

# Bone Health



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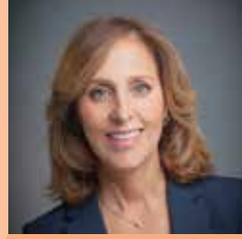
Tell us what you think of the *Guide to Understanding Bone Health*.

**Thank you**

for helping Living Beyond Breast Cancer improve our programs and services.

## Everyone's journey is different.

If you have stage IV (metastatic) breast cancer, visit [LBBC.ORG](http://LBBC.ORG) for resources created just for you. If you have bone or joint pain because of hormonal therapy, we encourage you to read our *Guide to Understanding Hormonal Therapy*.



## Dear Friend:

Bone health is a concern to almost all women affected by breast cancer because of the impact many treatments can have on your bones. Whether you have just been diagnosed, are in treatment or are years beyond initial therapy, you can take steps to prevent, lessen or repair bone damage.

This guide will help you learn the basics of good bone health, how your bones change throughout your life and how breast cancer treatments affect your bones. You will learn about the differences between osteopenia and osteoporosis and how lifestyle changes and medicines can help you prevent or overcome these problems. We hope this guide will help you feel confident about taking steps to care for yourself.

Living Beyond Breast Cancer is here to help you when you need us. Call our **Breast Cancer Helpline** at **(888) 753-LBBC (5222)** for guidance, information and peer support.

Warmly,

A handwritten signature in blue ink that reads 'Jean'.

Jean A. Sachs, MSS, MLSP  
Chief Executive Officer



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**Toll-Free Breast Cancer Helpline**  
(888) 753-LBBC (5222)  
[lbbc.org/helpline](http://lbbc.org/helpline)

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All people pictured in this guide are LBBC volunteers whose lives have been affected by breast cancer. We thank them for sharing their experiences.

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# Bone Health Basics

Almost all women worry about bone health at some point in their lives. Because you have a history of breast cancer, you may have special concerns about the possible long-term effects of treatment on your bones. The first step to protecting yourself is to learn how bones work and what role they play in your body.

Bone is a living tissue. To keep your bones strong and healthy, special cells break down and rebuild bones throughout your life. During the first year of your life, your body replaced almost 100 percent of your skeleton.

Bones get increasingly dense, hard and compact when more bone is rebuilt than is broken down. This helps strengthen bones and prevent **fractures** (breaks). When bones rebuild, they take cues from the activity of your muscles, strengthening themselves in the areas you use them most.

As you age, your body is not able to rebuild bone as fast as it used to. But the cells that break bones down continue to work, which can result in **bone loss**. This may weaken your bones and make them more likely to fracture. Other factors like going through menopause, exercising less often and getting breast cancer treatments put you at a higher risk for bone loss.

The thought of dealing with bone health problems on top of a cancer diagnosis, recovery or follow-up care may be overwhelming at times. But there are things you can do to strengthen and maintain your bones.

## Your Risk for Bone Problems

Your medical history, personal health and other factors affect your risk for bone problems. Some factors are within your control, and some are not. The chances you will have bone problems increase if you

- are female
- are thin, or you have a small frame with thin bones
- are white or of Asian descent
- have a family history of osteoporosis (see page 9)
- do not exercise regularly
- had a fracture in the past
- had estrogen changes at a young age from early menopause or a long absence of periods
- do not get enough calcium in your diet or from supplements
- drink too much alcohol
- smoke
- have or had an eating disorder, problem with metabolism or other issues that affect the way your body absorbs vitamins and minerals
- used steroids or certain breast cancer treatments for a long time (ask your doctor if your medicines raise your risk for bone loss)

Three things that you cannot change — your age, your ethnic background and your breast cancer treatment — could play a special role in your risk for bone problems.

## Aging

Aging has a major impact on bones, even for women who never have breast cancer. Most bone strength and health is built before age 30, with the help of exercise and good nutrition.

In all women, **estrogen** helps bones to rebuild. After menopause, estrogen levels in the body go down, making it harder for bones to build up. It is common for women who are growing older to struggle with bone health because of lower hormone levels.

After age 30 and as you age, you can continue to protect your bones by keeping a healthy lifestyle.

*I assumed that I would not be at risk for bone health problems because I was young and active.”*

—LINDA

## Ethnic Background

Genetics, bone mineral density (see page 9) and cultural factors like diet and exercise may contribute to your risk for developing bone problems.

Many researchers believe that differences in osteoporosis risk among ethnic groups depend on differences in body size and diet. For example, women of Asian descent, who have a much higher risk of osteoporosis than women of most other ethnicities, often have small frames and thin bones. Women of Asian descent are also more likely to be lactose intolerant (when the body does not easily digest the sugars in dairy products) and may eat fewer calcium-rich foods.

White women face a higher risk of osteoporosis than Latina women, who have a moderate risk. African-American women have a relatively low risk.

More research will help us understand why certain women have higher rates of bone health problems and learn more about osteoporosis rates in all ethnic groups. No matter what your ethnic background, you should discuss bone health with your doctor.

## Breast Cancer Treatment

Many cancer treatments can change the estrogen levels in the body, which makes bone health a special concern for you. How much bone loss impacts you depends on your bone strength before diagnosis, your treatment, your age and your menopausal status (see page 13) before and after treatment.

Breast cancer treatment raises your risk for bone health problems compared to other women your age, but having breast cancer does not necessarily cause you to develop osteopenia or osteoporosis. You need to take care of your bones as you age, no matter what your health history.

Learn more about osteoporosis, osteopenia and bone mineral density on the next page.

“My oncologist warned me that I might have bone health problems as a side effect of treatment. It felt like one more problem I’d have to deal with after everything I had already experienced.”

—KATHI

## How These Factors Affect Your Bones

Throughout your life, a complex and delicate balance between the breakdown and rebuilding of bone helps keep your bones healthy. One type of cell breaks down and absorbs old bone, while at the same time another type of cell reforms bone.

**Bone mineral density** is a measurement that gives you and your doctor information about the strength and compactness of your bones. Bones are made up of three types of cells

- **Osteoclasts**, which break bones down
- **Osteoblasts**, which repair bones
- **Osteocytes**, or mature resting cells

Breast cancer treatment, like aging, can change the levels of estrogen and other hormones, proteins and vitamins in your body. This causes the destructive cells (osteoclasts) to become more active than the cells that repair bone (osteoblasts). This process causes bone mineral density to lessen. As your bone mineral density goes down, your risk for bone breaks goes up.

**Osteopenia**, the first stage of bone loss, is when your bone density is between “normal bone” and osteoporosis. **Osteoporosis** means you have a very low level of bone density and the bones have become thin, brittle and more likely to break.

A diagnosis of osteopenia means your bone mineral density is lower than the normal peak bone mineral density. Osteopenia has no symptoms and does not cause pain. It rarely causes the bone to break. Even so, osteopenia should be treated because it can lead to osteoporosis, which is more serious. Usually, your doctor will find osteopenia after you have a bone mineral density test. (See page 17 to learn more about tests.)

Like osteopenia, osteoporosis has no symptoms. The diagnosis is based on results from a bone mineral density test. Unless you have the test, or you happen to have an x-ray that shows thinning of the bones (a more advanced sign of osteoporosis), you won't know you have osteoporosis unless you break a bone.

**I had no indication that my bone density was decreasing until I had my first scan and discovered that I had borderline osteopenia.”**

—KATHI

Most women find out they have osteoporosis after falling or breaking a bone. The hips and spine, which support much of your weight, are the most common bones to break. Falls can cause fractures to the hip and wrist. If you have osteoporosis, the normal pressure you put on your bones when sitting, standing, coughing or going about your daily routine can also cause fractures.

When the bones in your back weaken, compress and collapse, you could get a **spinal compression fracture**. If you fracture your spine multiple times, it could eventually affect your height and posture. These fractures may cause severe pain and take a long time to heal.

Many different types of bone breaks cause pain, which can become chronic. Depending on the level of your pain, fractures could impact your ability to do the things you normally do. Some fractures do not cause pain, and you may be unaware that you have a break. Signs of these fractures could turn up later on a radiology test given for another medical reason. Although a break discovered years later may not cause health problems, knowing you had one provides important information about your bone health.

Lifestyle changes can help you recover from or lessen your risk for developing these conditions. Learn ways to keep your bones strong in sections 4 and 5.

### A NOTE ON PAIN

Many things cause bone pain, including breaks, side effects from hormonal therapies and cancer. A type of hormonal therapy called aromatase inhibitors can cause bone loss, but they can also cause joint pain that is not related to bone density problems. To find out the cause of your pain, describe it to your doctor and make sure you get a thorough exam.



# How Treatments Affect Your Bones

Breast cancer treatments that affect the way your body creates or uses estrogen are life-saving, but they may raise the risk for bone loss. These treatments include chemotherapy, hormonal therapy, and surgery or medicines that suppress the ovaries.

When you know how your treatments may affect your bones, you can take steps to prevent problems. Talk to your oncologist early on to find out what you can do to stop or lessen bone loss during and after treatment.

## Chemotherapy

Chemotherapy damages cells in the ovaries, called **follicles**, that maintain the menstrual cycle and make estrogen. Cell damage can lower the amount of estrogen your body makes and have a significant effect on your bones, especially if you are pre- or perimenopausal and you stop having periods during and after treatment. **Menopause** occurs when you stop having periods permanently. **Premenopausal** women have periods, and **perimenopausal** women are nearing menopause and may have irregular periods. Whether you've started menopause or not is called your **menopausal status**.

“Chemo affected my bone health and may continue to have an impact the rest of my life.”

—KAREN

Chemotherapy can cause changes in menopausal status or menstrual periods with any type of breast cancer. Sometimes, especially if you are younger, your periods may return. If your period comes back in less than 6 months, lifestyle changes or medicines could help you recover with little bone loss and keep healthy bones. Your bones may even recover by themselves.

## Hormonal Therapy

In estrogen receptor-positive breast cancer, your doctor will recommend hormonal therapies to lower your risk for recurrence. Common hormonal therapies are:

- **Tamoxifen.** This daily pill is given to women of all ages. In **postmenopausal** women, women who no longer have their periods and haven't had one in at least 1 year, tamoxifen has qualities that preserve and protect bones, but research shows premenopausal women may have some bone loss with this treatment.
- **Aromatase inhibitors (AIs).** This hormonal therapy for postmenopausal women interferes with the way the body converts other hormones to estrogen. The three most common medicines are letrozole (Femara), anastrozole (Arimidex) and exemestane (Aromasin). All three medicines can cause bone loss.

I had my ovaries removed and then switched from tamoxifen to exemestane [an aromatase inhibitor], which further depleted any residual estrogen my body may have been making.”

—KATHI

### LEARN MORE

For more information on hormonal therapy and side effects, visit [LBBC.ORG](http://LBBC.ORG) to order a copy of our *Guide to Understanding Hormonal Therapies*.

## Oophorectomy or Ovarian Suppression

If you are premenopausal and you have a cancer that grows in the presence of estrogen, you could lower your risk for recurrence by

- removing your ovaries with surgery (oophorectomy) or
- using medicines that prevent your ovaries from making estrogen (ovarian suppression)

Stopping or slowing how much estrogen your ovaries make mimics the changes you would have during natural menopause. The lower level of estrogen puts you at risk for bone loss.

Talk with your doctors early on about methods to maintain bone health if you have oophorectomy or ovarian suppression. Your medical team can help you integrate good health practices into your everyday routine.

I learned that by taking leuprolide [Lupron] I was at risk for bone problems because I had significantly reduced the amount of circulating estrogens in my body.”

—KATHLEEN



## Testing and Scores

The most common test used to measure bone mineral density is called a **DEXA (Dual Energy X-ray Absorptiometry) scan**. This is a simple test usually given every 1 to 2 years for people at risk for bone loss. DEXA scans expose you to a low level of radiation (about the amount you would get from riding an airplane) and cost less than many other tests.

“The DEXA scan requires no preparation, no contrast to drink and no injections.”

—KATHI

During a DEXA scan, you will lie on a table while a technician moves a scanner up and down your body to look at the bones in your wrist, spine and hip. The scanner will not touch you, but you must lie very still. If you feel anxious, close your eyes and focus on your breathing. In most facilities, you can stay dressed as long as your clothes do not have metal zippers or buttons. You should remove all metal jewelry.

Make sure to talk to your doctor before your appointment. He or she is likely to ask you to stop taking calcium supplements 48 hours before your test. You also should not take any medicines for osteopenia or osteoporosis the day of the test.

“I wear comfortable clothing without metal zippers or snaps and avoid calcium supplements 24 hours before testing.”

—KATHLEEN



## Scoring

The most important information you will get from your DEXA scan is the **T-score**, which describes how your bone density compares to that of a healthy 30-year-old. At age 30, your bones are stronger and less likely to fracture than they are at any other point in your lifetime. Your T-score will be reported as

- +1 to -1: normal
- -1 to -2.5: osteopenia
- Below -2.5: osteoporosis

Your doctor uses the T-score, and other factors, to assess your risk for bone fracture.

Along with the T-score, your DEXA scan also provides a bone mineral density score and a **Z-score**. The bone mineral density score indicates the compactness, or the number of grams per centimeter, of bone. The Z-score compares your bone mineral density with that of other women your age. The bone mineral density score and Z-score provide important information about your bones, but the T-score is the most critical factor for your doctor to diagnose osteoporosis.



## Bone Scans Versus DEXA Scans

**Bone scans** for metastatic breast cancer are different than DEXA scans, but the names of these tests are often confused. In bone scans, a radiologist or technician injects a tracer, a mildly radioactive substance, to look for areas of bone with too much activity.

Your doctor may order a bone scan to check for metastases, areas with breast cancer cells in the bone, if you have bone pain. Depending on your doctor, you might get a bone scan with an early-stage diagnosis to rule out metastasis. This test does not look for bone mineral density or osteoporosis.



# Using Lifestyle Changes to Improve Bone Health

Even if you have normal bone mineral density, it is important to find ways to support bone health after treatment for breast cancer. Some of the things you can do to build bone may even help you avoid or lessen other long-term side effects of treatment, such as fatigue and weight gain.

“I hope knowing that I need to exercise and do some type of weight training will motivate me to keep working on staying healthy.”

—KAREN

## Exercise

When you are diagnosed with or recovering from breast cancer, it may be hard to motivate yourself to exercise. It is common to lack energy because of treatments or healing from surgery. Sometimes a busy lifestyle or strong emotions like fear or anxiety may leave you feeling drained. If you have osteopenia or osteoporosis, you might worry that certain types of exercise will put you at risk for fracture.

Try to make exercise a high priority in your life, not just because of its benefits for bone health but also because it supports your overall physical and emotional health. Believe it or not, your energy level probably

will go up if you exercise regularly! The movement and muscle strength you gain from exercise is vital to maintaining your bones and repairing weakened ones. When you use your muscles, your body signals the bones that are attached to those muscles to get stronger.

Exercise can ease chronic pain, improve posture and help you maintain strength to get through your daily activities. All exercise helps lessen the chances of falling, the major cause of bone breaks, because it builds your strength and balance. You will need to do some weight-bearing exercise to build bone strength — read more about these activities on page 24.

It is never too late to start exercising. The government recommends at least 150 minutes of physical activity each week, which is about 30 minutes 5 days a week or 20–25 minutes each day. Exercising with a group may help you get motivated. Visit [LBBC.ORG](http://LBBC.ORG) to learn more about using fitness and exercise for coping.

“Even when I lack motivation, I know how important it is to exercise, stretch and keep muscles and joints moving.”

—LINDA



## EXERCISING SAFELY

Your physical ability, treatment plan, bone problems, other health conditions and personal interests determine the best kind of exercise for you. If you have bone health problems or you are at risk for developing them, the key to exercising safely is to work with your doctor or a physical therapist.

Physical therapists perform and teach exercises to improve mobility and to help restore your ability to function. These specialists help you to figure out a safe exercise routine that fits your needs, lifestyle and ability. Physical therapists review your medical history, examine you and ask questions about your activities and fitness goals. If you can, start working with a physical therapist before or during treatment to prevent problems and ease recovery. But even if you start after initial treatment, physical therapists can create exercise programs that will help prevent bone loss, improve balance, improve flexibility and straighten posture.

If you are concerned about money or time, your physical therapist may be able to provide tips so you can exercise at home. They can advise you on how to avoid injury in your daily activities. If you need more extensive medical care, they will refer you to other specialists.

## WEIGHT-BEARING EXERCISE

**Weight-bearing exercise** is very important for maintaining and improving bone strength. These types of exercises involve standing, walking or other movement on your feet to allow the bones in your legs, hips and lower spine to carry your body weight. Lifting weights or using your arms to support your body strengthens the bones in your arms, shoulders and upper spine.

Everyone can do weight-bearing exercise, even those who have severe osteoporosis and are at extreme risk of fracture, or who are healing from treatment or other injury. Start with swimming. It strengthens your muscles and prepares you for weight-bearing exercise. Work closely with your doctor or a physical therapist on next steps.

## STRENGTH TRAINING

Strength training involves the use of weights, resistance bands or water to help you do increasingly challenging exercises over time and improve strength. Focus on the muscles in your arms, shoulders and spine. Having weak muscles in these areas can put stress on your bones, which could cause a decrease in bone density. If you have not taken part in a strength-training program before, it is important to have a trained professional guide you.

## FLEXIBILITY

The more flexible your muscles and joints are, the better your balance will be, which helps prevent falls and other injuries. To gain flexibility, perform slow and gentle stretches before and after exercise when your muscles are still warm. Consult your healthcare provider to find out what stretches are safe.

I try to get weight-bearing exercise several times a week by walking, doing yoga and using the Wii Fit. I don't smoke, and I drink alcohol only very occasionally.”

—KATHI

### 10 TYPES OF WEIGHT-BEARING EXERCISE TO REDUCE BONE LOSS

- 1 Brisk walking or hiking
- 2 Dancing
- 3 Low-impact land aerobics
- 4 Lifting light weights or using resistance bands
- 5 Yoga or tai chi
- 6 Gardening or strenuous yard work
- 7 Climbing stairs
- 8 Walking on an elliptical machine
- 9 Team sports like soccer, lacrosse, basketball, dragon boating and others
- 10 Racquet sports like tennis

## Lymphedema

**Lymphedema** is a side effect of cancer treatment that occurs when lymph fluid builds up in the body, resulting in swelling of the arm, chest or torso on the side you had breast cancer. You may be at risk if you had lymph nodes surgically removed or treated with radiation. If you have lymphedema or are at risk for developing it, make sure to get guidance from your doctor and physical therapist before starting to exercise.

Having lymphedema shouldn't stop you from exercising, but you should start slowly and increase your effort gradually. If you use compression garments, be sure to wear them during exercise, and watch closely for any pain or swelling. For more information, visit [LBBC.ORG](http://LBBC.ORG) to order your free copy of our *Guide to Understanding Lymphedema*.

## Nutrition

Eating a nutritious diet is essential to keeping a healthy body weight and improving your quality of life. Calcium is vital to maintaining and rebuilding bones. To get dietary calcium, drink low-fat milk and eat dairy products, fish, dark green leafy vegetables and foods like cereal and orange juice that are now available with added calcium.

Vitamin D, which is found in oily fish, cheese and fortified foods like milk and cereal, helps your body absorb calcium. You also can absorb vitamin D from sunlight. Your doctor can order a blood test to check your levels of vitamin D. The results will help you and your doctor figure out how much sunlight is safe for you and whether you need to take a **supplement**.

I have included calcium-rich foods in my diet more often, in addition to taking supplements.”

—KATHLEEN

## SUPPLEMENTS

Your doctor may add calcium and vitamin D supplements to your recommended daily medicines. These supplements are the same ones many women take as they age to help lower risk for fracture and osteoporosis.

Most doctors recommend about 1,000–1,500 milligrams (mg) of calcium and 400–1,000 international units (IU) of vitamin D each day, but you should always talk with your doctor before taking supplements. The recommended doses vary greatly based on your age, menopausal status, how much calcium comes from your diet and how much vitamin D you get from diet and daily sunlight exposure.



## CALCIUM

Calcium supplements, known by names like Caltrate, Citracal, Os-Cal and many others, are available as **calcium carbonate** or **calcium citrate**. Usually, they're taken in pill form, but they are also available as chewable tablets or liquids. These medicines are taken several times a day. Sometimes calcium supplements and vitamin D are combined into a single pill that you can take once daily.

You need plenty of stomach acid to absorb calcium carbonate, so if you take an acid reducer (an antacid) or proton pump inhibitor (like Nexium, Prilosec or Prevacid), talk with your doctor about taking calcium citrate instead of calcium carbonate. For better absorption, your doctor may recommend that you divide your calcium supplements into smaller doses throughout the day.

### Things to Avoid

Some common health habits will help you keep your bones strong. Avoid drinking too much alcohol, using illegal drugs, smoking and using steroids for long periods. These substances cause bone loss by disturbing the balance between bone breakdown and rebuilding of new bone.



# Medical Treatments for Bone Loss

If lifestyle changes aren't enough to treat your bone loss, you may be able to take medicines that build and strengthen bone. These include

- **Bisphosphonates**, the most common medicine for bone loss
- **Raloxifene (Evista)**, a hormonal therapy
- **Calcitonin salmon**, a nasal spray

## Bisphosphonates

If you learn you have bone density problems, your doctor is likely to recommend that you take a **bisphosphonate**, a medicine that maintains and rebuilds bones. They hold the breakdown of bones in check, and can be taken by mouth or by vein (IV, or intravenously).

After bisphosphonates enter your body, they attach to your bone tissue, where osteoclasts (cells that break down bone) absorb them. Bisphosphonates then kill the osteoclasts to slow or stop bone loss.

Three common bisphosphonates available as pills and taken daily, weekly or monthly, are

- **Alendronate sodium (Fosamax)**, taken weekly
- **Risedronate sodium (Actonel)**, taken weekly or monthly
- **Ibandronate sodium (Boniva)**, taken monthly

If you have trouble remembering to take a daily pill, consider switching to one taken weekly or monthly.

To prevent indigestion and stomach upset and to help your body absorb the medicine, take bisphosphonate pills on an empty stomach and drink a full glass of water. Stay upright and do not eat anything for 30 minutes after taking them. If you normally shower in the morning, take your pill right before your shower. If it takes you 30 minutes to shower and get dressed, you will be ready for breakfast when your routine is complete. Pick a day of the week or month and mark it on your calendar.

“I always take my alendronate on Sunday right when I get up, and then I shower and get ready for the day. By then I can have that all-important first cup of coffee.”

—KATHI

If bisphosphonate pills give you bad side effects or fail to improve your bone mineral density, your doctor may recommend bisphosphonates given by vein, called **zoledronic acid**. Two forms of zoledronic acid given by vein are:

- **Reclast**, given once yearly to postmenopausal women with any stage of breast cancer.
- **Zometa**, usually given monthly to women with stage IV breast cancer in the bones, or once every 6 months to women with breast cancer at any stage that is not in the bones.

Before each zoledronic acid treatment, your doctor will check for kidney problems, an occasional side effect of the medicine. Other side effects may include muscle and joint aches and nausea.

Look out for a very rare side effect of bisphosphonates called **osteonecrosis of the jaw**, an area of exposed bone in the jaw that does not heal. This condition

can occur after dental surgery and affects fewer than one in 1,000 women who take monthly zoledronic acid. It is more common in women who take zoledronic acid for bone metastases for long periods of time than in women who take it to treat bone loss.

Protect yourself by being diligent about the health of your teeth and gums. If you can, see your dentist before you start taking an IV bisphosphonate. Take care of all regular and elective dental procedures.

Osteonecrosis of the jaw takes a while to develop. If you start to feel jaw pain, tell your doctor right away, before it becomes a serious problem. Also, always tell your dentist that you’re taking a bisphosphonate before having dental work, especially big procedures like having a tooth pulled, because they increase the risk for osteonecrosis.

“The oral bisphosphonates were not great for my GI system, so I now take the intravenous treatment. I get a couple of days of flu-like symptoms for which I use rest, nutrition and fluids.”

—LINDA



## Raloxifene

Raloxifene (Evista) taken once a day as a pill, may prevent and treat osteoporosis if you are postmenopausal. It works by mimicking the estrogen you need to improve bone density.

Because raloxifene blocks estrogen from reaching breast cells, it may lower your risk of developing invasive breast cancer if you are at high risk because of a family history of the disease. Studies have shown raloxifene makes fractures of the vertebrae less likely in postmenopausal women.

Hot flashes are the most common side effect of raloxifene. In very rare cases, you could develop a blood clot.

## Calcitonin

Calcitonin nasal spray is derived from salmon and acts like a hormone released by the human thyroid gland. It works by helping osteoblasts make bone and prevent bone removal. This medicine lowers the risk of spinal fractures. It is approved to treat osteoporosis in postmenopausal women.

If bisphosphonate pills don't work for you, calcitonin may be an option instead of IV bisphosphonates. Possible side effects include diarrhea, nausea, skin flushing and, rarely, allergic reactions.

## Denosumab

Denosumab is a type of medicine called a **RANK ligand inhibitor**. It works by slowing the breakdown of bones. The most common brand, Prolia, is given as an injection every 6 months for women who have already gone through menopause and are at risk for



fractures, either because of osteoporosis or breast cancer treatment.

Another brand, Xgeva, is given once a month to people who have breast cancer that spread to bone.

Denosumab may cause side effects like blistering, muscle and joint pain, nausea and diarrhea. It also can cause osteonecrosis of the jaw, so let your doctor know as early as you can if you feel pain in your jaw while on denosumab.

## Teriparatide

Teriparatide (Forteo) is a medicine for very serious cases of osteoporosis. It is used in people with and without breast cancer. Unlike other medicines for bone health, teriparatide causes the body to build new bone, rather than preventing bone breakdown. Despite this, doctors only recommend teriparatide if you have already had an osteoporosis-related fracture or are considered at high risk of fractures, because some early research suggests the medicine could cause bone cancer. You may be able to get teriparatide if you cannot take other medicines.

Teriparatide is given as an injection in the thigh or lower stomach once a day. It may cause dizziness, leg cramps, weakness and bruising at the site of the injection.

## Moving Forward

Dealing with bone health problems on top of a breast cancer diagnosis can be overwhelming. You may think of osteoporosis as something that happens to women who are older than you, or it might seem like just one more health concern you have to worry about because of breast cancer. Maybe your friends cannot relate to what you are going through. No matter the reason, it may feel unfair to have to worry about your bones on top of cancer treatments and recovery.

You may be better prepared to cope with these emotions if you make lifestyle changes and take your medicines and supplements as prescribed. You could make connections with friends who do not have breast cancer but who have problems with bone health. You also may find comfort in support groups, online communities or friends affected by cancer. But if your emotions begin to interfere with activities that you enjoy, consider talking with a mental health provider.

### LEARN MORE

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Learn more in our *Guide to Understanding Your Emotions*, available at [LBBC.ORG](http://LBBC.ORG).

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“I am willing to do whatever it takes to protect my health. Exercise, diet, supplements and treatments are all worth the benefits to my bone health in the future.”

—KATHLEEN

Taking charge of your bone health will give you a sense of control and help you feel empowered. Start by talking with your doctor or nurse as soon as possible about how you can help maintain bone health and prevent problems. If you are already at risk for bone loss or you have osteopenia or osteoporosis, talk with your healthcare team about lessening and treating bone loss. Keep up to date with breast cancer research and bone health news as well, and contact LBBC for information and emotional support. Knowing your options will help you gain the confidence you need to care for your body.

“If I can handle a cancer diagnosis and treatment, I can certainly handle what I need to do to take good care of my bones to the best extent possible.”

—KATHI



# Resources

## Words to Know

**Bisphosphonate.** A medicine that slows the breakdown of bones by certain cells. Bisphosphonates are used to treat osteoporosis and bone pain caused by certain cancers.

**Bone loss.** A process in which the body breaks down bone tissue but does not rebuild it. This results in lower bone mineral density and weaker bones.

**Bone mineral density.** A measure of the compactness, or number of grams per centimeter, of your bones. It is measured with a DEXA scan.

**Bone scan.** A scan that uses a radioactive substance to find metastases in bones. A bone scan is not the same as a DEXA scan, which is used to diagnose osteoporosis.

**Calcium carbonate.** A form of the mineral calcium used to prevent or treat osteoporosis. It is also being studied in the prevention of bone problems in people with cancer.

**Calcium citrate.** A form of the mineral calcium given as a supplement to prevent or treat osteoporosis.

**DEXA scan.** A scan that reports bone mineral density, a measure of the amount of material in bones responsible for their strength. DEXA scans are used to diagnose osteoporosis.

**Estrogen.** A female hormone that is important in the growth and maintenance of bones.

**Follicles.** Cells in the ovaries that maintain the menstrual cycle and make estrogen. These may be damaged by some breast cancer treatments causing a lack of estrogen that can weaken your bones.

**Fracture.** A break or crack in the bone.

**Lymphedema.** A long-term side effect of some breast cancer treatments in which lymph fluid builds up and causes the arm, chest or torso to swell on the side you had breast cancer.

**Menopausal status.** Describes whether a woman is still having regular periods, if her periods have become irregular, or she has stopped having periods permanently (menopause). Menopausal status is important in choosing some breast cancer and bone health treatments.

**Menopause.** The time in life when a woman stops having periods and her body stops producing some hormones. There is a higher risk of osteoporosis in women during menopause.

**Osteoblasts.** Cells responsible for rebuilding bones that have been broken down by osteoclasts. These become less active as people age or as a result of breast cancer treatment resulting in bone loss.

**Osteoclasts.** Cells responsible for breaking down old bone tissue.

**Osteocytes.** Mature, resting cells in bones.

**Osteonecrosis of the jaw.** A rare side effect of bisphosphonates that results in a painful exposed area of bone in the jaw that does not heal.

**Osteopenia.** A condition in which bones are weaker than usual. If not addressed, the bones can get weaker resulting in osteoporosis.

**Osteoporosis.** A condition in which bones have become thin and brittle, making them more likely to break. Osteoporosis is common in women after menopause, whether it's natural or caused by breast cancer treatments.

**Perimenopausal.** Describes a woman who has started experiencing some symptoms of menopause, such as hot flashes and night sweats, but may still have a period each month. During perimenopause a woman's period can also become irregular.

**Premenopausal.** Describes a woman who has not started menopause or experiencing menopausal symptoms. Premenopausal women have regular monthly periods.

**RANK ligand inhibitor.** A type of medicine that slows the breakdown of bones in women who are at a high risk of fractures due to osteoporosis.

**Spinal compression fracture.** A break in one of the bones of your back, often caused by osteoporosis. The bones of the back are normally compressed, but when they are weakened by menopause or as a side effect of some medicines they may collapse, resulting in a spinal compression fracture.

**Supplement.** A substance or product added to a person's diet to make sure they get the right amount of a certain nutrient, or several nutrients.

**T-score.** A measure that compares your bone density to that of a healthy 30-year-old, reported from a DEXA scan. The T-score is the main factor in diagnosing osteoporosis.

**Weight-bearing exercise.** Exercises, such as walking, dancing and yoga, in which you support your weight with your legs, hips and lower spine or with your arms.

**Z-score.** A measure of the strength of your bones compared to other women your age. Measured with a DEXA scan.

**Zoledronic acid.** A type of bisphosphonate given by vein to improve bone density.



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*Supported by a grant from:*

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This guide was supported by the Grant or Cooperative Agreement Number 1 U58 DP005403, funded by the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention or the Department of Health and Human Services.