

Breast cancer and osteoporosis

Consumer Factsheet



What is osteoporosis?

Osteoporosis is a condition where bones lose their density and become weaker, leading to a higher risk of breaks. A minor fall, twist of the back or even bumping into something can be enough to break a bone. The most common sites for fractures are the spine, hip and wrist but other bones can also be affected.

Breast cancer and osteoporosis

Breast cancer has a special relationship with bone health because of the hormone drugs often used to treat it. Most breast cancers need the female hormone estrogen to survive and grow. Cancer treatments work by starving the cancer of estrogen and are therefore very effective. Estrogen is important for maintaining bone strength in women, so breast cancer treatments that act against estrogen can lead to weakening of the bones. Women are at particular risk of osteoporosis as they age because estrogen levels decline naturally at the time of menopause. Treatments for breast cancer that decrease estrogen levels even further can add to the risk of osteoporosis and breaks.

Which breast cancer treatments affect the bones?

You may need a combination of treatments for your cancer including surgery, chemotherapy and hormone drugs. The following treatments can affect your bones in different ways:

- **Aromatase inhibitors** (anastrozole, letrozole, exemestane)

Aromatase inhibitors reduce the amount of estrogen produced in the ovaries (and elsewhere in the body) and are very effective against breast cancer in women who have been through menopause. Because aromatase inhibitors dramatically reduce estrogen levels, they can increase bone loss and the risk of breaks. The risk is much less if you have good bone strength before the treatment started.

- **Goserelin** (Zoladex)

Goserelin reduces estrogen production and is used to treat breast cancer in younger women who have not yet been through menopause. Its effects on the ovaries are usually reversible, so once treatment is stopped estrogen levels rise again and most women recover at least some of the bone lost. Goserelin may however lead to early menopause and permanent estrogen loss in some women, increasing the risk of osteoporosis.

- **Tamoxifen**

Tamoxifen blocks the effects of estrogen on breast cancer cells but has the opposite effect in bones. In women who have been through menopause, tamoxifen can help to preserve bone strength. In younger women who have not reached menopause, tamoxifen may cause a small amount of bone loss but this is not thought to significantly increase the risk of fracture.

- **Chemotherapy**

Chemotherapy treatments that destroy cancer cells may also damage the ovaries and affect the amount of estrogen produced. This can have an important impact in younger women as they may lose bone at an earlier age. When chemotherapy finishes the ovaries can recover and some of bone loss may be replaced. Sometimes, chemotherapy will damage the ovaries permanently causing early menopause and increasing the risk of osteoporosis.

- **Surgery**

Surgery to remove the ovaries may be carried out in some younger women to help prevent the breast cancer coming back. Removing the ovaries reduces estrogen levels to those more usually seen at menopause, which can increase the risk of osteoporosis.



Discuss bone health with your doctor

If you have already gone through menopause, your breast cancer treatment may cause your estrogen levels to fall even further, increasing your risk of osteoporosis and broken bones. If you have not yet reached menopause, your cancer treatment may bring about changes to your estrogen levels that mimic natural menopause, with similar risks of osteoporosis and fractures. This is why it's important to discuss your bone health with your doctor so action can be taken early to keep your bones as strong as possible and reduce the risk of breaks.

You may need a bone density scan (also called a DXA scan) to check your bone strength. This is different to the scan sometimes done to check the cancer hasn't spread to your bones. When considering a bone scan your doctor will assess your osteoporosis risk factors such as: family history, medical conditions and medications. You can find a [list of risk factors here](#).



Why you may need osteoporosis treatment

Having breast cancer and coping with cancer treatment may make it difficult to think about other aspects of your health. With so many women receiving breast cancer treatment, with positive results, it is very important to also consider your bone health at the same time.

If you are being treated with an aromatase inhibitor, you may need osteoporosis medications to protect your bones during cancer treatment. If you are taking other types of cancer medications or have had surgery to remove your ovaries, you may be given osteoporosis treatment if your doctor thinks your fracture risk is increased - even if your bone density scan doesn't show osteoporosis. Osteoporosis medicines are safe and effective for most people and have been shown to reduce the risk of breaking a bone by up to 60%.



What can I do to protect my bones?

There are some other simple but very important things you can do to help protect your bone health during and after your cancer treatment.

Ensure you have adequate:

- Calcium
- Vitamin D
- Exercise

Healthy lifestyle habits are also important for keeping bones strong. Don't smoke, keep your alcohol intake low and stay active in your daily life.