

BONE HEALTH AND OSTEOPOROSIS: A REPORT FROM THE U. S. SURGEON GENERAL

On Thursday, 10/14/04, U.S. Surgeon General Richard H. Carmona, M.D., M.P.H., F.A.C.S. issued his landmark report on bone health and osteoporosis. This timely Report highlights the current lack of awareness about risk of osteoporosis and is a call to action for all Americans to learn more about how to improve and maintain the health of their bones.

The importance of healthy bones and the consequences of diets that do not contain adequate levels of calcium and vitamin D are discussed in-depth in this Report. Statistics from the Report revealed that:

- 10 million Americans over age 50 have osteoporosis, the most common bone disease.
- 34 million Americans are at risk with low bone mass or 'osteopenia'
- 300,000 hospitalizations occur each year due to hip fractures
- 1.5 million people each year suffer a fracture from osteoporosis
- 1 out of every 2 women over age 50 will have an osteoporosis related fracture in their lifetime, with risks increasing with age.
- The direct financial expenditures range from 12.2 to 17.9 billion dollars per year (based on 2002 dollars)
- Osteoporosis can occur in men; 6% of white men over age 50 will suffer a hip fracture

However, these statistics should not frighten, but can serve to emphasize aspects of proper development and maintaining health bones. In fact, the Report emphasizes that the bone health status of Americans can be improved by a straight forward prevention strategy. This prevention strategy includes optimal intakes of key bone nutrients, such as calcium and vitamin D, as part of a healthy diet physical activity and regular medical check-ups and screening for bone disease.

Bone Health

Healthy bones provide a strong foundation, allowing mobility and protection from injury. They also serve as a bank for important minerals, such as calcium, that help support numerous organs in our body. Developing healthy bones begins at birth and proceeds throughout life. The human body uses calcium to build healthy bones until about 30 years of age. After the mid-30's, bone loss slowly begins to occur. Women lose bone quickly after menopause. Importantly, healthy habits can help to limit the bone loss that occurs.

While genetic factors play a key role in determining bone mass and strength, one can influence the maintenance of a strong skeleton by positively impacting controllable factors. Some areas that can be controlled include:

- Getting enough calcium and vitamin D
- Being physically active
- Reducing hazards in your house to reduce risk of falling and breaking bones
- Reviewing your medications with your doctor and/or pharmacist and raising awareness that some medications can weaken bones.
- Maintaining a healthy weight
- Not smoking
- Limiting alcohol use

“The good news is that you are never too old or too young to improve your bone health,” Dr. Carmona said. “With healthy nutrition, physical activity every day and regular medical check-ups and screening, Americans of all ages can have strong bones and live longer, healthier lives.”

Nutritional Health

The Report states that the composition of the diet plays an important role in building and maintaining bone mass throughout life. Lack of calcium intake has been singled out as a major public health concern because it is critically important to bone health and the average American consumes levels of calcium that are far below the amount recommended for optimal bone health. Calcium rich foods include milk, cheese, yogurt and leafy green vegetables. One cup of vitamin D fortified milk provides about 300 milligrams of calcium and 50 IU of vitamin D.

Calcium supplements can be helpful for individuals who do not get enough calcium in their diet. Pertinent information about calcium supplements include:

- All major forms of calcium (e.g. carbonate, citrate) are absorbed well when taken with meals.
- Calcium from supplements or fortified foods is best taken in several small doses. It is best to limit intake to 500 – 600 milligrams at any one time.
- In a recent evaluation of calcium sources, calcium carbonate supplements were found to be the least expensive supplemental source of calcium.

Vitamin D is important for bone health because it aids in the absorption of calcium. Numerous Americans are deficient in vitamin D, especially nursing home residents, hospitalized patients and adults with hip fractures. The main source of vitamin D is from the skin by exposure to sunlight. Several factors limit production vitamin D by the skin, including lack of sun exposure in northern climates, degree of skin pigmentation, and age.

The following table lists the recommendations for calcium and vitamin D intake by age. Please note that the highest amount of calcium recommended is for children and adolescents, a period of time when bone growth is very rapid. Also, pregnancy and breastfeeding is a time of rapid bone turnover. Requirements for calcium and vitamin D intake are age dependent and listed below.

Calcium and Vitamin D Requirements:

<u>Age</u>	<u>Calcium (milligrams per day)</u>	<u>Vitamin D (IU per day)</u>
1-3 years	500	200
4-8 years	800	200
9-13 years	1300	200
14-18 years	1300	200
19-30 years	1000	200
31-50 years	1000	200
51-70 years	1200	400
over 70 years	1200	600
Pregnancy and Breastfeeding		
Less than 18 years	1300	200
19-30 years	1000	200
31-50 years	1000	200

Physical Activity

Physical activity and maintaining a healthy body weight is important throughout life for bone health. Physical activity that involves weight bearing or impact exercises are most useful to maintain or increase bone mass. Examples include: walking, tennis, gardening, biking, aerobics or golf. Other, non-weight bearing activities help improve balance and coordination and could reduce the risk of falling. Recommendations include at least 30 minutes a day for adults and 60 minutes for children. The report noted that all types of physical activity can contribute to bone health.

Regular Medical Check-up and Screening

The health care provider and patient relationship is an important part of bone health promotion. An inquiry of risk factors for poor bone health and osteoporosis should be evaluated at all ages. Assessing history of fracture, calcium and vitamin D intake, physical activity and controllable factors (such as smoking) should be routinely discussed during a medical check-up.

Screening for bone thinning and osteoporosis should be done for all at risk patients. A bone mineral density test is a quick, painless, and raising awareness that some medications can be safe test that will evaluate the health of your bones. All women over 65 years of age should have a bone mineral density test.

OSTEOPOROSIS

Osteoporosis is a disease of bone thinning and deterioration that leads to fragile bones and increases the risk of fracture. Fragile bones may not be painful initially. Most people do not realize they have bone thinning until a fracture occurs. Once a diagnosis of osteoporosis or significant bone thinning is made, treatment may be initiated with medications that can help to prevent further bone loss and rebuild bone before life-threatening fractures occur. Medications that prevent bone breakdown have been effective in reducing risk of future fractures. Adequate calcium and vitamin D are integral components for treating and preventing osteoporosis.

This Report summarizes bone health and osteoporosis prevention and treatment strategies. The Surgeon General recommends that you become familiar with ways to achieve peak bone mass by optimizing calcium and vitamin D intake and exercise throughout life. *Take control of your bone health by discussing your specific needs with your health care provider. Make a Difference!*

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