

# HELPFUL FACTS

## Understanding Bone Metastases

### What are bone metastases?

Cancer can spread from its initial location to other parts of the body. Cells from the original tumor break away, travel by way of the bloodstream or other ways and attack another site. The tumors that develop at the new location are not new cancers but an extension of the original cancer. The medical name for the spreading of cancer is "metastasis," and the new tumors are called "metastases."

Metastatic disease is defined by the spreading of the cancer cells to other parts of the body, including the bone. Bone metastases are commonly found in the spine, but are often seen in the pelvis, hip, upper leg bones (femur), and the skull. The common cancers to invade the skeleton are breast cancer, lung cancer, prostate cancer and kidney cancer. Bones can also be affected by diseases of the bone marrow, such as multiple myeloma, which can spread to involve multiple sites in the skeleton.

### Symptoms

Doctors will need to take a family history and do a complete physical exam to rule out any other disorders that could be causing the symptoms. While pain is the most common symptom of bone metastases, some patients experience a pathological fracture as their first sign of bone metastases. It is often difficult to differentiate bone pain from other conditions such as arthritis or ordinary lower back pain. However, there are other signs that could indicate bone metastases have developed. They include:

- Bone pain, which may be worse at night and at first comes and goes, then later is constant and aggravated by movement.
- Unexplained bone fractures
- Hypercalcemia symptoms associated with high levels of calcium in the blood. These include loss of appetite, nausea, thirst, fatigue, muscle weakness, restlessness, and confusion.
- Symptoms of spinal cord compression, including back pain and difficulty walking.
- Other symptoms might include numbness and weakness in the legs, problems with the bowels or bladder, or numbness in the abdominal area.

### Diagnosing Bone Metastases

A physician will conduct a full medical examination to determine if a patient has bone metastases. Following the physical exam your physician may order one or more of the following tests:

- **Blood test.** Used to measure certain chemicals released by some types of cancer (such as prostate-specific antigen) or substances released by damaged part of the body.
- **Bone X-rays.** Used to show evidence that cancer has spread to the bones and to diagnose fractures in bone weakened by metastases.
- **Radionuclide bone scan.** Patients are injected with a low dose radioactive substance, which is attracted to the affected areas in the skeleton. Diseased bone will be seen on the bone scan as dense gray areas.

For more information, call 800.789.PENN or visit our websites:  
[Cancer.PennMedicine.org](http://Cancer.PennMedicine.org) and [OncoLink.org](http://OncoLink.org)



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- **Computed tomography (CAT/CT scan).** A rotating beam is used to create a series of pictures from every angle of the body. It is useful in diagnosing metastases to bones in the shoulder, pelvis and spine.
- **Magnetic Resonance Imaging (MRI).** Large magnets and radio waves are used to produce computer-generated pictures of internal organs. The pictures are more detailed than a CT scan. MRI's are most useful to detect metastases in the spine.

These scans will allow the doctor to detect any unusual bone changes. Diagnosis of the first bone metastases may be confirmed with a biopsy.

## Treating Bone Metastases

Historically, the goal for the treatment of bone metastases has been to reduce pain and fracture risk associated with the condition. These treatments can include:

- **Surgery.** Surgery may be used in the treatment of bone metastasis to reinforce a bone that is at risk for breaking or to repair a bone that already has broken.
- **Radiation therapy.** Radiation therapy is the use of high-energy rays to damage cancer cells and keep them from growing. It can be effective in reducing bone pain, preventing fractures and targeted area treatment.
- **Pain medication**
- **Hormonal therapy.** Hormone therapy deprives the cancer cells of growth stimulus that hormones provide.
- **Chemotherapy.** Chemotherapy is administered orally or intravenously. It enters the bloodstream and travels to the metastases to kill the cancer cells.
- **Immunotherapy.** Immunotherapy is a form of systemic therapy that helps the immune system recognize and destroy cancer cells.
- **Supportive care.** Supportive care therapies are available to reduce or delay skeletal-related complications associated with bone metastases (e.g, fractures, spinal cord compression).

## Coping with a Bone Metastases Diagnosis

One of the best ways to manage the physical and emotional complications of bone metastases is to work with a physician to develop a plan that will help maintain quality of life. Additionally, support groups, private counseling and/or educational resources can provide benefit to patients and their caregivers. A list of resources is provided below.

- CancerConsultants ([www.cancerconsultants.com](http://www.cancerconsultants.com))
- Cancer Care ([www.cancercare.org](http://www.cancercare.org))
- National Coalition for Cancer Survivorship ([www.cansearch.org](http://www.cansearch.org))
- Cancer Hope Network ([www.cancerhopenetwork.org](http://www.cancerhopenetwork.org))

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