy foods per day seem to outweigh the risks in most people.



## WHOLE FOOD SOURCES OF SOY

Food	Serving Size*
Edamame	½ cup, cooked
Soybeans	½ cup, cooked
Soy milk	1 cup
Soy nuts	1 oz.
Soy yogurt	1 cup
Miso soup	½ cup
Tempeh	½ cup
Tofu	½ cup

\* Each serving provides 30-60 mg of soy isoflavones.

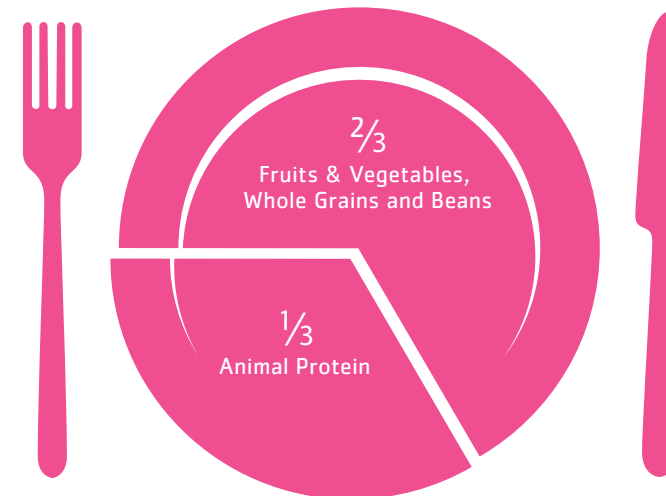


# Weight Management

Although survival rates have improved dramatically, breast cancer and its treatments remain undeniably life changing. After treatment ends, survivors often see themselves and their lives in new ways, and are faced with new issues. It is common for women to describe symptoms of depression, poor self-image and quality of life. One of the challenges that they may contend with is weight gain. Being less physically active post-diagnosis is one of the major causes of this weight gain in pre-menopausal women. This is particularly disturbing because weight gain itself is a risk factor for recurrence. The good news is that breast cancer survivors who control their weight and exercise regularly can improve their long-term health. Research has found that women who maintain their weight have better survival rates than those who gained a moderate amount of weight.

Successful weight management is achieved through healthy lifestyle changes such as sensible eating. Attempting to lose weight should be done in consultation with your medical provider and a registered dietitian. This will ensure that you follow a plan that is appropriate for your medical condition and that you get all the nutrients you need. An average weight loss of one to two pounds a week is considered a healthy rate. Here are some things to keep in mind while managing weight:

- Eat at least five to nine ½-cup servings of fruits and vegetables daily. Fruits and vegetables naturally have a high water and fiber content that makes them low in calories. These foods provide a greater volume of food, which may help you feel full.
- Prepare your plate with no more than 1/3 meat and dairy; fill the rest with fruits, vegetables, and whole grains.
- Eat in moderation. Too much of any food can cause an increase in weight. Watch portion sizes. For more information on portion size and individual caloric needs, see [www.mypyramid.gov](http://www.mypyramid.gov).
- Monitor your hunger. Eat only when you feel hungry and stop when you are satisfied. For most people this is three meals a day.
- Avoid sugary snack foods and soda. Replace them with water or seltzer, fruits, vegetables and whole grain snacks.
- Decrease your intake of fat, particularly saturated fat and trans fat. See page 15 for more information.





## Exercise

Exercise is particularly important for breast cancer survivors because it improves both physical and psychological health. Several studies done with breast cancer survivors who exercised during treatment and/or after completion of therapy have shown both short-term and long-term positive results. Improvements were found in not only physical strength and cardiovascular fitness, but also in fatigue, anxiety and perceived quality of life.

Most importantly, some research has shown a connection between moderate exercise and reduced risk of breast cancer recurrence. Other benefits are weight control, improved self-esteem, and greater bone density. Be sure to check with your medical provider before starting an exercise regimen.

### HOW TO INCREASE PHYSICAL ACTIVITY – WHAT IS MODERATE EXERCISE?

Start with cardiovascular exercise like walking. Take it slow and set goals. For example, an ultimate goal may be walking 30 minutes a day at a moderate pace 3-5 times a week.

- Start with an exercise level that you are comfortable with.
- Track your progress with a pedometer – this will tell you how many steps you have taken and how far you have gone.
- Increase slowly – by number of steps or minutes walked.

Other types of cardiovascular exercise include biking, roller-blading, jogging, dancing and swimming.

## Healthy Fats



Fat is an important source of energy for the body and aids in the absorption of essential vitamins. Some foods that are major contributors of fat are listed in the following table. Although reducing fat intake is recommended, it is not necessary to cut out all fat from your diet. Some fats are actually healthful. Mono-unsaturated and polyunsaturated fats reduce blood cholesterol levels and thus lower the risk of heart disease when they replace saturated fats in the diet. Omega-3 fatty acids (a type of poly-unsaturated fat) may benefit the immune system and reduce the risk of metastatic disease.

On the other hand, fats from meats, full-fat dairy products, fast food, and some cookies and crackers contain saturated fats or trans fats (a form of unsaturated fat that resembles saturated fat). Both saturated and trans fats can raise the amount of low-density lipoprotein (LDL-cholesterol), the “bad” cholesterol, in the bloodstream. The American Heart Association recommends limiting saturated fat intake to less than 7 percent and trans fat intake to less than 1 percent of your total daily calories. The Food and Drug Administration requires that all Nutrition Facts food labels list both saturated and trans fats.



## CONSIDER...

- Trans fats are often listed as “hydrogenated” or “partially hydrogenated” oils. Check food labels for these ingredients and avoid foods that contain trans fats.
- It is impossible and not recommended to cut out all fats from a nutritionally adequate diet. Consume mainly unsaturated (mono- and polyunsaturated) fats from olives, olive oil, canola oil, avocados, flaxseed, most other seeds and nuts, and cold-water fish like salmon, sardines, tuna and mackerel.

TYPES OF DIETARY FAT	
Type of Fat	Main Source
Mono-unsaturated	Olives; olive, canola and peanut oils; cashews, almonds, peanuts and most other nuts; avocados.
Poly-unsaturated	Corn, soybean, safflower and cottonseed oils; cold-water fish and other sources of omega-3 fatty acids.
Saturated	Red meat, whole-milk dairy products (cheese, milk, yogurt and ice cream), poultry skin; coconut, coconut milk and coconut oil; palm oil and palm kernel oil.
Trans	Some margarines, vegetable shortening and partially hydrogenated vegetable oil; deep-fried chips; many fast foods; some commercial baked goods.

# Bone Health



Many women who are treated for breast cancer face issues of bone loss and osteoporosis. This can be the result of a combination of chemotherapy, steroids for treatment of side effects, hormone therapy or early menopause.

While it seems as if our bones are solid and do not ever change, this is not the case. Bones reach a peak in length and density at about age 30. After that, they follow a process of breaking down and building up. The trick is to keep these two opposing activities equal. If the breakdown occurs at a faster pace than the build-up, a person will experience loss of bone, or osteoporosis. Listed below are nutrients that play a role in bone health.

ON THE PLUS SIDE			
	Function	Recommended Amount Per Day	Sources
Calcium	Most abundant mineral in the body; 99% of it is in the bones.	Adults under 50 yrs. old – 1000 mg; Adults over 50 yrs. old – 1200 mg	Dairy products, fortified soy milk or juice, tofu, canned fish with bone.
Vitamin D	Helps in the absorption of calcium.	200 IU	Sunshine, fortified milk, eggs, fish.
Protein	Builds, repairs and replaces tissue.	Adult females – about 46g	Meat, poultry, fish, dairy, soy, beans.
Vitamin K	Aids in the formation of proper bone structure and strength.	150-250 micrograms	Green leafy vegetables, e.g., kale, spinach.
Magnesium	Improves bone density and helps process calcium.	Adult females – 320 mg	Green leafy vegetables, potatoes, nuts, seeds, whole grains, chocolate.
Fruits and vegetables	Maintains alkaline level in the body – needed to keep calcium from leaching from the bones.	5 – 9 servings	



#### ON THE MINUS SIDE

- Chronic alcohol use is linked to an increase in fractures. It interferes with the protective effect of hormones and vitamins. It can also lead to more falls.
- Cigarette smoking is associated with decreased bone density.
- Soda may interfere with bone health by either displacing more beneficial, calcium-rich beverages such as milk, or interfering with calcium absorption because of high phosphorus levels.
- Sodium increases the amount of calcium excreted in urine and perspiration.
- Excessive amounts of vitamin A from supplements may increase the breakdown of bones and interfere with vitamin D. The beta carotene form of vitamin A does not appear to cause these problems.

#### VITAMIN D & SUNSHINE

Your body makes vitamin D from the sun's ultraviolet rays. During the summer months, 10-15 minutes sun exposure at least 3 times a week on the face, arms, back, and hands without sunscreen, is adequate.

#### Consider...

- Dark skin needs 5-10 times more exposure than fair skin to make the same amount of vitamin D.
- In northern climates from October through March, the sun's rays are not strong enough to make sufficient vitamin D.
- In people over fifty, the ability to make vitamin D is decreased.
- Older individuals, those who get little year-round sun exposure, and people in northern climates during the winter, should include good food sources and possibly a supplement in their diet.

## Alcohol



Based on multiple studies, there is convincing evidence that alcohol consumption can contribute to breast cancer risk. The risk increases as the amount of alcohol consumed increases. It has also been shown that all types of alcohol add equally to the risk of developing breast cancer in women.

Since alcohol intake is a risk factor for breast cancer, it can be assumed that it can also be a risk factor for recurrence. Of particular interest is the research suggesting that alcohol can increase levels of estrogens in the blood, which in theory could increase the risk of estrogen receptor-positive breast cancer and its recurrence.

Therefore, it is recommended that alcohol intake should be avoided or limited in survivors. The American Cancer Society recommends if you drink alcoholic beverages, limit consumption. For men, limit alcohol to two drinks a day; for women, one drink a day.





# Behavior Modification

## PUTTING IT ALL TOGETHER

**Confucius Says** Creating healthier habits can be an important part of surviving breast cancer. Lifestyle changes in key areas can greatly influence treatment outcomes and overall health. Lifestyle areas to explore:

“A journey of a thousand miles begins with a single step.”

- Nutrition
- Exercise
- Smoking cessation
- Drug and alcohol reduction/cessation
- Stress reduction
- Maintenance of a regular check-up schedule

## SUGGESTIONS ON HOW TO MAKE CHANGE

- Educate yourself – talk to your medical provider and registered dietitian.
- Set achievable goals.
- Hold yourself accountable for your actions (own it!) – keep a journal, mark your progress on a calendar.
- Reward yourself for your achievements – be kind to yourself, buy yourself flowers, go to the movies.
- Seek out support – speak to a counselor, clergy member or other survivors. Check “Resource” section for ideas.

# Grocery List



## FRUIT

- Cantaloupe‡
- Watermelon‡
- Oranges or orange juice‡
- Berries\* † ‡
- Pears\* †
- Kiwi\* ‡
- Banana\*

## VEGETABLES

- Carrot † ‡
- Tomatoes‡
- Broccoli\* ‡ † ‡
- Red bell pepper † ‡
- Sweet potatoes\* ‡
- Cabbage † ‡
- Collard greens\* † ‡
- Onions †
- Garlic ‡ †
- Cauliflower\* † ‡
- Brussels Sprouts\* † ‡

## FATS & OILS

- Olive oil
- Brazil nuts‡
- Walnuts †
- Flaxseed †
- Avocados
- Almonds
- Cashews
- Peanut butter

## BREADS/GRAINS

- Brown rice\*
- Whole wheat bread\*
- Oatmeal\*
- Whole wheat pasta\*

## DAIRY

- Low-fat cottage cheese
- Reduced-fat cheese
- Skim/low-fat milk
- Yogurt

## PROTEINS

- Lean beef
- Tuna †
- Salmon †
- Ground turkey
- Lentils\*
- Black beans\*
- Egg whites
- Tofu (*in moderation*)
- Chicken

- \* High in fiber
- † Buy organic
- ‡ High in antioxidants
- ‡ High in omega-3 fat
- † Cruciferous vegetables
- ‡ High in phytochemicals

Use this list to fill your shopping cart with healthful and protective foods.



# Resources

## CANCER AND NUTRITION RESOURCES

### American Cancer Society

1-800-ACS-2345 (1-800-227-2345)

WEB <http://www.cancer.org>

### American Dietetic Association

1-800-877-1600

WEB <http://www.eatright.org>

### American Institute for Cancer Research

1-800-843-8114

WEB <http://www.aicr.org>

### Association of Nutrition Services Agencies (ANSA)

1-202-828-7707

WEB <http://www.ansanutrition.org>

### Avon Foundation

WEB <http://www.avoncompany.com/women>

### Breastcancer.org

WEB <http://www.breastcancer.org>

### Breast Cancer Network of Strength

1-800-221-2141 (English)

1-800-986-9505 (Spanish)

WEB <http://www.networkofstrength.org>

### CancerCare

1-800-813-HOPE (1-800-813-4673)

WEB <http://www.cancercares.org>

### Centers for Disease Control and Prevention

1-888-842-6355

WEB <http://www.cdc.gov/cancer/index.htm>

### Gilda's Club Worldwide

1-888-GILDA-4U (1-888-445-3248)

WEB <http://www.gildasclub.org>

### God's Love We Deliver

1-800-747-2023 or 1-212-294-8100

WEB <http://www.glwd.org>

### Living Beyond Breast Cancer

1-888-753-LBCC (1-888-753-5222)

WEB <http://www.lbcc.org>

### Memorial Sloan-Kettering Cancer Center

WEB <http://www.mskcc.org/mskcc/>

### National Breast Cancer Coalition

1-800-622-2838

WEB <http://www.stopbreastcancer.org>

### National Cancer Institute, Cancer Information Service

1-800-4-CANCER (1-800-422-6237)

TTY 1-800-332-8615

WEB <http://www.cancer.gov>

### National Coalition for Cancer Survivorship (NCCS)

1-877-NCCS-YES (1-877-622-7937)

WEB <http://www.canceradvocacy.org>

### Susan G. Komen for the Cure

1-877-GO KOMEN (1-877-465-6636)

WEB <http://www.komen.org>

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### Disclaimer

Registered dietitians have carefully prepared this booklet. However, it may not represent the very best advice for every individual living with breast cancer. Each person should share this booklet with his or her medical provider or registered dietitian in order to seek a professional opinion on specific nutritional needs.

The inclusion of any products in this booklet does not represent an endorsement.



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