

Bone Health and Multiple Myeloma: What You Need to Know



Why and how does multiple myeloma affect bones?

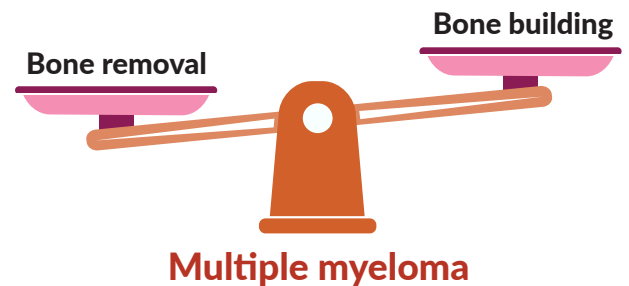
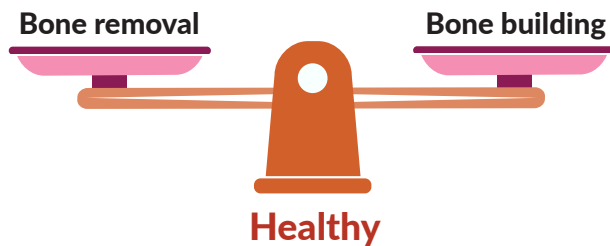
Bone disease occurs in ~85% of patients



Myeloma cells in the bone marrow cause increased bone breakdown and decrease the building of new bone

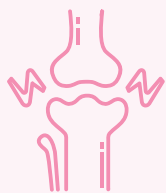
In healthy individuals, old bone is replaced on an ongoing basis, a process known as remodeling

In multiple myeloma, the remodeling process becomes unbalanced, and we begin to lose more bone than we replace

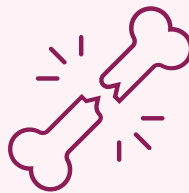


What can myeloma bone disease lead to?

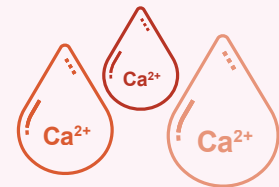
Thinner and weaker bones



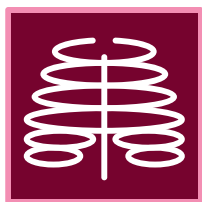
Formation of holes in the bones (causing fractures, spinal cord compression, and/or pain)



Bone loss increases calcium levels in the blood, which can lead to kidney stones, kidney failure, stomach upset, nausea, vomiting, constipation, confusion, lethargy, and fatigue

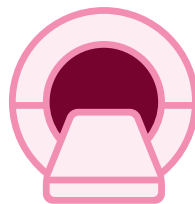


What tests are used to find and measure bone disease?

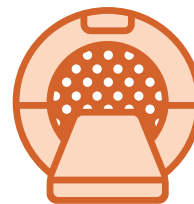


X-ray

X-rays reveal osteoporosis, fractures, or holes in bone in 75% of patients



MRI



CT scan



PET scan

- MRI and PET/CT appear to be more sensitive than x-rays in detecting smaller holes in bone
- MRI and PET/CT can reveal 85% more bone damage than x-rays

What are the treatments for myeloma-related bone disease?

Pain management	<ul style="list-style-type: none"> • Radiation therapy for pain caused by spinal cord compression or fractures, administered by a radiation oncologist • Other pain medications such as acetaminophen (Tylenol), opioids, corticosteroids, or gabapentin
Orthopedic surgery	<ul style="list-style-type: none"> • Procedures that support and stabilize the spine, such as kyphoplasty and vertebroplasty, can provide relief to patients with fractures, vertebral column instability, and spinal cord compression • These procedures can be performed without hospitalization
Prevent worsening of bone disease	<ul style="list-style-type: none"> • Bisphosphonates (Zometa and Aredia) are administered via an IV infusion every 3 to 4 weeks • Denosumab (Xgeva) is a monoclonal antibody administered once every 4 weeks as an injection in the upper arm, upper thigh, or abdomen • These treatments aim to... <ul style="list-style-type: none"> – Slow bone destruction by inhibiting the cells that break down bone – Decrease pain and reduce the risk of fractures • Patients receiving these treatments are monitored for adverse reactions like kidney impairment or osteonecrosis of the jaw (a breakdown of bone in the jaw)

What are the risk factors for osteonecrosis of the jaw (ONJ)?



ONJ risk factors	How to minimize the risk of ONJ
<ul style="list-style-type: none"> • Extended use of bisphosphonates (>12 months) • Removal of teeth while on or after extended use of bisphosphonates • Treatment with denosumab • Age (higher risk in older patients) • A history of smoking, diabetes, or poor dental health 	<ul style="list-style-type: none"> ✓ Practice good oral hygiene and schedule regular dental visits ✓ Pause use of bone-strengthening medications before and after any dental extraction or invasive oral procedures ✓ Be attentive! ONJ seems to be related to the length of time patients are on treatment for bone disease

How can myeloma patients maintain their bone health?



Vitamin D

- Vit D3 (cholecalciferol)
 - 50,000 IU once a month
 - 1,000 IU once a day
- Vit D2 (ergocalciferol)
 - 100,000 IU once a month

Calcium

- 1,200 to 2,000 mg daily
- Patients with kidney impairment receiving calcium supplements need close monitoring to prevent vitamin D toxicity



The MMRF Patient Navigation Center

is a space for patients to connect with patient navigators—who are oncology professionals—for guidance, information, and support.

You can reach the MMRF Patient Navigation Center by phone at **1-888-841-6673**, Monday through Friday from 9:00 AM to 7:00 PM Eastern Time, or on the Web at themmrf.org/resources/patient-navigator-center

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