

## Definition

- Osteoporosis, or porous bone, is a disease characterized by low bone mass and structural deterioration of bone tissue, leading to bone fragility and an increased susceptibility to fractures, especially of the hip, spine and wrist, although any bone can be affected.
- In simpler terms, osteoporosis is a condition in which the bones become weak and can break from a minor fall or, in serious cases, from a simple action such as a sneeze.
- About 85-90% of adult bone mass is acquired by age 18 in girls and 20 in boys. Building strong bones during childhood and adolescence can help to prevent osteoporosis later in life.

## Prevention

- Together, the following five steps can optimize bone health and help prevent osteoporosis:
  - Get the daily recommended amounts of calcium and vitamin D
  - Engage in regular weight-bearing and muscle-strengthening exercise
  - Avoid smoking and excessive alcohol
  - Talk to your healthcare provider about bone health
  - Have a bone density test and take medication when appropriate
- A study of disease management in a rural healthcare population demonstrated that a preventive program was able to reduce hip fractures and save money.

## Prevalence

- Osteoporosis is a major public health threat for an estimated 44 million Americans, or 55 percent of the people 50 years of age and older.
- In the U.S. today, 10 million individuals are estimated to already have the disease and almost 34 million more are estimated to have low bone mass, placing them at increased risk for osteoporosis.
- While osteoporosis is often thought of as an older person's disease, it can strike at any age.

### **Osteoporosis Prevalence: Gender**

- Of the 10 million Americans estimated to have osteoporosis, eight million are women and two million are men.
- Eighty percent of those affected by osteoporosis are women.
- Twenty percent of those affected by osteoporosis are men.

### **Osteoporosis Prevalence: Race/ Ethnicity**

- Significant risk has been reported in people of all ethnic backgrounds.
- Twenty percent of non-Hispanic Caucasian and Asian women aged 50 and older are estimated to have osteoporosis, and 52 percent are estimated to have low bone mass.
- Seven percent of non-Hispanic Caucasian and Asian men aged 50 and older are estimated to have osteoporosis, and 35 percent are estimated to have low bone mass.
- Five percent of non-Hispanic black women over age 50 are estimated to have osteoporosis; an estimated additional 35 percent have low bone mass that puts them at risk of developing osteoporosis.
- Four percent of non-Hispanic black men aged 50 and older are estimated to have osteoporosis, and 19 percent are estimated to have low bone mass.

# Fast Facts on Osteoporosis

## Prevalence

- Osteoporosis is under recognized and under-treated not only in Caucasian women, but in African-American women as well.
- Ten percent of Hispanic women aged 50 and older are estimated to have osteoporosis, and 49 percent are estimated to have low bone mass.
- Three percent of Hispanic men aged 50 and older are estimated to have osteoporosis, and 23 percent are estimated to have low bone mass.
- When compared with other ethnic/racial groups, risk is increasing most rapidly among Hispanic women.

## Cost

- Experts predict that costs related to osteoporotic fractures among Hispanics will increase from an estimated \$754 million in 2005 to \$2 billion per year in 2025.
- In 2005, osteoporosis-related fractures were responsible for an estimated \$19 billion in costs.
- By 2025, experts predict that these costs will rise to approximately \$25.3 billion.

## Symptoms

- People cannot feel their bones getting weaker. They may not know that they have osteoporosis until they break a bone. A person with osteoporosis can fracture a bone from a minor fall, or in serious cases, from a simple action such as a sneeze or even spontaneously.
- Vertebral (spinal) fractures may initially be felt or seen in the form of severe back pain, loss of height, or spinal deformities such as kyphosis or stooped posture. In many cases, a vertebral fracture can even occur with no pain.
- Women can lose up to 20 percent of their bone mass in the five to seven years after menopause, making them more susceptible to osteoporosis.

## Risk Factors

- Certain people are more likely to develop osteoporosis than others. Factors that increase the likelihood of developing osteoporosis and broken bones are called “risk factors.” Many of these risk factors include:
  - Being female
  - Older age
  - Family history of osteoporosis or broken bones
  - Being small and thin
  - History of broken bones
  - Low sex hormones
    - Low estrogen levels in women, including menopause
    - Missing periods (amenorrhea)
    - Low levels of testosterone and estrogen in men
  - Diet
    - Low calcium intake
    - Low vitamin D intake
    - Excessive intake of protein, sodium and caffeine
  - Inactive lifestyle
  - Smoking and excessive alcohol intake (three or more drinks a day)
  - Certain medications such as steroid medications, some anticonvulsants and others.
  - Certain diseases and conditions such as anorexia nervosa, rheumatoid arthritis, gastrointestinal diseases and others

# Fast Facts on Osteoporosis

## Fractures

- Approximately one in two women and one in four men over age 50 will have an osteoporosis related fracture in their remaining lifetime.
- Fractures due to osteoporosis are most likely in the hip, spine and wrist, but any bone can be affected.
- According to estimated figures, osteoporosis was responsible for more than 2 million fractures in 2005, including approximately:
  - 297,000 hip fractures
  - 547,000 vertebral fractures
  - 397,000 wrist fractures
  - 135,000 pelvic fractures
  - 675,000 fractures at other sites
- The number of fractures due to osteoporosis is expected to rise to more than 3 million by 2025.
- Women with a hip fracture are at a four-fold greater risk of a second one.
- Fractures due to osteoporosis lower a patient's quality of life.
- The rate of hip fractures is two to three times higher in women than men; however, the one year mortality following a hip fracture is nearly twice as high for men as for women.
- A woman's risk of hip fracture is equal to her combined risk of breast, uterine and ovarian cancer.
- In 2005, about 293,000 Americans age 45 and over were admitted to hospitals with a fracture of the femoral neck, a common type of hip fracture. Osteoporosis was the underlying cause of most of these injuries.
- An average of 24 percent of hip fracture patients aged 50 and over die in the year following their fracture.
- One in five of those who were ambulatory before their hip fracture requires long-term care afterward.
- At six months after a hip fracture, only 15 percent of hip fracture patients can walk across a room unaided.
- In addition to hip fractures, vertebral fractures are also linked to an increased risk of death.
- Caucasian women aged 65 or older have twice the incidence of fractures as African-American women.
- Many people break a bone from osteoporosis after a fall. In 2005, a total of 15,802 persons aged >65 years died as a result of injuries from falls.

# Fast Facts on Osteoporosis

## Diagnosis

- Specialized tests called bone mineral density (BMD) tests can measure bone density in various sites of the body. Experts recommend a type of BMD test using a central DXA (which stands for dual energy x-ray absorptiometry).
- A BMD test performed by a central DXA can:
  - Tell if a person has low bone density before a fracture occurs
  - Tell if a person's bones are losing bone density or staying the same when the test is repeated at intervals of one year or more
  - Predict the chances that a person will have a fracture in the future
  - Help a person and his or her healthcare provider decide if treatment is needed
- In the near future, some DXA machines will be able to provide a report that gives information on a person's Absolute Fracture Risk. This report incorporates a person's bone mineral density results, age and some of the important risk factors for osteoporosis and fractures. The information in this report will be used to help determine a person's risk of breaking a bone in the next 10 years. This prediction of absolute fracture risk will help both healthcare providers and patients decide whether treatment with an osteoporosis medication is needed.
- Medicare reimburses for BMD testing every two years.
- An increase in BMD testing and osteoporosis treatment was associated with a decrease in hip fracture incidence.
- BMD is an important determinant of fracture risk even in nursing home patients.
- There has been a five-fold increase in office visits for osteoporosis (from 1.3 to 6.3 million) in the past 10 years.

## Medications

Although there is no cure for osteoporosis, it can be treated. The following medications are approved by the FDA to prevent and/or treat osteoporosis:

### **Antiresorptive Medications –Bisphosphonates**

- Alendronate and alendronate plus vitamin D<sub>3</sub> (brand names Fosamax® and Fosamax plus D™). Alendronate is approved for the prevention and treatment of osteoporosis in postmenopausal women and for the treatment of osteoporosis in men. It also is approved for the treatment of glucocorticoid-induced osteoporosis in men and women as a result of long-term use of steroid medications.
- Ibandronate (brand name Boniva®). Ibandronate is approved for the prevention and treatment of osteoporosis in postmenopausal women.
- Risedronate and risedronate with calcium (brand names Actonel® and Actonel® with Calcium). Risedronate is approved for the prevention and treatment of osteoporosis in postmenopausal women and for the treatment of osteoporosis in men. It also is approved for the prevention and treatment of glucocorticoid-induced osteoporosis in men and women as a result of long-term use of steroid medications.
- Zoledronic acid (brand name Reclast®). Zoledronic acid is approved for the treatment of osteoporosis in postmenopausal women. It is also approved to increase bone mass in men with osteoporosis and for the prevention of new clinical fractures in patients who have recently had a low-trauma hip fracture.

# Fast Facts on Osteoporosis

## Medications

### Other Antiresorptive Medications

- Calcitonin (brand names Fortical® and Miacalcin®). Calcitonin is approved for the treatment of osteoporosis in postmenopausal women who are at least five years beyond menopause.
- Estrogen (multiple brand names available). Estrogen therapy (ET) and estrogen with progesterone hormone therapy (HT) are approved for the prevention of osteoporosis in postmenopausal women. According to the FDA, postmenopausal women should consider other medications before taking ET or HT to prevent osteoporosis due to risks associated with these medications. They should also be used in the lowest possible dose for the shortest period of time to meet treatment goals.
- Estrogen Agonists/Antagonists also known as selective estrogen receptor modulators (SERMs) –Raloxifene (brand name Evista®). Raloxifene is approved for the prevention and treatment of osteoporosis in postmenopausal women. Raloxifene is also indicated for the reduction in risk of invasive breast cancer in postmenopausal women with osteoporosis.

### Bone Forming (Anabolic) Medications

- Parathyroid hormone –teriparatide (brand name - Forteo®). Teriparatide, a type of parathyroid hormone, is approved for the treatment of osteoporosis in postmenopausal women and in men who have very low BMD or are at high risk for a fracture. The FDA recommends that individuals take teriparatide for no more than two years.

---

Established in 1984, the National Osteoporosis Foundation (NOF) is the nation's leading voluntary health organization solely dedicated to osteoporosis and bone health.

### **National Osteoporosis Foundation's Vision:**

To make bone health a reality and a lifelong priority for all individuals.

### **National Osteoporosis Foundation's Mission:**

To prevent osteoporosis and related fractures, to promote lifelong bone health, to help improve the lives of those affected by osteoporosis and to find a cure through programs of awareness, advocacy, public and health professional education and research.

To learn more about osteoporosis, Awareness and Prevention Month, membership and more, please contact NOF at:

National Osteoporosis Foundation ■ 1232 22nd Street, NW, Washington, DC 20037  
Phone: (202) 223-2226 ■ Fax: (202) 223-2237 ■ Web: [www.nof.org](http://www.nof.org)

© Copyright 2008, National Osteoporosis Foundation