Osteoporosis & Women’s Health

Martha Gore was raised to stand ramrod straight at all times. So when her husband told her she was slumping, she knew something was wrong. But her doctor brushed off her concerns. Just age, he told Ms. Gore, then in her early 60s. Luckily, Ms. Gore, a literary agent from Tucson, AZ, sought a second opinion. Sure enough, her bent posture wasn’t due to age, but to osteoporosis, a disease of thinning and fragile bones.

Although Ms. Gore didn’t know it, the vertebrae in her spine had most likely begun to fracture, a slow, often painless collapsing of bone called “microfractures,” according to Laura Tosi, MD, chair of the Women’s Health Issues Committee of the American Academy of Orthopedic Surgeons and chief of Orthopedic Surgery at Children’s National Medical Center in Washington, DC.

Ms. Gore’s doctor said that parts of her skeleton resembled Swiss cheese more than solid bone, putting her at risk for additional fractures, which, depending on the extent of her disease, could come from a simple action such as pushing open a heavy door.

But Ms. Gore is one of the lucky ones. Today, at 76, after more than a decade of treatment with medication and lifestyle changes to make her bones healthier, she proudly states the fact that she hasn’t had any more fractures and that her bone density has increased three percent.

She has a message for other women out there who, like her, never even considered they might have osteoporosis despite experiencing its classic symptoms: broken bones in their 50s, 60s or even 40s, increasing back or neck pain, or loss of height. “You have to become responsible for yourself by being aware of what your body tells you,” she says. “Don’t accept ‘aging’ as the reason.”

Osteoporosis Defined

Osteoporosis is the most common bone disease affecting Americans. Called the “silent disease” because its progression is so subtle, it is an important risk factor for fractures in older people. “You can’t see it happening,” says Dr. Tosi. “But once it occurs, you can feel it and, sometimes, you can see it.”

Just picture the stooped old woman who looks as if she’s always bending over to pick up something. Her rounded back, sometimes referred to as dowager’s hump, probably comes from multiple compression fractures in her vertebrae. As the bones of her spine collapse, she shrinks, rather like a building imploding onto itself, one floor pancaking onto the one below it.
OSTEOPOROSIS & WOMEN’S HEALTH  continued from page 1

Although most are painless, about one third of these fractures can “hurt like hell,” says Dr. Tosi.

Overall, one out of every two women and one in eight men over 50 will have an osteoporosis-related fracture in his or her lifetime, with American women four times more likely to develop the disease than men. 

In 2002, an estimated eight million women had osteoporosis, with an estimated 30 million women aged 50 and older either having or being at risk for developing the disease. Those figures will only increase as the nation ages, with an estimated 52 million men and women affected by 2010, and 61 million by 2020.

Small wonder, then, that osteoporosis is considered a major public health threat today, costing the nation’s health care system approximately $17 billion annually. The costs aren’t just economic, however. The disease, particularly once a fracture occurs, often results in depression and anxiety, significantly affecting the quality of life as it limits mobility and requires its victims to cope with deformity.

For instance, after her second foot fracture, Maurine Moglia, then 70, said she “felt like a woman of 90.” “I was so scared,” the 73-year-old Oakland, CA, woman recalls. She started walking more slowly and going out less, leading to isolation and depression.

Felicia Cosman, MD, clinical director for the National Osteoporosis Foundation, encounters women like Ms. Moglia all the time in her practice. “I consider it one of my most important jobs to try to reassure them. Even with very low bone density, the risk of fracture in any given year is still not that high and, more importantly, there are many changes that they can make to try to improve their condition, from lifestyle to nutrition to medication,” says Dr. Cosman, medical director of the Clinical Research Center at Helen Hayes Hospital in New York.

The Building and Breaking Down of Bone

Think of bone as a stone wall, strong and solid. If you were to remove a few of those stones, however, the remaining rocks would no longer be as steady, and the wall would no longer be as strong, although it might still stand. Take away a few more, and the slightest pressure could cause it to crumble. But add more rocks, and you strengthen the wall. That’s what happens with bone, which is constantly being built up and broken down in a process called remodeling. The cells responsible for these construction and demolition jobs are osteoblasts (which build bone) and osteoclasts (which break down bone). They do this, in part, to release calcium into the blood, where it’s important for brain, muscle and nervous systems.

Bone health is defined in two ways: bone mass and bone quality. Bone mass, also called bone mineral density, refers to the mineral content of the bone and accounts for about half of what makes bone structure strong, says Dr. Tosi. Other factors involved in bone health include the architecture, turnover and accumulation of damage (such as those tiny little fractures called “microfractures”). While we can measure bone mass through DEXA (dual-energy x-ray absorptiometry) scans and ultrasounds, there is currently no good way to measure bone quality.

And while age is probably the greatest risk factor of osteoporosis, other contributing factors include juvenile
arthritis, diabetes mellitus and kidney and liver disease. Medications, such as anticonvulsants for epilepsy, corticosteroids for rheumatoid arthritis and asthma, and immunosuppressive agents, can also contribute or even lead to the disease.\textsuperscript{11}

**Calcium is Critical**

Though you probably understand the importance of calcium to bone, you might not realize that the only way your body gets calcium is through your diet or from supplements; your body can’t manufacture it. So if your body isn’t getting enough calcium from your diet, it steals it from your bones. The process works like this: the parathyroid gland releases a hormone called, appropriately enough, parathyroid hormone, which tells osteoclasts to get to work breaking down bone to release calcium into the blood. Estrogen also plays a role. It actually slows down the osteoclasts, thus slowing the breakdown of bone. That’s why bone tends to thin fastest after menopause.

Although calcium is important, it doesn’t act alone. Without vitamin D, bone can’t absorb calcium. In one large, observational study of 87,000 nurses, researchers found that the women who got the most vitamin D in their diets or through supplements were least likely to experience fractures.

But it’s not easy to get vitamin D from food. The nutrient is found mainly in dark fish like salmon, mackerel, anchovies and sardines. Our greatest source is sunshine, and about 15 minutes daily of sunlight will probably give you the vitamin D you need. It doesn’t sound like much, but for people who spend most of their time indoors, even 15 minutes can be difficult to get. Also, as you age, your skin doesn’t make vitamin D as efficiently as when you were young, so the need for oral vitamin D intake increases. Taking a multinutrient containing vitamin D is a good idea, says Diane Feskanich, ScD, an assistant professor at Harvard Medical School.

**Fractures, Fractures, Fractures**

Ms. Moglia was 70 when she tripped and broke her foot—twice in the same year. Ms. Gore had several bones break in her feet throughout her 50s. But neither woman’s doctor suggested she have a bone density scan to test for osteoporosis. And that, say osteoporosis experts, represents one of the great failings of medicine today. “We feel like we’re years behind in educating the doctors and the public that a fracture means something,” says Elliott Schwartz, MD, co-medical director of the Foundation for Osteoporosis Research and Education (FORE) in Oakland, CA.

The best predictor of a woman’s (or man’s) fracture risk is a previous fracture, particularly what’s called a “fragility fracture,” when your bone breaks without much force. These are the fractures that occur when you slip, trip on a step, or just fall from a standing height, says Dr. Tosti. “A fracture is a sentinel event,” she says. “It should be an alarm going off saying, ‘I’m in trouble.’ Instead, women get their cast and go on home.” To address this, the American Academy of Orthopedic Surgeons is joining with numerous other medical groups, including the National Osteoporosis Foundation, to craft an advisory statement warning physicians that fractures in middle-aged and older women should be a red flag and that further investigation for other potential health problems should be pursued.

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**Fast Facts About Bone Density Tests**

Bone density tests are the only way to detect low bone mass. They can help predict the risk of a fracture, and monitor the effectiveness of osteoporosis treatments. The most commonly used test is a dual energy x-ray absorptiometry (DEXA) scan, which measures bone at multiple sites—the spine, hip and wrist—the most common fracture sites. The test is painless, taking about 15 minutes to complete.\textsuperscript{13} The U.S. Preventive Services Task Force recommends that women 65 and older be routinely screened for osteoporosis, and that routine screening begin at 60 for those women identified at high risk because of a lower body weight or because they’re not using supplemental estrogen after menopause, which has been shown to reduce the risk of fractures.\textsuperscript{14} Here are more facts to know about bone density tests:

- Bone density results often are expressed as “T-scores;” which measure how far your bone density deviates above or below the average bone density value for a young, healthy, Caucasian woman. Thus, a T-score at or below -2.5 results in a diagnosis of osteoporosis, while a T-score between -1 and -2.5 results in a diagnosis of osteopenia, or low bone density.
- Most health insurance companies cover bone density tests when ordered by your doctor.\textsuperscript{15}
- Make sure you discuss your T-score with your health care professional; don’t assume you do or don’t have the disease. Many things can influence your results, including ethnicity, weight and age.
OSTEOPOROSIS & WOMEN’S HEALTH continued from page 3

Preparing for Prevention
Of course, the best way to deal with osteoporosis is not to get it in the first place. And that requires lifelong prevention beginning in childhood. (See “Ages & Stages,” page 6.) Still, it’s never too late to change certain lifestyle habits that contribute to osteoporosis and adopt others shown to prevent fractures. These include:
- Quitting smoking. No one really knows why smoking is linked with an increased risk of osteoporosis, says Robert P. Heaney, MD, osteoporosis expert and professor of medicine at Creighton University in Omaha, NE, but the evidence is quite clear that it is.
- Following a healthy diet and maintaining a healthy weight. This means getting adequate amounts of calcium and vitamin D, and it also means getting enough calories. (See “Lifestyle Corner,” page 8, for creative ways to add calcium to your diet.)
- Remaining physically active with weight-bearing activities. Bone mass is dependent on the stress, or weight, placed on bones. The more you use your bones—to walk, run, lift weights—the heavier and stronger your bones will be. Physical activity also helps you maintain strong muscle, which provides support, so you’re less likely to trip or fall.
- Wondering what exercise to pursue? Well, if you’re walking, you’re halfway there. A study by Dr. Feskanich found that women who walked at least four hours per week had a 40 percent lower risk of hip fracture, compared with mostly sedentary women.
- But to get the biggest bang for your exercise buck, try gardening. When Lori Turner, PhD, RD, and her associates at the University of Arkansas in Fayetteville studied data on the nutritional and exercise habits of 3,310 women aged 50 and older, yard work and weight training were most highly associated with reducing the risk for osteoporosis. The results surprised even the researchers, Dr. Turner recalls, until they realized that pushing a lawnmower, thrusting a shovel into the ground, lifting heavy wheelbarrows filled with mulch and raking were great weight-bearing exercises.

Fighting Back
The good news about osteoporosis is that the disease is very treatable today. With the right therapies and lifestyle adjustments (described on page 8), you can increase your chances for a long and healthy life.

RESOURCES
NIH Osteoporosis and Related Bone Diseases National Resource Center
800-624-2653
www.osteo.org
Provides resources and information on osteoporosis and other metabolic bone diseases.

National Bone Health Campaign
770-488-5820
www.cdc.gov/powerfulbones
A multyear campaign to promote optimal bone health in girls age nine to 12 years old, and reduce their risk of osteoporosis later in life.

National Osteoporosis Foundation
202-223-2226
www.nof.org
Offers information and resources on osteoporosis and bone health.

Foundation for Osteoporosis Research and Education
888-266-3015
www.fore.org
A non-profit resource center dedicated to eliminating osteoporosis through research, education and bone density testing programs.