

Advanced breast cancer
and bone health



Advanced
breast cancer
and bone health:

What you need to know



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*Each patient must take
charge of their care.*

– Medical Oncologist

”

Advanced breast cancer
and bone health:

What you
need to know

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This brochure was developed in collaboration with medical oncologists, nurses and breast cancer patients.



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Early on in the diagnosis, it feels so big and some of the challenges are so big you feel like you're never going to get over them, so it can be harder to have hope...

But it's better, I think, for people to have that glimmer somewhere in the back of their head that things could be completely different in a year.

—Breast Cancer Patient

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Your
diagnosis

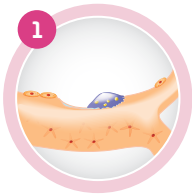
Being diagnosed with advanced breast cancer can be overwhelming. There is so much to think about. It's understandable if your bone health isn't the first thing on your mind. But when you're living with advanced breast cancer, it is something you need to start thinking about.

To help you understand how advanced breast cancer can affect your bones, let's first take a look at how natural processes in our bodies keep our bones healthy.

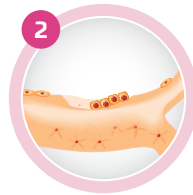
A quick look at healthy bones

Although people generally think of bone as a static material, our bones are actually **living tissue**. They are made up of different types of living cells and have their own blood vessels.

Our bones are constantly being broken down and remade (or "remodeled") to keep them strong and healthy. In bone remodeling, there are two main types of bone cells that work together to create new bone:



"Osteoclasts" are cells that **break down old bone**.

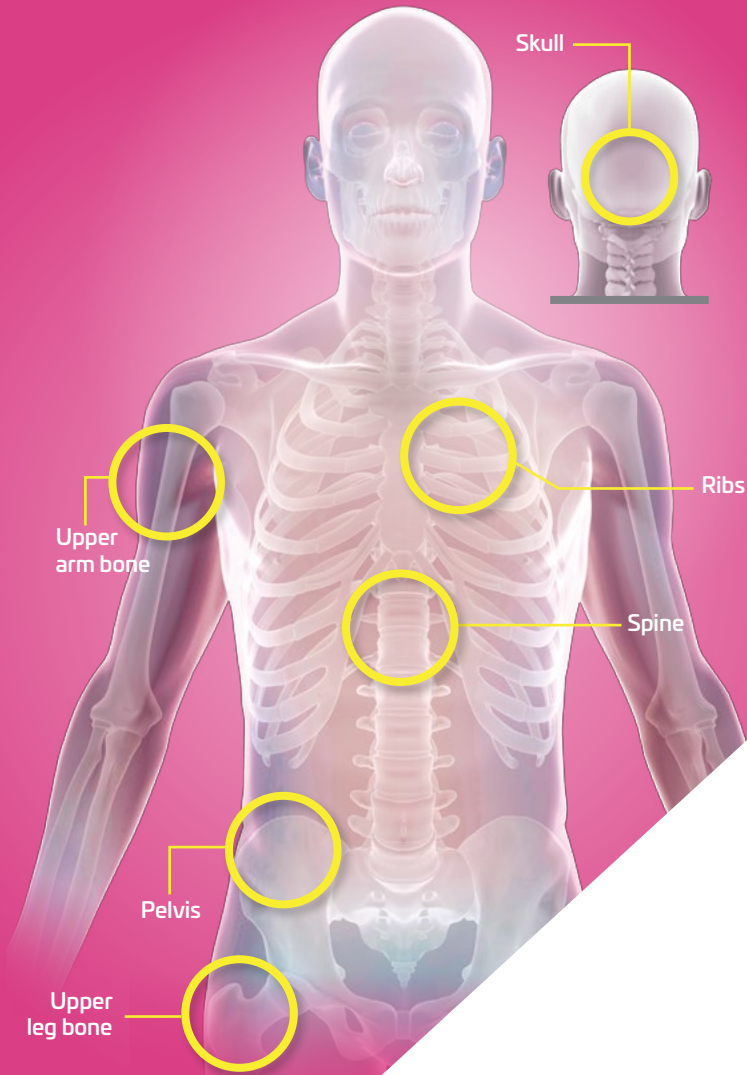


"Osteoblasts" are cells that **lay down new bone**.

Healthy bones depend on a balance between the breaking down of old bone (by the osteoclasts) and the laying down of new bone (by the osteoblasts). Healthy bones stay strong by constantly making new bone as the old bone is dissolved.

In people with advanced breast cancer, this balance may be compromised due to bone metastasis, the spread of the breast cancer to your bones.

In the next section, we'll try to better understand the effects of bone metastasis on bone health...



Understanding
**bone
metastasis**
in advanced breast cancer

Bone metastasis

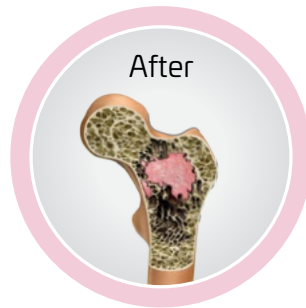
As **cancer cells** divide, they can break away from the primary tumour (the spot where the cancer started, in your breast) and be **carried to other parts of the body**, such as the bones, where they form a new tumour. This **new tumour** is called a “metastasis” (or “metastases” when there is more than one new tumour). Because you have advanced breast cancer, you are at risk of **bone metastases**.

The most common sites of bone metastases in breast cancer are:

- > spine;
- > ribs;
- > skull;
- > pelvis; or
- > upper bone of the arms and legs.

If you develop a bone metastasis, it does *not* mean you have two types of cancer. You still only have **one type of cancer**, but it has spread to a second location in your body.

Bone metastases are **different from bone cancer**. With bone cancer, the cancer starts in the bones. With bone metastases, the cancer starts somewhere else (in this case, the breast) and *spreads* to the bones. Bone metastases are much more common than primary bone cancers, especially in adults.



As you've learned, bones are constantly being broken down and reformed (or "remodeled") to keep them strong. When cancer spreads (or "metastasizes") to the bones, the **normal balance of the bone remodeling process** (the breakdown of old bone and the laying down of new bone) is **affected** in two ways:

- 1** Some cancer cells produce substances that **turn on the osteoclasts**—the cells responsible for breaking down bone. When this happens, old bone is broken down but **no new bone is formed** to replace it. This leaves holes in the bone (called "osteolytic" or "lytic" lesions). These holes make the bone **weak**. As a result, bone with these holes tends to **break with little or no trauma**.
- 2** Some cancer cells release substances that **turn on the osteoblasts**—the cells responsible for laying down new bone. When this happens, **new bone is laid down over old bone that has not been broken down**. In areas where this happens, the remodeled bone becomes **harder than normal bone**. (This is called "sclerosis" and these areas are called "osteoblastic" or "blastic" lesions.) Even though these areas are harder than normal bone, they **break more easily because their structure is abnormal**.



Did you know...?

There are medicines available to help manage the effects from bone metastases and steps you can take to help keep your bones as strong as possible. If you've been diagnosed with bone metastases, talk to your doctor about what you can do for your bone health today.





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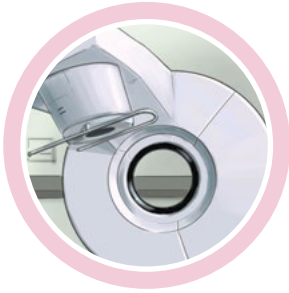
*I might have not
cared about bone
health at the
beginning, because
there is so much
information coming
at you so fast, and
it's hard to take it
in all at once.*

—Breast Cancer Patient

”

The risk of skeletal-related events

When bones are weakened, the risk of damage becomes greater, even with little trauma or stress. This can lead to problems with bone health known as “skeletal-related events” or “SREs”. SREs include radiation to the bone, fractures (breaks), the need for surgery, and spinal cord compression.



Radiation to the bone: Radiation therapy is used to relieve symptoms such as pain. It can help reduce the risk of fracture and maintain bone health. It can also control the growth of some tumours.



Pathological fracture: A tumour can cause bone to be weakened to the point that it breaks relatively easily. In fact, if the bone is weak enough, fractures can happen even while doing something as simple as getting out of a chair or rolling over in bed. These fractures (called “pathologic fractures” because they are caused by a weakness in the bone due to disease) can lead to pain, loss of blood, and loss of mobility. Most often, they happen in the long bones of the arms and legs, and the bones of the spine.

Symptoms: A fracture is, in some cases, the first sign of an issue with bone health.



You must be on the lookout for symptoms (known and new) and know when to sound the alarm.

“

After radiation and after that pain flare-up subsided, I was able to start exercising ... and there were a good few months where I was in better shape than I had been in years. – Breast Cancer Patient

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Bone surgery: Surgery can be performed if a bone has been weakened by metastasis and is at risk of fracture, or to treat a fracture caused by bone metastasis. It can often help relieve pain from a broken bone. During surgery, thin metal rods, pins, screws, plates, or other devices may be used to strengthen the bone.



Spinal cord compression: Cancer in the bones of the spine—the “vertebrae”—can lead to pressure on the spinal cord. This is called “spinal cord compression” and it is very serious. Pressure on the spinal cord can damage nerves in the spinal cord. Without treatment, spinal cord compression can lead to paralysis (a loss of the ability to move certain parts of the body). Although it usually affects the legs, a tumour pressing on the spinal cord in the neck can also affect the arms. Spinal cord compression, although a rare event, is an emergency and must be treated immediately to prevent permanent damage.

Symptoms: Numbness, pain in the back or neck and difficulty walking (unsteadiness) are a few common symptoms you may experience.



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I needed to know what was happening and what was going on, what the test results were going to tell me and show me.

– Breast Cancer Patient

Early on in a diagnosis of cancer ... we think that imaging is going to see everything and if there's anything wrong, the first best thing is a scan. But since then I've learned that there are all these other pieces of the puzzle that they put together.

– Breast Cancer Patient

”

Diagnosing bone metastases

If **bone metastasis** is suspected, your healthcare team will conduct **tests to determine if it is present**. Tests (or “diagnostic tests”) to check for bone metastases will usually be done if:

- > You experience any symptoms of bone metastasis;
- > Your doctor suspects bone metastases (especially if your cancer is more likely to spread to the bones); or
- > A routine test, such as an X-ray, suggests a problem with your bones.

These tests can be done before, during, and after cancer treatment.

Keep in mind that—because different tests give your doctor different information about your cancer and your bones—you may need to have **different types of tests**. This can help your doctor choose the best treatment plan for you. Some tests can also help determine **how your treatment is working**.

Your doctor may ask for different blood tests and radiology exams to diagnose and follow the bone disease. The most frequent radiological exams to determine the presence of bone metastasis are bone scans, X-rays and, sometimes, CT scans and MRIs. A bone biopsy may also be needed by your doctor to confirm the recurrence of the breast cancer. The table below gives you an overview of the various tests; each test is described in detail later on in this brochure.

Diagnostic tests—an overview

Test name	About the test
Blood test for tumour markers	Increased levels of tumour markers in your blood may mean the cancer has spread.
Imaging tests	Imaging tests use different methods—such as X-rays, magnetic fields, or radioactive compounds—to establish a picture of the inside of your body.
X-ray	This imaging test uses a small amount of radiation to obtain pictures of your internal organs and structures. X-rays may show if cancer has spread to your bones and may also show bone fractures.
Bone scan (or “skeletal scintigraphy”)	This test uses radioactive materials to create an image of your skeleton, showing abnormal areas. It can help your doctor see if your cancer has spread to your bones, and can also be used to determine if your cancer treatment is working.
Magnetic resonance imaging (MRI) scan	An MRI scan uses powerful magnetic forces and radiofrequency waves to create a detailed picture of soft tissues, bones, and other structures in your body. An MRI scan can be used to help find tumours, including tumours in bones, and the results can be used to help plan cancer treatment.
Computed tomography (CT) scan	In a CT scan, a computer collects a series of X-ray images to create a detailed 3D image of the organs, tissues, bones, and blood vessels in your body. CT scans can be used to diagnose cancer, find and measure tumours, or determine if your cancer treatment is working.
Bone biopsy	For a bone biopsy, a small piece of tissue is taken from your bones and is examined under a microscope to look for cancer cells. A bone biopsy is sometimes done with a needle, but other times a doctor may need to surgically remove a small part of the tumour.



Take note:

You will not undergo *all* of these tests—your healthcare team will decide which tests are needed in order to properly diagnose your bone health.

Blood chemistry tests

Blood chemistry tests measure the **levels of chemical substances** (such as sugars, fats, and other compounds) **in your blood**. Most of the time, the amounts of substances stay at normal levels in healthy people. However, changes in the “normal” levels of some substances in the blood can suggest disease, including **bone metastasis**.

There are many different types of blood chemistry tests. The main ones used to look for bone metastases measure:

- > Calcium;
- > Alkaline phosphatase; and
- > Tumour markers.

Blood test for calcium

When cancer cells spread to your bones, the bone tissue is broken down and calcium from your bones is released into the bloodstream. This causes the **level of calcium** in your blood to **increase** (this is called “**hypercalcemia**”). When the level of calcium in the blood is higher than what’s considered normal, this may mean bone metastasis is present.



Did you know...?

The normal blood calcium level for adults is **8.8–10.4 mg/dL** or **2.2–2.6 mmol/L**.

Blood test for alkaline phosphatase

Alkaline phosphatase (or “ALP”) is an enzyme—a type of protein—found in all body tissues. When bones are broken down due to metastasis, your **levels of alkaline phosphatase may increase**.

High ALP levels, however, do not *always* mean there are bone metastases. As such, your doctor will do additional tests to check for bone metastasis.

Blood test for tumour markers

A tumour marker is a substance that occurs naturally in the body. If the **level of a tumour marker** in your blood is **high** or is **increasing**, it may mean cancer is present. Some tumour markers are specific to only one kind of cancer, while others are common to different types of cancer.



Take note:

Tumour markers also **increase in non-cancerous conditions**. As such, results of a tumour marker test alone are **not** enough to make a cancer diagnosis. Additional tests are required to confirm the diagnosis.

Depending on the type of cancer you have, **you may have regular blood tests** to measure the level of tumour marker(s) in your blood. (For example, tests to measure levels of breast cancer antigen 15-3—or “CA15-3”—may be done as part of a follow-up.)

An increase in the level of a tumour marker **may** mean the cancer has spread; however, it does not necessarily mean the cancer has spread *to the bones*. Other tests would be needed to diagnose bone metastasis.

Your levels of tumour markers can also **help your doctors guide your therapy**. For example, if the level of a tumour marker decreases or returns to normal, it may mean your cancer is responding to treatment. On the other hand, if there is no change or the level of a tumour marker increases, it may mean your cancer is not responding. For this reason, **your levels of tumour markers may be monitored periodically** during your therapy.



Imaging tests

Different imaging tests will give your doctor different **information about your cancer and the health of your bones**. The results of different tests can also show **how your treatment is working**.

Imaging tests use different methods—such as X-rays, magnetic fields, or radioactive compounds—to establish a **picture of the inside of your body**. These tests can be helpful to see if cancer has spread to your bones and/or if your cancer treatment is working. The results can help guide your doctor's recommendations when it comes to changes to your treatment.

X-ray

An X-ray is an imaging test that uses **small doses of radiation** to take **pictures of your internal organs and structures**. X-rays are often one of the first tests ordered if your doctor suspects cancer in your bones, or if you are having bone pain or other symptoms that may mean the cancer has spread to your bones. X-rays can **also show fractures** in weakened bones.





Did you know...?

An X-ray image is also sometimes called a “radiograph” or a “radiogram”.

X-rays are usually done at a **clinic** or in the **hospital**. The test is relatively quick. It generally takes **10 to 15 minutes** and you don’t usually need any special preparation or to stay overnight.

So what can you expect when you go for an X-ray?

- > First, you’ll need to **remove any clothing, jewelry, or other objects** in the area of your body where the X-rays will be taken, as these items could interfere with the images.
- > Depending on the area being studied, you may be asked to **lie on an X-ray table, or sit or stand in front of an X-ray machine**. The X-ray machine, which is like a big camera, is positioned over the area of your body to be imaged.
- > While the images are being taken, the X-ray technician will ask you to **remain very still**, or perhaps hold your breath. He or she will take the images while standing behind a shield.
- > You’ll know the X-ray has been taken when you **hear a small beep or buzz**.
- > You may be asked to **change positions** so X-rays can be taken from different angles.
- > Finally, you will be able to leave once the technician has checked that the X-ray images are clear enough to be evaluated.

Bone scan (skeletal scintigraphy)

A bone scan using radioactive materials can help **show whether or not cancer has spread to your bones**. In this type of bone scan, a **small amount of low-level radioactive material is injected into a vein**.

The test uses a computer to generate an image of all the bones in your body (your skeleton) and looks to see if there are any abnormalities, such as metastasis or a fracture. This type of scan can sometimes **show bone metastases** that have not yet caused any symptoms. It can also be used to determine **whether or not your cancer treatment is working**.



Did you know...?

This type of bone scan is also called “skeletal (or bone) scintigraphy”.

In a bone scintigraphy, the **radioactive material settles into areas of damaged bone** throughout your entire skeleton. These areas appear as **“hot spots”** on the images because they attract the radioactive material. Although hot spots may suggest the presence of cancer, they could be caused by other bone diseases. For this reason, other tests (such as regular X-rays, an MRI scan, or a bone biopsy) may be needed.



A bone scan is usually done as an outpatient procedure (not requiring an overnight stay) in the nuclear medicine department of a **hospital**. Usually, no special preparation for the test is needed. You may be asked to wear clothing that has **no metal zippers, belts, or buttons**, or you may be asked to **change into a hospital gown** and remove anything that may interfere with the test, such as eye glasses or jewelry.

A bone scan is completed in two stages:

- 1** You start by getting an **injection of the radioactive material** into a vein in your arm or hand.
 - > You will be asked to return later (usually 3 to 4 hours after the injection) for the actual bone scan. This gives your bones time to absorb the radioactive material.
 - > You may also be asked to drink 4 to 6 glasses of water after the injection (but before the scan), and to urinate as often as you need to, including just before the test is performed.
- 2** During the test itself, you must **lie very still on a table** while the scanner and camera move back and forth over your body. The scan takes about **1 hour** to complete.
 - > After the scan, the injected radioactive material quickly loses its radioactivity and passes out of your body in your urine or feces. (Drinking fluids after the test can help flush the radioactive material from your body.) This process may take a few hours or days, depending on the type of radioactive material used. For this reason, you may be given special precautions to follow after your scan regarding using the washroom, such as flushing the toilet twice and washing your hands thoroughly.

In general, the dose of radioactive material given for a bone scan is small, and the potential benefits of the test outweigh the risks. However, some potential side effects that you may experience include soreness or swelling at the injection site. Although allergic reactions to the radioactive material sometimes occur, they are extremely rare.

Magnetic resonance imaging (MRI) scan

A magnetic resonance imaging (MRI) scan is an **imaging test that uses powerful magnetic forces and radiofrequency (RF) waves to build detailed images** of organs, soft tissues, bones, and most other types of structures within the body. An MRI can help **find tumours** in various parts of the body, including the bones. It can also be used to help **plan cancer treatment**.



Take note:

If you have a metal device inside your body—such as a pacemaker, or an implanted port or pump—you cannot have an MRI because the magnet is strong enough to damage or dislodge these devices. In most cases, though, an MRI scan is safe for people who have had joint replacements or have surgical clips or screws. Be sure to speak to the radiation technologist if you have *any* concerns about undergoing an MRI.

Results of an MRI scan can show a change in the shape, size, or structure of tissues or organs that could be due to injury or disease. These scans can show when there's a mass (or "lesion"), although an MRI cannot always tell the difference between a cancerous and non-cancerous tumour. An MRI scan can also detect **metastasis** and a tumour's **response to treatment**—for example, if the tumour has gotten smaller, stayed the same, or grown after treatment.

An MRI is usually done as an outpatient procedure (not requiring an overnight stay) at a **hospital** or at a **specialized MRI centre**. The test takes **up to 2 hours**, depending on the area of your body being scanned.

Be sure to dress in comfortable clothing with **no metal snaps or zippers**, and remove anything that may interfere with the test, such as metal jewelry and objects with a magnetic strip, like credit cards. You may have to **wear a hospital gown**, depending on which part of your body will be scanned by the MRI.

Some MRI scans need to use a **contrast medium**, a substance introduced into your body to produce clearer images of your body's internal structures. If a contrast medium is used, it is usually **injected into a vein in your hand or arm**.



Did you know...?

An MRI scan is an expensive test that is in very high demand, so be sure not to miss your appointment!

So, what can you expect when you go for an MRI?

- > During the MRI, you must **lie on a movable exam table**. Straps and pillows may be used to help you remain in the correct position and hold still during the scan. Surface coils may be placed near the area to be scanned—often the neck, shoulder, knee, or breast—to help improve the quality of the images.
- > The **table glides into a narrow cylinder** that contains the MRI scanning magnet. The inside of the scanner is well lit and has a fan that gently blows fresh air. The part of your body to be scanned will be positioned in the centre of the cylinder. The surface of the cylinder may be just a few inches from your face.
- > You must **remain very still** during the scan and may be asked to hold your breath at times. It is normal to hear loud knocking noises during the scan.

An MRI does not use any ionizing radiation and has **no known harmful effects**. Some people may have a mild reaction to the contrast medium. They may experience nausea, pain at the injection site, or a headache. There are also risks associated with sedation or general anesthetic. Your doctor will discuss these with you if you require either of these procedures for your MRI.



Computed tomography (CT) scan

A computed tomography (CT) scan is an **imaging test that uses a computer to collect a series of X-rays to create a detailed 3D image** of organs, tissues, bones, and blood vessels in your body. Instead of taking one picture, as in a regular X-ray, the CT scanner rotates around you and takes many pictures. It can be done on almost any part of the body.

A CT scan can be used to **diagnose cancer**, determine the **size and location of tumours**, determine the **stage** of cancer, or **guide doctors when they use needles** during certain procedures called “aspirations” or “biopsies”. Although a CT scan can show a mass (or “lesion”), it cannot always tell the difference between a cancerous and non-cancerous tumour. The results can also be used to **determine if the cancer treatment is working** or if the cancer has spread or returned following treatment.

CT scans are usually done as outpatient procedures (not requiring an overnight stay) in the radiology department of a **hospital** or in a **specialized CT centre**. These tests usually take **10 to 30 minutes**, depending on the size of the area being scanned. If you are sedated for the test, it may take longer.

Your healthcare professional will tell you whether any **special preparations** are needed before your scan. Preparation may include not eating or drinking anything for a certain number of hours before the test, taking a laxative, or having an enema (an injection of liquid into the anus, usually done to clean out the intestines). Some CT scans use a **contrast medium** to improve the clarity of organs and abnormalities, which may be given orally (by mouth), intravenously (injected into a vein), or by enema, depending on the part of the body being scanned.



Did you know...?

Before a CT scan, you will be asked to **remove all metal objects** (including eye glasses, braces, or jewelry).

So what can you expect when you go for a CT scan?

- > During the scan, you must **lie down on a narrow table**. Straps and pillows may be used to help you stay in the correct position and remain still during the scan.

- > The table you are lying on **glides into the CT scanner**, which looks like a large rectangular unit with a hole in its centre (like a doughnut). Some people feel a bit confined when they are in the scanner.
- > Throughout the test, the **table slides in and out of the scanner**. While you are in the scanner, the **camera moves around inside the scanner** and takes many cross-sectional pictures, also called “image slices”. To ensure a clear image, you may be asked to hold your breath at times during the scan. You may hear clicking or whirring noises during the scan and you may see a moving light as the scanner takes images.
- > **A computer will assemble the image slices together to generate a 3D picture** of your body.

The amount of radiation used for a CT scan is higher than the amount used in a regular X-ray. However, the **risk associated with having one scan remains low**. If you are scheduled to have a CT scan, your doctor believes the potential benefits outweigh the possible risks associated with the test.

On rare occasions, the contrast medium may cause an allergic reaction. Symptoms may include nausea, pain at the injection site, or a headache.



Bone biopsy

In most cases, cancer is diagnosed by **removing a piece of tissue from the body and examining it under a microscope**. This is called a "biopsy". When you have breast cancer, your doctor may be able to tell if you have bone metastasis by looking at the results of any imaging tests you have had. Furthermore, your doctor might want to confirm that the abnormal bone area is cancer by ordering a biopsy.








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*It's really important
to find out what...
you can do to help
improve your lifestyle.*
— Breast Cancer Patient

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Maintaining
bone
strength



In this section, you will learn how you can take action to keep your bones as healthy and strong as possible, and get information on the treatment options.

Stay active

Any activity that entails standing upright, for example walking, cooking or painting, helps to **maintain your bone strength**.

Ask your healthcare professional which activities are appropriate for you in order to keep active and keep your bones strong.

If you're not sure about a particular exercise, talk to the oncologist before trying it.

Therapeutic options

In addition to the cancer treatment, a bone medication may sometimes be given to patients with bone metastases. These drugs (such as denosumab, pamidronate, or zoledronic acid) may be prescribed as soon as bone metastases are confirmed, whether pain or other symptoms are present or not.



Frequently
asked
questions



What treatment options do I have for relieving bone pain or other symptoms?

There are many ways to treat pain caused by cancer that has spread to the bones. Pain medicines are often very helpful. Treating the cancer, such as with chemotherapy or hormone therapy, can also be helpful. If only one or a few areas are causing you pain, a local treatment such as radiation therapy or ablation therapy may provide relief. If the pain is caused by a fracture, treating the broken bone with surgery can help.



I understand that high calcium levels (“hypercalcemia”) can be a sign of bone metastases. What are the symptoms of hypercalcemia?

Early symptoms of hypercalcemia—having too much calcium in the blood—include constipation, frequent urination, feeling sluggish or sleepy, feeling thirsty all the time, and drinking large amounts of fluids. Later signs and symptoms may include muscle weakness, muscle and joint aches, confusion, coma, and kidney failure.



I understand that spinal cord compression can be very serious. What symptoms should I be aware of?

Spinal cord compression occurs when cancer grows large enough to press against the spinal cord, causing the spinal cord to be squeezed (compressed). Symptoms can include back pain (with pain that may go down one or both legs), numbness of the legs or belly, leg weakness or trouble moving the legs, and incontinence (loss of control of your urine or stool) or problems urinating. **If you notice symptoms like these, call your healthcare professional right away or go to the emergency department at your hospital.** If spinal cord compression is not treated right away, it can lead to lifelong paralysis (inability to walk or even move).



Which bones can be affected by bone metastases?

Metastases can occur in any bone in the body. However, metastases occur most often in the bones near the centre of the body. The spine is the most common site of bone metastases. Other common sites are the hip bone (“pelvis”), the upper leg bone (“femur”), the upper arm bone (“humerus”), the ribs, and the skull.



I have been diagnosed with bone metastases. How will my doctor decide what treatment is best for me and the health of my bones?

The treatment your doctor chooses will depend on where the cancer started, your symptoms, how many bones are affected, any cancer treatments you've already received, and your personal preferences.



What bone medications may be prescribed in addition to my cancer treatment?

Your doctor may recommend a bone medication such as denosumab, pamidronate, or zoledronic acid once bone metastases are confirmed. These therapies may be prescribed regardless of whether you have any bone symptoms (pain, etc.).



What are the cancer-related risk factors for bone metastases?

A risk factor is anything that increases the probability of developing a disease. Simply having cancer is a risk factor for bone metastases. However, not all people with cancer will develop bone metastases. Although doctors cannot predict who will and who will not develop bone metastases, they know that certain kinds of cancer (including breast cancer) are more likely to spread to the bones than others.

In addition, tumours that are larger and have already spread to lymph nodes are generally more likely to spread to bones. The cancer is also more likely to spread to the bones with certain kinds of cancer, high grades of cancer (where the cancer cells look very abnormal under a microscope), and certain genetic changes.

Having a cancer that is found after it has already spread to other organs also increases your risk of bone metastases. Finding cancer early, when it is small, often means it has not had a chance to spread in the body. This can mean a better chance of successful treatment and a lower risk of cancer spreading in the future.



What are the signs and symptoms of bone metastases?

The main symptoms of bone metastases are pain, fractures, spinal cord compression, and high blood calcium levels. Although some of these symptoms can be caused by something other than the spread of cancer to the bones, it is very important for you to tell your doctor if you develop any of these symptoms. Finding and treating bone metastases early can help prevent problems later.

Localized pain is often the first symptom of bone metastases. At first, the pain may come and go. It also tends to be worse at night, and may be relieved by movement. Later, the pain can become constant and may be worse during activity.

Bone fractures are another symptom of bone metastases because bones weakened by cancer may break during everyday activities. These types of fractures cause sudden, severe pain and are often the first sign of bone metastases.

Spinal cord compression—when cancer growth in the bones of the spine puts pressure on the spinal cord—is a serious sign of bone metastases. One of the earliest symptoms of spinal cord compression is pain in the back or neck. Other symptoms include numbness and weakness in the area of the body below the tumour. **Spinal cord compression is an emergency that must be treated right away to prevent permanent damage to the spinal cord that can lead to paralysis.**

High blood calcium levels are another sign of bone metastases. This is called “hypercalcemia” and it is caused by calcium being released from the bones into the bloodstream because of the cancer in the bones. Symptoms of hypercalcemia include constipation, nausea, loss of appetite, excess urination, extreme thirst, tiredness, and possibly confusion. If not treated, hypercalcemia can cause someone to go into a coma.

Identify and seize opportunities to communicate and ask questions in order to understand better. For example, a chemotherapy session is usually combined with an oncologist appointment.

Additional resources

While this guide has provided you with a lot of information about bone health and bone metastases, you may still have questions. Medical organizations regularly publish guidelines for people like you who are dealing with breast cancer or bone metastasis. The websites listed below can provide you with more information. If you can't find the answer you are looking for, be sure to ask your doctor.

- > **The National Comprehensive Cancer Network (NCCN)** has published a number of guides for people with breast cancer. You can access the information at: www.nccn.org/patients/guidelines/cancers.aspx#breast.
- > **The European Society for Medical Oncology** has also published a guide for people with breast cancer. It is available at: www.esmo.org/Patients/Patient-Guides/Breast-Cancer.

Other websites that can offer helpful information on bone health and breast cancer include:

- > **The Canadian Cancer Society** (www.cancer.ca)
- > **The American Cancer Society** (www.cancer.org)
- > **The Canadian Breast Cancer Network** (www.cbcn.ca)
- > **The Breast Cancer Society of Canada** (www.bcsc.ca)
- > **Rethink Breast Cancer** (www.rethinkbreastcancer.com)

Your healthcare team is the best resource for information that's specific to you.

Glossary

- > **Blastic lesion** – another name for an osteoblastic lesion
- > **Contrast medium** – a substance that is sometimes injected into a vein or arm prior to an MRI to provide clearer images of internal body structures
- > **Lytic lesion** – another name for an osteolytic lesion
- > **Metastasis** – spread of the cancer from its original location
- > **Osteoblast** – a type of bone cell responsible for bone formation
- > **Osteoblastic lesion** – a hardened area of bone that develops when new bone is laid down without the old bone being first broken down
- > **Osteoclast** – a type of bone cell responsible for bone breakdown (resorption)
- > **Osteolytic lesion** – a hole that develops in bones when parts of the bone are dissolved
- > **Primary tumour** – the site where the cancer started
- > **Sclerosis** – a condition of hardened bone that develops when new bone is laid down without the old bone being first broken down

Do not hide your worries and, especially, never assume anything. Collaborating with your doctor, designated nurse and healthcare professional plays a key role in your care.

Notes

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