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## OSTEOPOROSIS RISK FACTORS AND TREATMENT OPTIONS FACT SHEET

**What is osteoporosis?** Osteoporosis is a disease characterized by low bone mass and structural deterioration of bone tissue, leading to bone fragility and an increased susceptibility to fractures of the hip, spine and wrist.

Wolff's Law (1868) states that bone mass and density will be increased in areas of stress. Conversely immobilization and non-weight bearing activity will cause a significant reduction in bone density. In other words, "use it or lose it."

**How prevalent is osteoporosis?** The National Osteoporosis Foundation states that osteoporosis is a major public health threat for an estimated 44 million Americans (80% of whom are women). Of that total, it is estimated that 10 million already have the disease and nearly 34 million have abnormally low bone mass, placing them at an increased risk for osteoporosis.

### According to the National Osteoporosis Foundation:

- It is estimated that eight million American women have osteoporosis.
- More than two million men currently have osteoporosis.
- Women are four times more likely than men to develop the disease.
- Fifty percent of women and 25% of men age 50 and older will have an osteoporosis-related fracture in their lifetime.
- Osteoporosis affects people of all ethnic backgrounds:
  - Twenty percent of non-Hispanic white and Asian women age 50 and older are estimated to have osteoporosis, and 52% of non-Hispanic white and Asian women aged 50 and older are estimated to have low bone mass.
  - Ten percent of Hispanic women aged 50 and older are estimated to have the disease; an additional 49% are estimated to have low bone mass.
  - Five percent of non-Hispanic African American women age 50 and older are estimated to have the disease; an additional 35% have low bone mass.
- Osteoporosis is responsible for more than 2 million fractures annually in the U.S.
- Having one spinal fracture increases the chance of having a second five-fold; two or more vertebral fractures increase the chances of an additional fracture 12-fold.
- A hip fracture in an older person increases the chance of death six-fold in four years. A spinal fracture increases the chance of death eight-fold in four years.
- Approximately one in four patients dies within one year following an osteoporotic hip fracture:
  - At six months after a hip fracture, only 15% of hip fracture patients can walk across a



- room unaided.
- Twenty percent of people experiencing hip fractures will require long-term care.
  - Women age 65 or older with one or more spinal fractures have a 23% higher mortality rate than women of the same age without fractures.
  - The estimated national direct expenditures for hospitals and nursing homes for osteoporotic and associated fractures was \$18 billion in 2002 (37% of this cost was due to non-hip fractures), or \$49 million each day, and the cost is rising.

**What are the symptoms?** Osteoporosis is often called the "silent disease" because bone loss occurs without symptoms. A person may not know they have osteoporosis until their bones become so weak that a sudden strain, bump or fall causes a fracture. Fractured vertebrae may result in severe back pain, loss of height or spinal deformities such as kyphosis (stooped posture).

**What are the risk factors?** Several risk factors for developing osteoporosis include:

- Female gender
- Thin and/or small frame
- Advanced age
- A family history of osteoporosis
- Postmenopause (including early or surgically induced menopause)
- Abnormal absence of menstrual periods (amenorrhea)
- Nulliparity (having never borne children)
- Anorexia nervosa or bulimia
- A diet low in calcium
- Use of certain medications, such as corticosteroids and anticonvulsants
- Low testosterone levels in men
- An inactive lifestyle
- Cigarette smoking
- Excessive use of alcohol
- Being Caucasian or Asian, although African Americans and Hispanic Americans are at significant risk

**Detection: Is there a test to take?** Osteoporosis can strike at any age. It can be prevented and treated. Specialized tests called bone mineral density tests can measure bone density in various sites of the body. A bone density test can:

- Predict risk of future osteoporosis and hip fracture
- Detect osteoporosis before a fracture occurs
- Determine the rate of bone loss and/or monitor the effects of treatment

**Is osteoporosis preventable?** Building strong bones during childhood and adolescence may be the best defense against developing osteoporosis. By about age 20, the average woman has acquired 98% of her skeletal mass. There are four steps to prevent osteoporosis. No one step alone is enough to prevent the disease, but a combination of the following are recommended:

- A balanced diet rich in calcium (1200 mg daily for men and women over 50) and vitamin D (between 400 and 800 IU daily)
- Weight-bearing exercise (any exercise in which your bones and muscles work against gravity)
- A healthy lifestyle with no smoking or excessive alcohol intake
- Bone density testing and medication when appropriate

**What treatments are available for osteoporosis?** Current treatment options approved by the U.S. Food and Drug Administration (FDA) for the prevention and treatment of postmenopausal osteoporosis include estrogens and progesterone hormone replacement therapy, alendronate,

risedronate, bisphosphonates, raloxifene, selective estrogen receptor modulator, and recombinant parathyroid hormone. Calcitonin is approved for treatment only. Hormone replacement therapy, bisphosphonates and selective estrogen receptor modulators affect the bone remodeling cycle and are classified as anti-resorptive medications. Bone remodeling consists of two distinct stages: bone resorption and bone formation. During resorption, special cells on the bone's surface dissolve bone tissue and create small cavities. During formation, other cells fill the cavities with new bone tissue. Usually, bone resorption and bone formation are linked so that they occur in close sequence and remain balanced. When osteoporosis is present, the balance is altered and bone loss occurs. Anti-resorptive medications slow or stop the bone-resorbing portion of the bone-remodeling cycle but do not slow the bone-forming portion of the cycle. As a result, new formation continues at a greater rate than bone resorption, and bone density may increase.

**Is there a treatment for spinal fractures?**

One treatment option is KYPHON® Balloon Kyphoplasty. The procedure is designed to treat vertebral compression fractures and restore the height and correct the angle of the vertebrae, thus, reducing back pain, reducing the number of days in bed, significantly improving mobility and increasing overall quality of life. The procedure takes about one hour per fracture and has been performed under both local and general anesthesia. Your physician will decide what is best for you. In most cases, Medicare provides coverage for Balloon Kyphoplasty. Other insurance companies often also provide coverage.

Although the complication rate with KYPHON® Balloon Kyphoplasty has been demonstrated to be low, as with most surgical procedures, there are risks associated with the procedure, including serious complications. This procedure is not for everyone. A prescription is required. Please consult your physician for a full discussion of risks and whether this procedure is right for you.

This fact sheet contains information from the National Osteoporosis Foundation [www.nof.org](http://www.nof.org) and the National Institute of Arthritis and Musculoskeletal and Skin Diseases [www.niams.nih.gov](http://www.niams.nih.gov).

For more information about osteoporosis and spinal fractures, please visit the National Osteoporosis Foundation web site at [www.nof.org](http://www.nof.org). For more information about Balloon Kyphoplasty, go to [www.kyphon.com](http://www.kyphon.com).

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