



Understanding Bone Problems

Bone damage is common in people living with multiple myeloma (MM) and may result in pain or even fractures. You can work with your healthcare provider to take steps to monitor and protect your bone health.

WHY IT'S HELPFUL

By taking steps to understand your bone health, you can diminish pain and protect your body.

KEY POINTS

1. Abnormal plasma cells are one of the main causes of bone damage in people with MM
2. Blood tests, X-rays, and additional tests can reveal whether you have bone damage
3. You can take steps to stay proactive about managing bone problems, including working with a physical therapist and/or a dietician

UNDERSTANDING BONE PROBLEMS

A common sign of damage caused by MM can be seen in the bones. MM causes bone damage by interfering with 2 ways that bones normally develop:

- Reduces activity of osteoblasts, which usually help build new bone
- Promotes activity of osteoclasts, which usually break down old bone

Additionally, abnormal plasma cells may form masses in the bone marrow, which may damage the structure of the bone.

UNDERSTANDING BONE DAMAGE

- Abnormal plasma cells release a substance that tells osteoclasts to break down bone faster
- Abnormal plasma cells also reduce the ability of osteoblasts to build new bone
- MM may cause weak spots in bones. These weak spots, called lytic lesions, may be painful and put a person at higher risk of bone breaks

TESTS TO CHECK FOR BONE DAMAGE

Tests to see if you have bone damage may include:

BLOOD TESTS: When bones break down, they release calcium into the blood. A blood test can show how much calcium is in your blood.

X-RAYS: This is the most common way of searching for bone damage. Your healthcare provider may take a series of X-rays of several bones to identify weak spots. This is called a **skeletal survey**.



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ADDITIONAL IMAGING TESTS: For a more detailed picture of your bones, you may undergo other imaging tests, including:

- Magnetic resonance imaging (MRI)
- Computed tomography (CT) scans
- Positron emission tomography (PET) scans

BONE DENSITY TEST: This special type of X-ray may show the severity of bone damage.

TAKE CARE OF YOURSELF

It's important to talk to your healthcare team if you are having bone pain. Your healthcare team can help you find ways to manage your bone problems. Additionally, you may want to:

- Keep a diary of any pain you are having, to share at your next doctor's appointment. Write down:
 - The location of the pain
 - How bad the pain is (0 = no pain to 10 = the worst pain)
 - Anything that relieves the pain. **Tell your doctor about any type of medicines you may take, including vitamins, minerals, or over-the-counter pain relievers**
- Make changes to your living space to help avoid injuries, such as securing loose rugs or wires, installing handrails, or adding non-skid rubber mats
- Talk with your healthcare team about exercises that may help strengthen your bones or relieve pain
- Discuss with a dietitian or with your doctor or nurse any changes you could make to your diet to help strengthen your bones
- Ask your doctor if there are other ways to manage bone pain, such as physical or occupational therapy, surgery, or medicines
- Call your doctor right away if you feel sudden severe pain, numbness, and/or muscle weakness

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