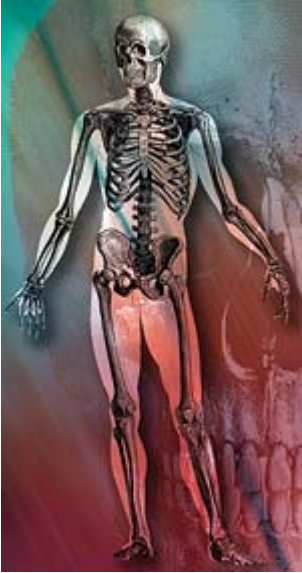


REPORT

The Hidden Dangers of Male Osteoporosis



Most men think that osteoporosis—a condition characterized by decreased bone mass and density—is something that affects primarily women. Unfortunately for some 2 million American men, that is not the case.

While women do have more problems with osteoporosis partly because of hormonal changes that occur after menopause, the National Osteoporosis Foundation estimates that one in four men will have an osteoporosis-related fracture in his lifetime. More troubling, men are less likely to know that they have osteoporosis until the disease is highly progressed, and also are less likely to receive appropriate treatment once they are aware of their condition.

Osteoporosis is not a disease to ignore. Weak bones are responsible for almost 1.5 million fractures in the US each year, costing \$10–15 billion annually in medical care. Most fractures occur in the spine, hip, or wrist, and research shows once you have experienced a fracture, you are at increased risk for future broken bones. The most devastating injuries are hip fractures—more than 300,000 Americans break their hips every year, often because of a fall. And fully one-fourth of patients with hip fractures die within a year of sustaining their injuries.

According to the National Institutes of Health, as the population continues to age, osteoporosis in men will become a more-serious public health issue. In the US, the number of men over the age of

70 is expected to double in the next 50 years.¹

Surprisingly, while 2 million American men have osteoporosis, very few of them are aware that they have brittle bones. “You see a preponderance of women coming in for a checkup before menopause because they have a family history of osteoporosis and know there is a link between menopause and osteoporosis,” says Etah Kurland, assistant professor of clinical medicine at New York’s Columbia University College of Physicians & Surgeons. “But because men do not go through a menopause, there is not a typical time when they have rapid bone loss.”

Kurland notes that even if a woman does not come in for a checkup, physicians usually raise the issue of bone loss with women who are reaching middle age. At this time, women will probably receive counseling on how to prevent bone loss through exercise, a calcium-rich diet, hormone modulation therapy, and drug strategies.

But for most men, the first sign that they have a problem is when they end up in the emergency room after a slip or fall.²

How Bones Are Built

Like a modern, bustling metro-polis, the human skeleton is in a constant state of construction. As soon as bone is built, it is quickly torn down to make way for the construction of new bone. This process continues in a constant cycle because the body has two different cells that form bone: osteoblasts and osteoclasts. Osteoblasts are the cells that make bone mineral, while osteoclasts are the cells that tear it down.

Most bone is formed during youth, when the body is growing and osteoblasts work overtime to lengthen bones. Bones stop lengthening when we reach our maximum height, which for women usually occurs in the teens but for some men may continue well into their twenties. Men’s bones will continue to add mineral content until around age 30, increasing in density to provide strength.

After this point, called peak bone mass, bones will slowly decline in strength. Throughout life, factors including heredity, hormones, diet, exercise, and certain medications affect bone density.

Because of their relatively larger body sizes, and possibly greater participation in physical activity, men tend to emerge from their twenties with a greater peak bone mass than women.³ This is thought to explain why men are at less risk for osteoporosis than women and why men are usually diagnosed with the condition later in life. Men simply have more bone to squander.

Unfortunately, once bone loss occurs, there is no real way to build more bone. The best that can be done is to halt bone loss and preserve what the body created during youth.



Why Men Are Different

Men do not incur some of the bone-loss problems that women do once they reach middle age. Women entering menopause experience a drastic reduction in progesterone, estrogen, and other bone-protecting hormones. Progesterone is important in maintaining healthy bones because as progesterone levels decrease, bones stop stimulating the osteoblasts to build more bone. Fortunately for men, their bodies have more bone reserves to compensate for whatever comes their way. Men attain greater bone mass for several reasons. First, their bones must be bigger to handle their relatively larger bodies. While men's bones are not necessarily denser than women's bones, they are of greater diameter.⁴ And thicker bones provide greater resistance to stress.

It is generally thought that hormonal changes that occur during puberty are responsible for giving men greater bone mass. In fact, studies have found that men with delayed puberty fail to reach peak bone mass.⁵ Male hormones certainly increase muscle mass, which in turn stimulates bone formation.

Genetics also are important in reaching peak bone mass. Studies have found that a maternal history of hip fracture is major risk factor for osteoporosis in women.⁶ Scientists dispute which genes are involved in the formation of the human skeleton but believe that genetics account for about 50% in our reaching peak bone mass.^{7,8}

Bone Loss in Men

Underlying factors usually cause bone loss in men. One major cause is the use of prescription steroids called glucocorticoids. "Going back just 10 years, there was very little appreciation of how glucocorticoids could affect bone health," says Kurland.

Doctors prescribe glucocorticoids for multiple reasons, including arthritic problems, asthma, and inflammatory bowel syndrome. Whether the prescription involves high doses for short periods or moderate doses for extended periods, it carries the risk of bone loss.

"If I see a patient who was treated with high doses of glucocorticoids or is currently taking them, I would want to screen this person for bone loss," says Kurland. "It was not that uncommon in the past for men to be taking these kinds of drugs."

Glucocorticoids inhibit the osteoblasts but stimulate the osteoclasts to eat up the bone. Kurland calls it "the worst situation, because as you decrease bone formation, you are increasing bone resorption."

The next most common reason men get brittle bones is from excessive alcohol consumption. While casual drinkers have nothing to fear, people with a known drinking problem should take note: alcohol will not only pickle your liver, but also poison the bone-forming cells.



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