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Caring for Your Bones When You Have Cancer

Presented by

Ronald H. Blum, MD

Albert Einstein College of Medicine
Beth Israel Medical Center and
St. Luke's–Roosevelt Hospital Center

Michael T. Brennan, DDS, MHS

Carolinas Medical Center

Joseph M. Lane, MD

Weill Medical College of Cornell University
Hospital for Special Surgery

Carolyn Messner, DSW

CancerCare

Learn about:

- Treating bone pain
- Maintaining bone health
- The role of nutrition and exercise
- How CancerCare helps



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CancerCare is a national nonprofit organization that provides free professional support services to anyone affected by cancer: people with cancer, caregivers, children, loved ones, and the bereaved. CancerCare programs—including counseling and support groups, education, financial assistance, and practical help—are provided by professional oncology social workers and are completely free of charge. Founded in 1944, CancerCare provided individual help to more than 100,000 people last year, in addition to serving more than 1 million unique visitors to our websites. For more information, call 1-800-813-HOPE (4673) or visit www.cancercares.org.

Contacting CancerCare

National Office

CancerCare
275 Seventh Avenue
New York, NY 10001

info@cancercares.org
1-800-813-HOPE (4673)
www.cancercares.org

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Presented by

Ronald H. Blum, MD

Professor of Medicine, Albert Einstein College of Medicine
Director, Cancer Centers and Programs
Beth Israel Medical Center and St. Luke's–Roosevelt Hospital Center
New York, New York

Michael T. Brennan, DDS, MHS

Associate Chairman and Director, Sjögren's Syndrome and Salivary Disorders Center
Department of Oral Medicine, Carolinas Medical Center
Charlotte, North Carolina

Joseph M. Lane, MD

Professor of Orthopaedic Surgery, Weill Medical College of Cornell University
Chief of Metabolic Bone Disease, Hospital for Special Surgery
New York, New York

Carolyn Messner, DSW

Director of Education and Training
CancerCare

In collaboration with

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New medications are improving bone health for people with cancer.

Cancer can affect the bones in several different ways. Some cancers, such as multiple myeloma, start in bones. Other cancers, such as breast, prostate, lung, and kidney cancers, have a tendency to spread, or metastasize, to the bones.

Cancer that starts in or spreads to the bones can lead to bone pain and can increase your risk for complications, including

weakening of the bone, fractures (breaks), and high calcium levels in the blood, which can further damage bones.

Some cancer treatments may also affect your bones. For example, certain treatments used for breast and prostate cancer may lead to a thinning of the bones known as osteoporosis, which also increases your risk of fractures.



In this booklet, we'll talk about how bone pain and complications are diagnosed and treated, medications that doctors can use to help improve bone health, and practical tips you can use to take care of your bones.

Diagnosing and Treating Bone Problems

Usually, the first step in treating bone complications is to get any bone pain under control. Pain relievers (analgesics) are

very effective. These drugs include both over-the-counter and prescription medications. Over-the-counter medications include acetaminophen (Tylenol, for example), aspirin, and nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen (Advil and Motrin, for example) and naproxen (Aleve, for example). Prescription medications include opioids such as oxycodone, hydromorphone, and morphine. The right pain medication, dose, and schedule for you are the ones that relieve your pain most effectively without causing further problems.

Along with controlling your pain, your doctor will do tests to find out the causes of the pain and whether there is a

How Cancer Treatment Affects Bone Health

Women and men who are receiving cancer treatment, including hormone therapy, are at increased risk of osteoporosis, which raises their risk for bone fracture.

For women with breast cancer:

- *Postmenopausal women* with breast cancer are often given aromatase inhibitors to further lower their estrogen levels and help stop their cancer from growing. Postmenopausal women are already at increased risk of osteoporosis due to low estrogen levels, and this type of treatment can further increase their risk.
- In *premenopausal women* with breast cancer, chemotherapy may result in what doctors call “chemical induction of early menopause” or “chemotherapy-induced menopause.” This condition may not be permanent, but it may still increase a woman’s risk for osteoporosis.

For men with prostate cancer:

- Treatment of prostate cancer may include a hormone therapy known as LHRH. This treatment increases the loss of bone mass and the risk of osteoporosis.

fracture or a risk for fracture in the bone. These tests may include a bone scan or a PET scan to find out how much the cancer may be affecting the bone. Your doctor may also order an x-ray exam of your “weight-bearing” bones, such as the leg bones. If these tests reveal that you are at risk for a fracture, it’s best to treat it before there is an actual break.

Your doctor may also check to see if you have high levels of calcium in your blood, a condition called hypercalcemia. This situation can happen when cancer injures the bones, causing calcium to be released from the bone into the blood. Symptoms of high calcium levels may include nausea and

vomiting, sleepiness, feeling very thirsty, and urinating frequently.



Treatment of high blood calcium levels includes increasing your intake of fluids by drinking more water or having fluids given to you intravenously (through a vein) to treat or prevent dehydration. Drugs that reduce calcium levels directly may also be used.

It’s important that you tell your doctor immediately if you have severe back pain or pain in the back that develops or changes rapidly. This may mean that a bone metastasis in the spine is pressing against the spinal cord. If that is the case, urgent medical care is required. This type of pain can develop over hours to days and is often felt in the middle of the back. It may be accompanied by a feeling of weakness. Treatment for this condition may include steroid drugs, radiation, and surgery.

MEDICATIONS FOR BONE HEALTH

Bone is a changing tissue that is constantly being broken down and built up by the body. Cells called *osteoblasts*

Talking About Bone Pain With Your Doctor

The more detail you can give your doctor about the kind of pain and how much pain you feel, the better he or she will be able to treat it. Here are some tips that can help:

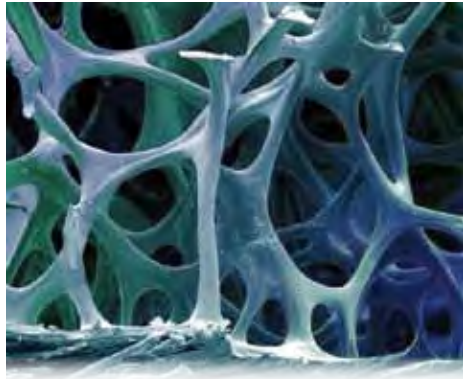
- Keep a diary with notes about how your pain affects you. That way, you don't have to rely on memory to give your doctor accurate information.
- Every time you meet with your doctor, discuss whether or not you are experiencing pain. It is part of your "vital signs" (just like blood pressure and heart rate), and it should be checked.
- Use a scale of 0 (no pain) to 10 (very bad pain) to rate your pain. This is a good way to measure pain and find out how well your medication is working to relieve it.
- Tell your doctor whether anything makes the pain worse. For example, does standing, sitting, or getting up from a seated position make it hurt more?
- Talk about whether anything relieves the pain. For instance, do you feel better if you apply ice or a heated compress to the area, or when you lie down or walk around?
- Let your doctor know how much relief you are getting from pain medications or other methods you use. Does your pain medication provide you with enough relief? Does it wear off before it's time for your next dose? Are you having any unpleasant side effects from using it?



create bone, while other cells called *osteoclasts* break it down. As people age, or if cancer affects their bones, the natural renewal of bone decreases.

In addition to the specific treatments just discussed, your doctor may also prescribe special medications to improve the health of your bones. These medications reduce the risk of fractures and the need for radiation or surgery to treat them:

Bisphosphonates bind to the bone surface and slow the breakdown of bone by osteoclasts. Bisphosphonates include alendronate (Fosamax, for example), ibandronate (Boniva), pamidronate (Aredia, for example), risedronate (Actonel, for example), and zoledronic acid (Zometa). These drugs allow osteoblasts to work more effectively building bone, and the result is usually an increase in bone density.



Bisphosphonates have been shown to reduce bone loss in postmenopausal women with breast cancer receiving hormone therapy and in premenopausal women with chemotherapy-induced menopause. Similarly, bisphosphonates reduce bone loss in men with prostate cancer receiving hormone therapy. The bisphosphonate zoledronic acid is also used to treat bone pain and bone complications in people with other types of cancers that have spread to the bone.

SERMs Another class of drugs used to prevent and treat bone complications is selective estrogen receptor modulators (SERMs). The exact way SERMs act to increase bone density is not fully known, but they are believed to slow the breakdown and removal of old bone. Examples of SERMs

used for people with cancer are raloxifene (Evista), tamoxifen (Nolvadex, for example), and toremifene (Fareston).

RANK ligand inhibitors This new class of drugs works differently from other types of drugs used for bone complications. They are designed to block a factor in bone development known as RANK ligand. RANK ligand stimulates cells that break bone down. By blocking RANK ligand, RANK ligand inhibitors may increase bone density and strength.

Denosumab (Prolia) is a RANK ligand inhibitor that has been available for some time for the treatment of osteoporosis in postmenopausal women at high risk for fractures. The U. S. Food and Drug Administration has recently approved denosumab (under the brand name Xgeva) to help prevent skeletal-related events (SREs) in patients with solid tumors that have spread to and damaged the bone. (Denosumab is not approved to prevent bone complications in patients with multiple myeloma.) SREs include bone fractures from cancer, bone pain requiring radiation, broken bone that requires surgical repair, and pressure on the spinal cord. Denosumab may also help prevent bone tumor growth in cancers such as breast or prostate cancer, which can spread to the bone.



Strategies for Maintaining Bone Health

Because cancer can affect the bones in various ways, caring for your bones is a very important part of your overall care.

There are tests your doctor can use to monitor your bone health as you go through treatment. There are also ways for you to strengthen your bones through good nutrition and physical exercise.

TESTS FOR BONE HEALTH

The following tests can tell you and your doctor what your bone density is, how much risk you might have for bone fractures, and whether the condition of your bones is changing because of cancer or because of medications you are taking:

DEXA scan This test measures the density (or mass) of the bones. It shows whether your bone density is normal or whether you have mild bone loss (osteopenia) or greater bone loss (osteoporosis, with reduced bone density or bone mass and weakening of the bone). Using this information, your doctor can develop a strategy to maintain your bone density or increase it.



FRAX index Your doctor may use this test, along with bone density measurements, to assess your risk of fracture. This index can be used to predict the risk of fracture using the results of the DEXA scan as well as information on such risk factors as ethnicity, age, gender, weight, and family or personal history of fractures. Other things figure in as well: whether you smoke, drink alcohol, take steroid drugs, or have osteoporosis due to some other condition or disease, such as a lack of enough calcium in the diet or rheumatoid arthritis.

Other tests Your doctor may perform tests that measure

the levels of vitamin D and calcium in your blood. Both of these minerals are needed to maintain bone health. Your doctor may also test for substances called biomarkers that show whether and how much bone is being formed or broken down. These biomarkers are measured in the blood and urine.

THE ROLE OF NUTRITION AND EXERCISE

One thing you can do to maintain or improve your bone health is to make sure that you have adequate nutrition, including enough calories, calcium, and vitamin D. If the body does not get enough calories through food, it will “steal” them from itself, including taking them from bone. Similarly, if the body does not get enough calcium for all of its needs through food or calcium supplements, it will take calcium from bone, and this weakens the bone.

You need about 1,000 to 1,200 mg (milligrams) of calcium a day to help keep your bones healthy. One cup of milk provides about 250 mg of calcium.

This means you need to drink about four glasses of milk every day to have an adequate intake of calcium. Calcium is also present in other food sources, but to reach the amount that is needed, many people have to take calcium supplements.

Calcium supplements are available in two forms: calcium carbonate and calcium citrate. Calcium carbonate is not well absorbed unless the stomach is acidic. If you need to take an antacid, for example, this type of calcium will not be absorbed. Calcium citrate is the preferred form of calcium to take, since it is easily absorbed (and also prevents the formation of kidney stones).

To absorb calcium, the body also needs vitamin D. We make



vitamin D when the skin is exposed to sunlight, but most of us do not get enough sunlight to maintain adequate levels of vitamin D. Although it is available from a few natural sources, such as cod liver oil and fatty fish, many people have to take a vitamin D supplement to reach their daily requirement. The official recommendations for vitamin D are to take 400 to 600 IU (international units) per day, but many doctors believe this amount is too low to make sure that people have adequate vitamin D levels in their body. So it's best to take around 1,000 to 2,000 IU of vitamin D per day.

In rare cases, taking a vitamin D supplement may cause the level of calcium in the blood to go too high. Your doctor will measure your blood calcium level to make sure this is not happening when you are taking both calcium and vitamin D supplements.



Exercise is another important part of good bone health. Like muscle, bone is a living tissue. Regular exercise increases bone mass and makes bone stronger. Exercise also helps you maintain or improve muscle strength, coordination, and balance, reducing the risk of falls—and the risk of fractures from falling. Tai chi, for example, is an excellent exercise for maintaining bone health, because it builds strength and also improves balance.

You may wish to ask your doctor about specific exercise programs designed to prevent falls. Or look online: The Centers for Disease Control and Prevention website (www.cdc.gov) is a great source of information on effective exercise programs that help prevent falls.*

* www.cdc.gov/HomeandRecreationalSafety/images/CDCCompendium_030508-a.pdf

How CancerCare® Helps

When you are being treated for cancer, you may have many concerns. It's perfectly normal to feel sad, worried, or confused. But the more you learn about what's involved and what to expect, the better you'll feel about your particular situation. Help is available to you as you consider your treatment options. Your most important support will likely come from your health care team, family members, and friends. But CancerCare offers these free resources as well:

Counseling Our oncology social workers can speak with you one-on-one to help you find ways to cope with the emotional and practical challenges of cancer. Counseling services are available in person or over the phone.

Support groups Connect with other people who are in a similar situation in our free support groups, led by professional oncology social workers.

Connect Education Workshops Leading experts in oncology provide up-to-date information in these free, one-hour workshops over the telephone. Listen in live to learn about cancer-related issues from the convenience of your home or office. Past workshops are also available as podcasts on our website and on telephone replay 24 hours a day, seven days a week.

Publications Our free booklets and fact sheets offer up-to-date, easy-to-read information on topics such as the latest treatments, managing side effects, and coping with cancer.

Financial help Our staff helps you manage financial



concerns and provides referrals. Limited aid is also available to eligible individuals and families for cancer-related costs such as co-payments, transportation to treatment, and child care.

Referrals to resources CancerCare® can help you learn about other organizations in your community and nationwide that can assist you in finding information and help.

To learn more about how we help, call **1-800-813-HOPE (4673)** or visit our website, www.cancercares.org.

Frequently Asked Questions

Q I'm not sure how much vitamin D is safe for me to take. Can you explain that?

A Most doctors will recommend that you take 1,000 to 2,000 IU of vitamin D every day. And that's in addition to the vitamin D you may be getting in your multivitamin and in your calcium tablets, since many calcium tablets already have vitamin D in them. Your doctor should monitor your calcium and vitamin D levels closely and will work with your oncologist to make sure that the vitamin D is not raising the calcium levels in your blood too high. It takes a team effort to make sure that you maintain the basic health of your bones.

Q What is the best way to take care of my teeth during cancer treatment?

A Before starting cancer treatment, the goal of dental care is to treat infections or conditions that might cause problems during or after cancer treatment. All dental disease should be eliminated before cancer treatment is started, but because this is not always possible, special care is needed in some situations. If you plan to have head and neck radiation, a thorough examination and full treatment of any existing dental disease are needed first. This type of radiation treatment increases the risk for a severe bone condition, known as osteoradionecrosis, caused by reduced blood flow to the jaw. Similarly, a thorough examination and treatment of dental disease are needed when bisphosphonate drugs are given through a vein, since this treatment can sometimes cause osteonecrosis of the jaw.

After cancer treatment, it's important to maintain good dental care. See your dentist every three to six months, depending on how much dental or periodontal disease you have.

Q I am postmenopausal and have osteopenia (mild thinning of the bone). Can bisphosphonates reduce the risk of my cancer coming back?

A There are ongoing clinical trials that are researching whether bisphosphonates reduce the risk of recurrence of cancer, not only in bone but in other locations as well. Talk to your doctor and your oncologist to keep up-to-date on the latest research. You can also visit a number of websites for the most current information, including the patient website of the American Society of Clinical Oncology (www.cancer.net) and the National Cancer Institute website (www.cancer.gov).

Q I have lung cancer and am taking prednisone. I've heard that this can lead to bone loss. Should I stop taking it?

A Prednisone is a steroid often prescribed for people with lung cancer. It helps patients cope with shortness of breath, decreased energy, and loss of appetite. But prednisone does have side effects, including bone loss. Lung cancer patients take other medications, such as blood thinners, that can also affect bone health. If you are on these medications, talk with your doctor about taking one of the bisphosphonates or denosumab to help prevent bone problems. Often, you can use these drugs in combination with your cancer care to protect against excess bone loss. Extra vitamin D may also help you absorb more calcium to improve bone strength. Certainly you should continue to take prednisone and any other drugs your doctor prescribes. Bone loss can be dealt with at the same time with other medications.

Q I am experiencing severe bone pain, but I'm scared to take medication for it. Can't patients become addicted to painkillers?

A Pain management can be an important part of cancer treatment. The most effective way to control pain is to prevent it from occurring or becoming more severe. Although fear of addiction is common, people who take medication to control pain associated with cancer or its treatments rarely become addicted. Untreated pain can have negative effects on your health and emotional well-being. Pain causes stress, depression, anxiety, and fatigue. Discuss your concerns with the members of your health care team. They can offer many options for coping with cancer and bone pain.

Resources

CancerCare®

1-800-813-HOPE (4673)

www.cancercares.org

American Cancer Society

1-800-227-2345

www.cancer.org

American Pain Foundation

1-888-615-7246

www.painfoundation.org

Bone and Cancer Foundation

1-888-862-0999

www.boneandcancerfoundation.org

Cancer.Net

Patient information from the American Society of Clinical Oncology

www.cancer.net

National Cancer Institute

Cancer Information Service

1-800-422-6237

www.cancer.gov

To find out about clinical trials:

Coalition of Cancer Cooperative Groups

www.CancerTrialsHelp.org

National Cancer Institute

www.cancer.gov/clinicaltrials



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The information presented in this patient booklet is provided for your general information only. It is not intended as medical advice and should not be relied upon as a substitute for consultations with qualified health professionals who are aware of your specific situation. We encourage you to take information and questions back to your individual health care provider as a way of creating a dialogue and partnership about your cancer and your treatment.

All people depicted in the photographs in this booklet are models and are used for illustrative purposes only.

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When one word changes your world,

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With CancerCare,
the difference comes from:

- Professional oncology social workers
- Free counseling for you and your loved ones
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