



Luisa Margolies the author of *My Mother's Hip: Lessons from the World of Eldercare* provides a useful FACT SHEET about Hip Fractures

Hip fractures are a public health crisis of growing proportions.

The number of hip fractures in the US has doubled over the past twenty years, from some 200,000 in the early 1980s to nearly 400,000 currently. Thanks to the global graying of the population, hip fractures are also on the rise worldwide.

The longevity revolution—We will not die of old age!

Rarely will a physician state that "old age" was a factor that contributed to the immediate cause of death. But because of the demographic revolution, we will probably die of protracted diseases that are age-related.

Osteoporosis is disease of Western civilization.

As the developing world assumes Western lifestyle, we are facing the onset of a worldwide pandemic.

Sedentary lifestyles can lead to disability due to loss of strength, endurance, and flexibility.

Use it or lose it to maintain physical independence. But osteoporosis is preventable and even reversible.

We get a new set of bones every ten years in a "turn over" process—virtually a "bone lift."

10 million individuals have osteoporosis

- Porous bones
- Low bone mass
- Structural deterioration of bone tissue
- Leads to bone fragility

18 million people have low bone mass, placing them at risk

There are more than 1.5 million fractures annually

- 700,000 vertebral fractures
- 250,000 wrist fractures
- 300,000 assorted fractures
- Nearly 400,000 hip fractures

Costs fractures: \$38 million/daily (Hospitals and nursing homes)

Risk factors for osteoporosis:

Female

- Small frame
- Age
- Family history—heredity
- Anorexia
- Calcium—poor diet
- Use of certain medications, like corticosteroids and anticonvulsants

- Coach potato
- Cigarette smoking
- Excessive use of alcohol
- Whites and Asians

Hip Fractures:

The Surgeon General's report on the quality of later life notes that older Americans hope for a state of well being that will allow them to function at their highest capacity. Their greatest fear is of being useless, sick, or unable to care for themselves. A hip fracture is a devastating event because it instantly destroys one's independence.

80% affected are women:

- Women lose up to 20% of their bone mass following menopause
- Woman's risk of hip fracture is equal to her combined risk of breast, uterine and ovarian cancer

Male

- 1/5 to 1/3 of all hip fractures occur in men
- 17% of men who reach age 90 suffer a hip fracture
- Men lose bone as they age and experience declining testosterone levels.
- Age-related changes in the basic metabolic activity in bone contribute to bone loss.

1 woman in 3 and 1 man in 9 older than 80 will sustain a hip fracture.

The prognosis for hip fracture victims is not good

- Approximately 25% will be dead one year after the hip fracture
- Nearly 70% of those who survive the acute post-operative stage are discharged to a nursing home.
- Roughly half the hip fracture population return home after three months of rehabilitation and are at different levels of functioning.
- But only 25% of hip fracture victims ever regain their former level of independence
- The remaining survivors are at different grades of disability, requiring supportive home care or nursing-home residence.

Who is at risk of being incapacitated by a hip fracture?

Older people: Fewer than 1/3 of hip fractures patients over 80 and only 6% of those older than 90 are alive and walking one year after injury. Advanced age is 1 of the 3 significant risk factors.

Women. Between 70 to 80% of the estimated 98 fractures per 100,000 U.S. population occur in women over the age of 60. The lifetime risk for a hip fracture is some 15% in women and 5% in men. This gap begins to narrow only with increasing age, when fracture risk increases "exponentially" as bone fragility diminishes in both sexes.

Health status at the time of injury is the third of the significant risk factors.

- Patients who are in poor health before fracturing a hip are likely to suffer complications along the way.
- People with multiple, chronic conditions that cause severe restrictions.
- People who are frail and many have balance/gait problems are at risk for falling.
- A wrist or vertebral (compression) fracture is often a harbinger of a hip fracture. It is at least a warning that if you haven't had your bones tested, you must do so immediately.
- The typical hip fracture victim is a "little old woman" with chronic degenerative diseases like osteoporosis, osteoarthritis, or rheumatoid arthritis that impede their mobility and balance.

How does one break a hip?

By having fragile bones! A woman's bone density declines by about 30% between the ages of 50 and 80. During the first 5 years after menopause, the decline is accelerated at some 2% annually. Low bone mass contributes to skeletal fragility and skeletal fragility is the principal cause of age-related osteoporotic fractures. The risk of breaking a hip doubles for each standard deviation reduction bone mineral density.

By falling! Bone density is not the only factor in hip fracture risk. Over 90% of hip fractures occur upon falling. Although many elderly people suffer spontaneous hip fractures because of advanced osteoporosis, the immediate cause is a fall.

9 out of 10 elderly people experience little trauma before fracturing a hip. They tend to say, "I just went down." All it takes is a fall from a bed, a chair, or a standing position.

4 fall-related factors play a crucial role in determining who is likely to break a hip. These are:

- Slow gait
- Difficulty in doing a heel-to-toe walk
- Small calf circumference
- Poor vision poor depth perception

Women with this set of 4 fall-related factors are twice as likely to suffer a hip fracture than women without them. Women who have low bone density in conjunction with the fall-related factors are 6 times as vulnerable.

3 factors give a 90% prediction of successful recovery and regaining one's independence:

- The state of health prior to hip fracture. The healthiest patients—those with the best pre-fracture mobility—are likely to survive and do well.
- The ability to walk within 2 weeks of surgery.
- Living with another person who will provide critical social supports.

Patients who met any 2 of these conditions have an 80% chance of returning home; patients who meet 1 have a 50% chance; and patients meeting none have only a 12% chance.

PREVENTION IS A CHALLENGE!

Prolonging life expectancy is an important public health goal, but more important is that the years again are of the highest quality so that older people can continue to live independently. *The goal is not to add years to life, but to add life to years!*

BUT PREVENTION IS FEASIBLE!

- Promote cardiovascular activities
- Promote strength, flexibility and balance training
- Healthy diet leads to healthy bones. *Diet plays a key role*

PREVENT FRAILITY AND THUS PREVENT FALLS.

Falls are not a normal part of aging, so don't be afraid of falling. If you are scared of falling, you will become inactive. If you are inactive, your physical condition deteriorates and you will become more susceptible to falling.

The issue is not just falling, but how one falls. Researchers are focusing on what constitutes a fall with a high risk of hip fractures. An impact on the hip or the side of the leg is crucial. Those who suffer hip fractures are likely to have fallen to the side and to have landed on the hip.

Hip protectors

The object is not just to prevent falls but to prevent falls among those at high risk for hip fractures—the osteoporotic population.

Treatments

Antiresorptive agents including

Bisphosphonates alendronate and risedronate

Selective estrogen-receptor modulator like raloxifene

These reduce rate of bone turnover by inhibiting bone resorption, thus preventing further bone loss.

High bone turnover increases fracture risk because of deleterious effects on microarchitecture of bone.

There are two stages to producing dense bones:

Actual bone formation during bone-remodeling cycle

Secondary mineralization that slowly increases tissue mineral content of bone

By slowing bone turnover, alendronate allows secondary mineralization to progress, increasing tissue mineral content

Ten years of research show that alendronate is safe and can reduce bone resorption by 50 percent.

Alendronate resides in bone for long periods. Five years after discontinuing this medication, bone resorption is still inhibited by 50%.

New treatments, called anabolic therapy, are appearing that will not just reduce bone loss, but actually build new bone (teriparatide in 2002 and strontium ranelate most recently)

Integrated care pathways or ICPs avoid complications during acute care period

NEW INFORMATION APPEARING REGULARLY

Homocysteine levels, normally associated with increased risk of cardiovascular disease now associated with increased risk of osteoporotic fractures. Folic acid and B vitamins important

Integrated care pathways (ICPs) may affect outcome for hip fractures.

Aspirin and cox-2 inhibitors may improve bone density.

PREVENTION MUST START EARLY!

In adolescence because up to 90% of peak bone mass is acquired by age 18 in girls and age 20 in boys. After age 30, bone mass is breaking down.

When soft drinks replace milk in students' diets, it potentially sets the stage for fractures and osteoporosis later in life. The phosphates in soft drinks can impair calcium absorption by the body. Even a teenaged girl can suffer a bone fracture.

Children must exercise, drink milk and take vitamin D, magnesium, and zinc.

The exercise program does not have to be very vigorous—just 5 to 10 minutes, three times a week of high intensity activity.

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