



Breast Cancer & Bone Loss

WHAT IS THE LINK BETWEEN BREAST CANCER AND BONE LOSS?

Certain treatments for breast cancer can lead to bone loss because they decrease estrogen, the main female hormone. In addition to its role in female development and reproduction, estrogen increases bone density (size and strength), prevents bone loss, and lowers the risk of fractures. With less estrogen, your bones are more likely to become weak and break easily.

Treatments that can decrease estrogen include

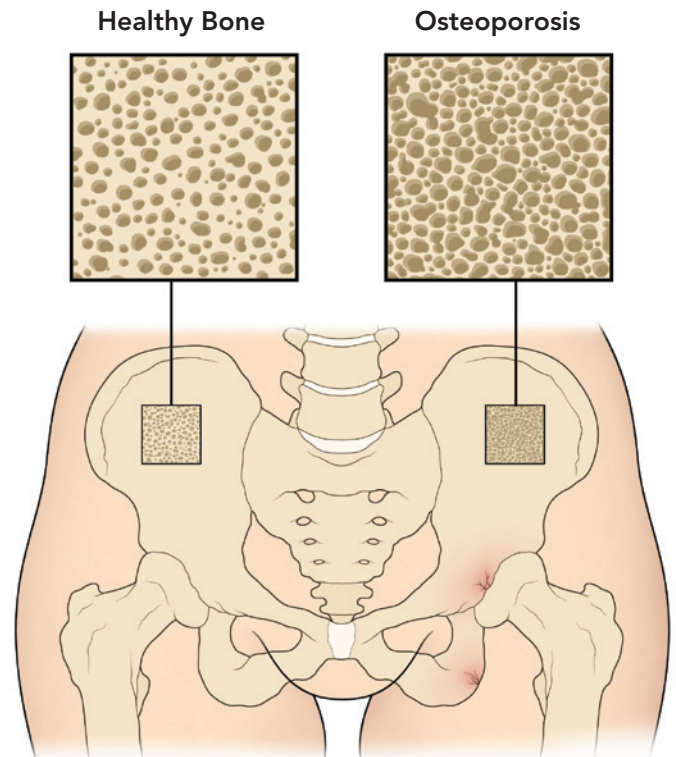
- Some types of hormonal therapy, which affect estrogen levels
- Chemotherapy, which can damage the ovaries and cause early menopause
- Surgical removal of the ovaries, where most estrogen is made

DID YOU KNOW?

A painless x-ray scan called a bone mineral density test can show whether you have bone loss.

HOW IS ESTROGEN RELATED TO BREAST CANCER?

Many types of breast cancer tumors are sensitive to estrogen, meaning that tumors can grow and spread when estrogen is present. These types of tumors are called estrogen receptor (ER)-positive tumors. An estrogen receptor is the part of the cell where estrogen attaches. A laboratory test shows whether a tumor has estrogen receptors. If a tumor is ER-positive, then treatment to block the estrogen receptors or stop the body from making estrogen can help prevent the return of the cancer or slow down tumor growth.



HOW IS BREAST CANCER TREATED?

The choice of treatment is based on the type of breast cancer and other factors. **Surgery** is used to remove cancerous tissue in the breast or in other parts of the body. Sometimes one or both ovaries are removed to eliminate the main source of estrogen. **Radiation** and **chemotherapy** drugs can destroy cancer cells or stop their growth. **Hormonal therapy** stops the growth of ER-positive breast cancer cells by stopping the production of hormones or blocking their action. Medicines used for hormonal therapy include

- AIs (aromatase inhibitors), such as anastrozole, exemestane, and letrozole
- Estrogen receptor antagonists, such as fulvestrant
- LHRH (luteinizing hormone-releasing hormone) analogs, such as goserelin and leuprolide
- SERMs (selective estrogen receptor modulators), such as tamoxifen

For many people, these anti-estrogen hormonal therapies speed up bone loss. However, for postmenopausal women, SERM therapy helps strengthen bones and lowers the risk of fracture.

WHY WORRY ABOUT BONE LOSS?

Bone loss can lead to fragile bones, a condition called osteoporosis. When someone has osteoporosis, the risk of bone fractures goes up. Broken bones can lead to pain and disability. For example, many older people who break a hip lose their ability to function independently.

An X-ray scan called the bone mineral density test checks the strength of bones. The test can show early bone loss before the more serious condition of osteoporosis develops.

WHAT CAN BREAST CANCER SURVIVORS DO TO PREVENT BONE LOSS?

The choice of treatments for bone loss is based on whether a woman is at risk for fractures. Aside from cancer treatment, other factors that increase risk include a personal or family history of bone fractures after age 50, being thin, smoking, having four or more alcoholic drinks a day, certain diseases such as rheumatoid arthritis, and a low bone mineral density.

Doctors recommend the following steps to prevent bone loss and avoid fractures.

Take medicines as needed. Osteoporosis can't be cured. But some medicines can prevent or treat osteoporosis. One class of medications, called bisphosphonates, can be taken as a pill every week or month or can be given intravenously (through a vein) in a doctor's office or hospital as seldom as once a year. This type of medicine keeps bones strong by helping them retain calcium.

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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). 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. The development of this fact sheet was supported by an educational grant from Novartis.

Breast Cancer and Bone Loss Fact Sheet

Get enough calcium and vitamin D. You should get 1,000 to 1,500 mg of calcium and 1,000 to 2,000 IU of vitamin D each day. Good sources of calcium include milk, yogurt, cheese, collard greens, and foods with added calcium. Vitamin D, which helps the body absorb calcium, is made in the skin when people spend time in the sun. It's also found in salmon, shrimp, and milk with added vitamin D. In addition to choosing foods with calcium and vitamin D, many people need dietary supplements to get enough of these nutrients.

Exercise regularly. Weight-bearing exercise, such as walking, running, dancing, and climbing stairs, helps keep bones strong. So do exercises that strengthen muscles.

Take other steps to live a healthy lifestyle. Avoid smoking and limit alcohol to no more than one drink a day.

Questions to ask your doctor

- What is my risk for osteoporosis?
- Would bisphosphonate medicines help me?
- What else can I do to prevent bone loss?
- Should I see an endocrinologist for my condition?

RESOURCES

- Find-an-Endocrinologist: www.hormone.org or call 1-800-HORMONE (1-800-467-6663)
- Hormone Health Network information about osteoporosis: www.hormone.org/Osteoporosis/index.cfm
- Mayo Clinic:
— www.mayoclinic.com/health/breast-cancer/DS00328
— www.mayoclinic.com/health/osteoporosis/DS00128
- The National Institutes of Health Osteoporosis and Related Bone Diseases National Resource Center: www.niams.nih.gov/Health_Info/Bone/Osteoporosis/overview.asp
- National Osteoporosis Foundation: www.nof.org

