

# Osteoporosis

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## *What Is Osteoporosis?*

Osteoporosis is the severe loss of bone mass, which leads to a weakening of the skeletal system of the body. It becomes evident when one starts to lose teeth, receding gums, or fractures a hip. Osteoporosis begins at menopause and can take years to detect.

## *What Are The Statistics and Facts About Osteoporosis?*

Affects 8 million people in the United States  
Causes 300,000 hip fractures, 500,000 vertebral (spine) fractures, and 200,000 wrist fractures - Costs the United States \$10 billion per year

## *What Are The Risk Factors Associated with Osteoporosis?*

- Small, light-skinned Caucasian women
- Premature menopause
- Smoking
- Alcoholism
- Excessive caffeine intake
- Excess salt intake
- Chronic low calcium intake
- Malnutrition
- Vitamin deficiency (C or D)
- High phosphate intake (ex soft drinks)
- Lack of exercise

- Family history of osteoporosis
- Advancing age
- Immobilization such as extended bed rest lengthy casting or splitting, paralysis

## *Treatment Options*

### **Osteoporosis and Smoking**

Smoking causes a constant depletion of calcium. It has been shown that women who smoke reach menopause years earlier than nonsmoking women.

### **Osteoporosis and Exercise**

Weight bearing exercises have been shown to increase bone density. Weight training, running, tennis, ballet, and low-impact aerobics are among the exercises that are believed to increase bone mass. It is recommended to perform weight-bearing exercises at least 5 times a week for 30 to 45 minutes

### **Calcium and Vitamin D**

Calcium intake is important for the maintenance of bone mass. Calcium carbonate provides the greatest amount of elemental calcium, at 500 to 600 mg per tablet. Outdoor exposure is also important. When exposed to the sun your body makes more vitamin D. With the amount of sunshine in

Arizona this should not be a problem for the average person.

### **Estrogen Replacement Therapy**

For postmenopausal female patients, estrogen replacement is the most effective way to prevent osteoporosis. Estrogen replacement can decrease the incidence of spinal fractures by 70% and hip fractures by 50%.

### **Bisphosphonates**

Bisphosphonates (Brand names Boniva and Fosamax) are a class of medications now used in the treatment of osteoporosis. Bisphosphonate therapy results in bone mineral density increases of 8.8% in the spine and 6.9% in the hipbone. The incidence of vertebral compression fracture was reduced by 48% in the treated group compared to the placebo group.

### **Raloxifene**

Raloxifene (Brand Name Evista) is also a newer medication approved for the prevention and treatment of osteoporosis. It is from a class of medications called Selective Estrogen Receptor Modulators. This medication helps prevent bone loss at the spine, hip and total body.

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## Osteoporosis and Calcitonin

Calcitonin is a hormone produced by the thyroid gland and acts by inhibiting bone resorption. It has been used for many years for the treatment of osteoporosis. It comes in two forms; injectable and intranasal spray called Miacalcin. Women who use the nasal spray also need to take at least 1000 mg of elemental calcium and 400 IU of vitamin D per day.

## Fluoride

Fluoride has been shown to stimulate bone formation. However, too much fluoride can increase bone fragility.

One study showed that in women with severe osteoporosis that fluoride increased spinal bone mass by 4% to 6% each year.

The recommendation is for one to take slow-release fluoride 25mg twice per day for no more than four years.

When fluoride is used, the demand for calcium is so great because that bone can be reabsorbed if calcium is inadequate. Therefore, patients who take fluoride for the treatment of osteoporosis also need to take 800 mg of calcium daily from supplements in addition to calcium obtained in the diet and 400 IU of vitamin D.

## Osteoporosis and recommended Calcium intake per day

- Children 1-10 years  
800 mg
- Young adults 11-24 years  
1200 mg
- Adults 25 and older  
800 mg
- Pregnant and Nursing Women  
1200 mg
- Women until menopause  
1000 mg – 1500 mg
- Post menopause women not taking estrogen 1500 mg.

Some of the best sources of calcium include dark green leafy vegetables such as broccoli, collards, dandelion greens, bakchoy, and spinach.