



## TREATING BREAST CANCER

If you find out you have breast cancer, you should discuss your treatment options with your physician. Breast cancer treatment will vary depending on the stage and location of the cancer.

### **Breast cancer treatment options include:**

**Surgery** is the main treatment for localized breast cancer. This is often followed by radiation therapy to decrease the risk of cancer returning in the breast, chest wall and/or lymph nodes.

**Lumpectomy**, or partial mastectomy, is the surgical removal of the cancerous tissue along with a small rim of surrounding healthy breast tissue. This type of breast-conserving surgery is often followed by radiation therapy.

**Mastectomy** is the surgical removal of the entire breast. Sometimes, breast reconstruction can be performed after the mastectomy. While less common, radiation is sometimes recommended after mastectomy as well.

A select number of lymph nodes near the breast may be removed during surgery to determine if they contain tumor cells. If one or more of the lymph nodes contain tumor cells, the removal of additional lymph nodes may be recommended. An examination of the lymph nodes is typically performed with lumpectomy or mastectomy for invasive (non-DCIS) disease.

Both mastectomy and breast-conserving therapy (surgery and radiation) can be equally effective approaches in curing breast cancer. Ask your surgeon and radiation oncologist about the risks and benefits of both options.

**Radiation Therapy** after surgery can decrease the chance of cancer returning in the breast and improve survival. Radiation therapy involves delivering focused radiation to the breast or chest wall, and sometimes the lymph nodes, to treat cancer cells not detected or removed by surgery. Radiation therapy kills cancer cells by destroying their ability to multiply.

**Medical Therapy** is often recommended to improve cure rates or prevent a new breast cancer from developing. A medical oncologist will evaluate you and determine what medications may be most helpful in accomplishing those goals.

**Chemotherapy** has the ability to destroy cancer cells. Often, two or three different types of drugs may be combined to get the best outcome. While the dose and schedule for treatment varies, chemotherapy is usually delivered every two to three weeks over a few months. Sometimes this treatment is given before surgery (called neoadjuvant therapy).

**Hormonal therapy** can block the effects of the female hormone, estrogen, in the body. Estrogen has been shown in some cases to cause your tumor to grow. Usually taken as a daily pill, hormonal therapy may be started during or after radiation therapy is completed. While the dose of the pill may change depending on the type of pill prescribed, this pill is usually taken daily for several years.

**Immunotherapy** works by either stimulating your immune system to attack cancer cells or providing your immune system with what it needs, such as antibodies, to fight cancer.

Ask your medical oncologist what medications may be best for you.

## WHOLE BREAST EXTERNAL BEAM RADIATION THERAPY AFTER LUMPECTOMY

After lumpectomy, the usual course of radiation treats the whole breast and, if needed, nearby lymph node areas. The radiation beam comes from a machine called a linear accelerator, or linac. The radiation beam is a specialized X-ray, and is painless. Each treatment is brief. Treatment is delivered every day, five days a week, Monday through Friday. The full course of treatment is usually delivered over three to seven weeks, depending on findings during surgery.

Before beginning treatment, you will be scheduled for a pre-treatment planning session to map out the area to treat. This involves having X-rays and/or a CT scan. Tiny tattoo-like marks made on your skin help the radiation therapist precisely position you for daily treatment.

Typically, radiation therapy is done with high energy X-rays, or photons. If needed, electrons or protons may be used to treat the breast or chest wall with a less penetrating, more focused beam.

Recent clinical trials suggest that whole breast radiation may be safely shortened by treating the tumor with slightly higher daily doses over less time.

## ACCELERATED PARTIAL BREAST IRRADIATION AFTER LUMPECTOMY (APBI)

Ongoing research suggests that in certain patients, it may be safe to give radiation treatment to only the part of the breast that had the tumor, over a shorter period of time.

### **There are two approaches to APBI:**

- 1. Breast brachytherapy (internal radiation)** involves placing flexible plastic tubes called catheters, or a balloon-like device (BLD), directly into the space where the cancer was taken out. A small, radioactive seed is guided into the catheters or BLD and is left in place for several minutes based on the treatment plan designed by your radiation oncologist. The procedure is repeated two times a day for a period of five days, then the catheters or BLD is removed and the treatment is finished.
- 2. External beam radiation therapy** is delivered in a similar way to standard whole breast radiation using a linear accelerator. However, it is more focused on the area around the surgery. Treatment occurs one to two times per day over a one to two week period.

The initial results of these techniques appear promising but are still being studied. Talk with your radiation oncologist for more information.

## CHEST WALL RADIATION THERAPY AFTER MASTECTOMY

After a mastectomy, your doctor may suggest radiation therapy for the chest wall and nearby lymph node areas. Whether or not radiation therapy should be used after removal of your breast depends on several factors such as the number of lymph nodes involved, tumor size and whether or not cancer cells were found

near the edge of the surgical site. Women planning to undergo reconstruction should discuss the impact of post-mastectomy radiation with their surgeon and radiation oncologist.

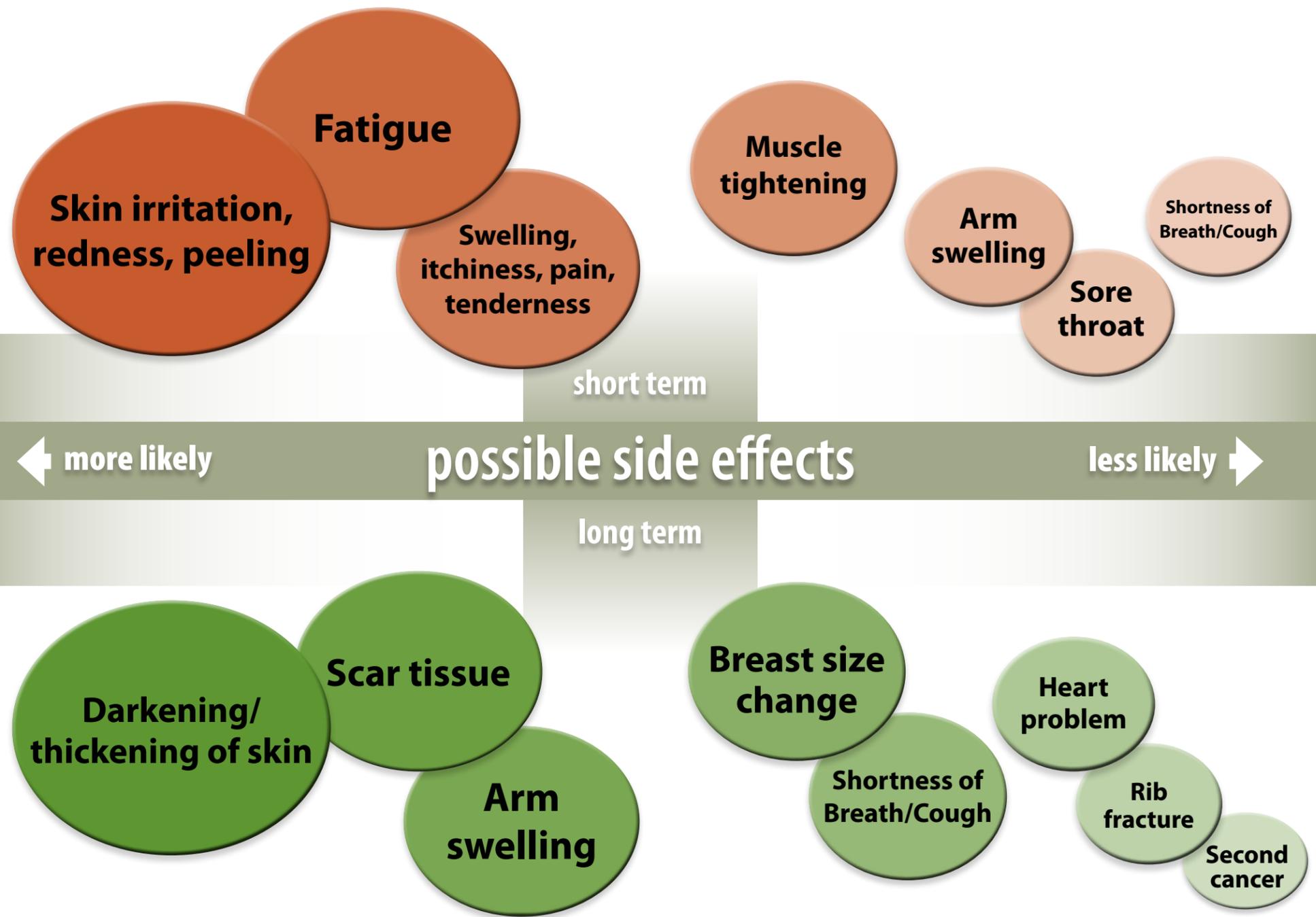
If you have left-sided breast cancer, breathing techniques may be used during your treatments to minimize heart dose.

## CARING FOR YOURSELF DURING TREATMENT

- Get plenty of rest during treatment, and don't be afraid to ask for help.
- Follow your doctor's advice. Ask if you are unsure about anything.
- There are no stupid questions.
- Tell your doctor about any medications, vitamins or supplements you are taking to make sure they are safe to use during radiation therapy.
- Eat a balanced diet and drink plenty of fluids. If you're having trouble eating, tell your doctor, nurse or dietitian.
- Treat the skin exposed to radiation with special care. Stay out of the sun, avoid hot or cold packs, only use lotions and ointments after checking with your doctor or nurse and clean the area with warm water and mild soap.

Coping with the stress of a cancer diagnosis can be tough. It may help to seek out help from support groups and friends.





\*Larger/darker bubbles show higher likelihood of occurrence. Smaller/lighter bubbles show lesser likelihood of occurrence. This list doesn't represent all of the possible side effects. Please talk to your doctors about your specific diagnosis.



**ABOUT THE RADIATION ONCOLOGY TEAM**

Radiation oncologists are cancer doctors who also oversee the care of each patient undergoing radiation treatment. Other members of the radiation oncology team include radiation therapists, radiation oncology nurses, medical physicists, dosimetrists, social workers and nutritionists. To locate a radiation oncologist in your area, visit [www.rtanswers.org](http://www.rtanswers.org).

**ABOUT ASTRO**

The American Society for Radiation Oncology is the premier radiation oncology society in the world with more than 10,000 members who specialize in treating cancer with radiation therapy. ASTRO's mission is to advance the practice of radiation oncology by promoting excellence in patient care, promoting research and disseminating research results. Visit [www.astro.org](http://www.astro.org) for more information.

**LEARNING ABOUT CLINICAL TRIALS**

For more information on clinical trials, please visit:

**National Cancer Institute**

[www.cancer.gov/clinicaltrials](http://www.cancer.gov/clinicaltrials)

**NRG Oncology**

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

**Radiation Therapy Answers**

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

**AMERICAN SOCIETY FOR RADIATION ONCOLOGY**

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# Radiation Therapy for Breast Cancer



Breast cancer is the most common type of cancer in American women, according to the American Cancer Society. This year, 268,600 women and 2,670 men will learn they have breast cancer. Another 62,930 women will learn they have noninvasive (also called in situ) breast cancer. Breast cancer can often be cured. About 80 percent of all patients with breast cancer live at least 10 years after their diagnosis.



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