

Surgeon General's Perspectives

BONE HEALTH: PREVENTING OSTEOPOROSIS

Drinking milk to build strong bones has been stressed for decades by moms the world over. As we grow older, we learn that mom was onto something. Bones are the framework of our bodies: healthy and strong bones are vital to our overall health and well-being, especially as we age. Osteoporosis is a growing concern in America that affects 10 million Americans,¹ causes two million fractures per year,² and costs the nation roughly \$19 billion annually.¹

Bone is a living tissue that is constantly regenerating.³ It is made up of the mineral calcium, which makes the bone strong, and collagen, a protein that makes it more resilient.³ Significant bone development begins in infancy and continues into early adulthood. It is important for adolescents to make healthy choices to “invest” in their bone health, as 90% of peak bone mass is acquired by age 18 for girls and by age 20 for boys. By the age of 30, bones have reached their peak bone mass or maximum bone strength and density.⁴ By the time people reach their mid-30s, their bones slowly begin to lose mass.⁵ As bones begin to lose mass, risk increases for diseases of the bone, most commonly osteopenia (chronic low bone mass) and osteoporosis.

Osteoporosis is a largely preventable disease that is characterized by “holey” bones, or bones that are porous and have a low density. Osteoporosis is associated with an increased risk of fractures. This condition can often be reduced, eliminated, or prevented by following healthy lifestyle guidelines.^{5,6} The largest controllable determinants of bone health—nutrition, physical activity, weight, smoking cessation, heavy alcohol avoidance, and prevention of falls—greatly affect one’s risk for disease.⁵ Strong bones require calcium and vitamin D, a necessary component of calcium absorption, which is found in many fortified foods and is also produced by the body through sun exposure.⁵ Healthy weight maintenance and daily physical activity, including strength training, are vital to bone health. Other factors, such as cigarette smoking, heavy alcohol intake, and certain medications, reduce bone mass. For those at risk of developing osteoporosis, a bone mineral density screening test can best identify their level of risk so they can prevent further damage.⁷ Although it is ideal to prevent osteoporosis through behavioral



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changes, medications are available to decrease or prevent damage.⁵

Despite osteoporosis being measurably present within all demographic groups, some people are particularly vulnerable. Among these groups, older adults, Caucasian and Asian women, post-menopausal women, people with a low body weight, and those with low calcium intake are most at risk for osteoporosis.⁸ Alarmingly, of the 10 million people affected by osteoporosis, 80% are women. In comparison with other racial/ethnic groups, risk is disparately rising most rapidly among Hispanic women. Between 2005 and 2025, the cost of osteoporotic fractures among Hispanic people is predicted to rise from \$754 million to \$2 billion per year.¹ Estimates show that by 2010, roughly 12 million people older than age 50 years will be afflicted with osteoporosis and 40 million more will suffer from low bone mass. By 2020, the number of people afflicted is expected to increase to 14 million cases of osteoporosis and more than 47 million cases of low bone mass.⁹

As we age, our risk for broken bones increases while our ability to recover from such bone breaks decreases. Many seniors who experience broken bones due to accidental falls often find that they are no longer able to care for themselves at home and must

move into a nursing home. Hip fractures represent a large percentage of the overall fractures and tend to be the most debilitating. In fact, they account for an astounding 300,000 hospitalizations each year, and one in five people with a hip fracture ends up in a nursing home within a year.⁵ Additionally, 24% of hip-fracture patients aged 50 years and older die in the year following their fracture. In 2005, a total of 15,802 people aged 65 years and older died as a result of injuries or complications from falls.¹

As an advocate of health promotion and disease prevention, the Office of the Surgeon General has made reducing prevalence, eliminating health disparities, and increasing awareness of osteoporosis one of its main concerns. In both 1988 and 1996, previous Surgeons General released reports that brought attention to the substantial cost and prevalence of osteoporosis and various prevention methods.^{10,11} The most recent release, *The Surgeon General's Report on Bone Health (2004)*, emphasized education and awareness of prevention through healthy lifestyle choices.¹²

As the 2004 Surgeon General's Report on bone health emphasizes, a National Action Plan, which utilizes the key stakeholders in our country, must be established to combat this disease.⁷ The main strategies of this plan for public health and systems-based approaches highlight disease education and awareness, improvement of links to resources, risk recognition training, monitoring and evaluation of outcomes, intervention strategies, and better preventive, diagnostic, and treatment services.⁷ Implementing these strategic approaches would reduce the incidence, and therefore the cost, of osteoporosis. These approaches would also eliminate disparities and improve our nation's overall health.⁷ Key agencies have begun emphasizing disease prevention over management, and are targeting younger demographic groups as a preventive strategy. Notably, the Office on Women's Health recently launched the "Best Bones Forever" initiative, which utilizes a child-friendly format to appeal to and inform young girls and teens.¹³

With the many publications and agencies providing information on how to protect ourselves, how can we account for the increase in osteoporosis? One explanation attributes the disconnect between patients and health-care providers. Without access to vital information, many patients are left unaware of the dangers, prevention, and treatment options and are, therefore, at an increased risk of developing osteoporosis.⁶

The statistics are stark: by 2025, the cost of osteoporosis could rise to nearly \$25.3 billion annually.¹ As a nation, we must come together to combat this

debilitating disease. Public health leaders and advocates, government and nongovernmental agencies, communities, health-care professionals, and everyone in between are responsible for protecting themselves and their neighbors.⁷ Awareness and understanding are the keys to reducing the overwhelming incidence of osteoporosis in our country. Great progress has been made in reaching out to the public through health campaigns, research, and publications; however, as the statistics show, the fight is not over. We must work together now to improve health literacy and prevention awareness to ensure that our entire nation understands the principles of bone health: by eating healthfully, getting enough vitamin D and calcium, exercising regularly, and not drinking heavily or smoking, we can be on our way to healthy, strong bones.

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