

Core concepts



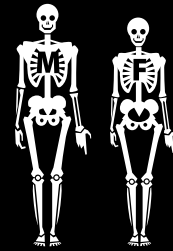
Musculoskeletal hotspots

Daily stress makes these areas trouble-prone. Healthy eating and staying active will maintain the skeleton. But in some cases, targeted drug therapies may forestall disease, prevent fractures and limit the need for costly joint replacements.

UNLIKE A PIECE OF CHALK, bone is no dry, static thing wearing away with use. A structure at rest, a machine in motion, the living skeleton renews itself in cycles, regulating and interacting with tissues and systems throughout the body. Musculoskeletal performance peaks in adulthood and then declines, a precursor to pain, disease and fractures.

At the Musculoskeletal Research Center, collaborative teams strive to understand the complex foundations of bone, joint and muscle health. These findings will be applied to osteoporosis, osteoarthritis and other musculoskeletal conditions. Earlier detection and treatment — or finding the means to avoid disease altogether — will help to ensure a skeleton's long and active life.

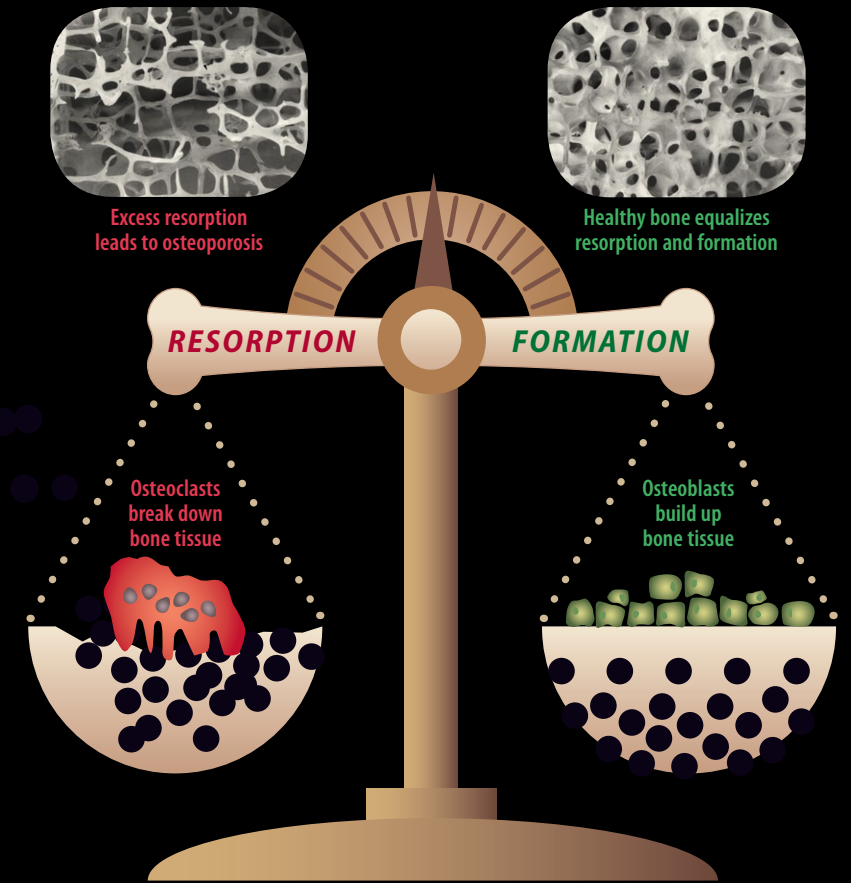
Balancing act osteoporosis



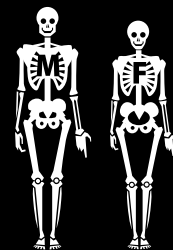
25% 40%

RISK
Age 50+

A body tears down and rebuilds its skeleton every 10 years or so. This natural cycle is key to skeletal health — that is, as long as the resorption and formation processes remain balanced. Once bone formation slows later in adulthood, however, excess resorption can weaken bones, increasing the risk of fractures. Drug therapies that rebalance the cycle can mitigate the disease known as osteoporosis.



Painful legacy osteoarthritis



50% 50%

RISK
Age 50+

Why doesn't everyone get osteoarthritis (OA)? The disease affects skeletal joints and cartilage, the "cushion" between the bones. Research shows that some animals inherit the ability to repair damaged cartilage. Understanding and possibly enhancing this repair process in humans is one goal of OA research.

