



# Breast Cancer Prevention

## WHAT IS THE LINK BETWEEN HORMONES AND BREAST CANCER?

Estrogen, the main female sex hormone, is produced mostly by the ovaries. It triggers a woman's sexual development, including the growth of breasts and regulation of her menstrual cycle. At menopause, usually around age 51, the ovaries stop producing estrogen, but small amounts are still made from pre-hormones (substances that are converted to hormones) produced by the adrenal glands (small glands on top of your kidneys). These pre-hormones are then changed into estrogen by fat tissue.

Estrogen travels through the bloodstream and attaches to certain cells in your body. Breast tissue has these types of cells and is one of the main targets for estrogen. Estrogen stimulates the growth of breast cells. For this reason, if a woman develops cancer cells in her breast, estrogen can promote the growth of that cancer.

## WHO IS AT RISK FOR BREAST CANCER?

Breast cancer is one of the most common cancers in women. Women are at greater risk if they are older or overweight, and if they

- Started their period before age 12
- Reached menopause after age 55
- Never had children
- Delayed pregnancy until after age 30
- Took combination hormone therapy (estrogen plus progestin) after menopause
- Have increased breast density on a mammogram (ask your doctor for this information)

## DID YOU KNOW?

**Your doctor can work with you to calculate your risk for developing breast cancer within five years and during your lifetime, using a method called the Gail Model.**

Women with a history of certain types of benign (noncancerous) breast disease are also at risk. These include lesions (structural abnormalities) such as atypical ductal hyperplasia, atypical lobular hyperplasia and lobular carcinoma in situ (LCIS). These lesions are usually found when a lump is detected and a sample of the tissue is examined under a microscope after a biopsy.

Also, having mutations (abnormal changes) of genes called BRCA1 or BRCA2 increases your risk. So does a family history of breast cancer, especially in first-degree relatives such as your mother, sister, or daughter.

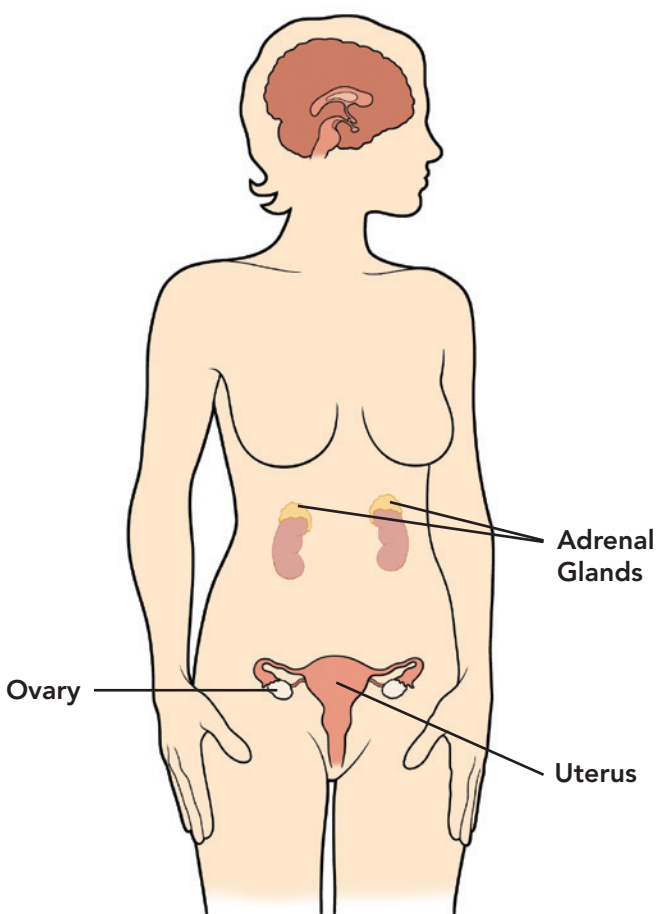
## HOW CAN YOU PREVENT BREAST CANCER?

You can lower your risk of breast cancer by following a healthy lifestyle that includes a well-balanced diet, regular exercise, and limiting alcohol to no more than one drink a day. You can also limit your exposure to estrogen by losing weight if overweight, and by avoiding sources of estrogen such as oral contraceptives ("the pill") or combination hormone replacement therapy. (The use of estrogen-only hormone therapy for less than five years does not appear to increase the risk of breast cancer, but more information is needed about the safety of estrogen therapy used for longer than five years.)

If you are at high risk of developing breast cancer, your doctor may recommend a class of drugs called selective estrogen receptor modulators (SERMs). The U.S. Food and Drug Administration (FDA) has approved two SERMs to prevent breast cancer:

- Tamoxifen is used for breast cancer prevention in pre- and postmenopausal women (aged 35 and older) who are at high risk. Tamoxifen prevents estrogen from stimulating the growth of breast cells that could become cancerous.
- Raloxifene is FDA-approved for breast cancer prevention as well as for preventing and treating osteoporosis (brittle bones) in postmenopausal women. Raloxifene works nearly as well as tamoxifen in reducing breast cancer risk in postmenopausal women.

One recent study found exemestane, a type of drug called an aromatase inhibitor, to prevent breast cancer, but it is not approved by the FDA for this purpose.



Tamoxifen and raloxifene only reduce the risk of breast cancer by 50%. The decision to take these medications always depends on the balance between the benefits and risks. Side effects can include uterine cancer (with tamoxifen only), stroke, and blood clots in the veins and lungs. Your doctor will work with you to find the best option for you.

## Questions to ask your doctor

- What is my risk for breast cancer?
- Should I take tamoxifen or raloxifene?
- How often should I do a breast self-exam?
- Do I need a mammogram? How often should I get one?
- What else can I do to prevent breast cancer?

## RESOURCES

- Find-an-Endocrinologist: [www.hormone.org](http://www.hormone.org) or call 1-800-HORMONE (1-800-467-6663)
- American Cancer Society: [www.cancer.org/Cancer/BreastCancer/DetailedGuide/breast-cancer-prevention](http://www.cancer.org/Cancer/BreastCancer/DetailedGuide/breast-cancer-prevention)
- Breast Cancer Risk Assessment Tool: <http://www.cancer.gov/bcrisktool/>
- Mayo Clinic: [www.mayoclinic.com/health/breast-cancer-prevention/WO00091](http://www.mayoclinic.com/health/breast-cancer-prevention/WO00091)
- National Cancer Institute (NIH): [www.cancer.gov](http://www.cancer.gov)
- Susan G. Komen Breast Cancer Foundation: <http://www.komen.org>

### EDITORS

Richard J. Santen, MD  
Rena V. Sellin, MD

The Hormone Health Network offers free, online resources based on the most advanced clinical and scientific knowledge from The Endocrine Society ([www.endo-society.org](http://www.endo-society.org)). The Network's goal is to move patients from educated to engaged, from informed to active partners in their health care. This fact sheet is also available in Spanish at [www.hormone.org/Spanish](http://www.hormone.org/Spanish).

