



Understanding Osteoporosis

By: Gary E. Foresman, MD

I. Definition

1. A skeletal disorder characterized by compromised bone strength predisposing the affected to an increased risk of fracture. A silent disease with no symptoms until a fracture occurs.
2. Osteoporosis is defined by bone mineral density (BMD) screening when a person's BMD reaches -2.5 standard deviations below typical peak bone mass (of a thirty year-old). This measurement is called the T-Score.
3. Osteopenia is defined by a T-Score of -1.0 to -2.5
4. Any case of fracturing occurring with minimal trauma (fragility fracture), independent of BMD, also defines osteoporosis, and a fracture serves as the highest predictive risk factor for future fracture.

II. Prevalence

1. An estimated 44 million Americans have low bone mass, 55% of the population over 50.
2. 1.5 million fragility fractures in the U.S. occur yearly:
 - 700,000 vertebral fractures
 - 300,000 hip fractures
 - 250,000 wrist fractures
 - 250,000 at other skeletal sites
3. 50% of people with hip fractures will never be able to walk without assistance and 25% will require long-term care.
4. Lifetime fracture risk in white women is 18% for hip fracture, 16% for spine fracture, and 16% for wrist fracture. Comparable risk in white men is 6%, 5%, and 3%, respectively.
5. 1995 estimates for osteoporosis-related fractures include 400,000 hospital admissions, 2.5 million physician visits, and 180,000 nursing home admissions.
6. 2001 estimates of direct costs were at \$17 billion in the U.S.
7. 20 to 33% of people with hip fractures DIE within one year! Men have a higher mortality than women.
8. Up to 20% of people with wrist fractures are hospitalized.

III. Risk Factors

1. Age
2. Race: White women bear the majority of all complications. Hispanic women have 1/2 the fracture risk of white women at similar bone densities.
3. Sex/Menopausal Status: Menopause leads to rapid bone loss.
4. Weight: Women who are 38% or more overweight have 1/3 of the risk of hip fracture as women of normal body weight!
5. Alcohol and Smoking: No study has documented a reduction on fracture risk by cessation of these habits.
6. Diet:
 - Sugar intake, particularly candy and cola, are associated with low BMD
 - Although multiple studies associate dairy with improved BMD, there are many confounding variables that cast doubt on this association.
 - Dairy consumption in the United States is the highest in the world, yet we have the highest rate of osteoporosis and fractures.
 - Prospective trials of diet support fruit and vegetable intake and the Mediterranean Diet but not dairy intake with respect to reduction in fracture risk.
 - The focus on calcium and not minerals or vitamin D has been spurred on by the dairy and pharmaceutical industry while flying in the face of reputable data and science.
7. Exercise: In regards to preventing fractures, all three levels of fitness are more strongly correlated with fracture prevention than actual BMD. Prospective trials do not show a benefit in most cases due to long-term compliance issues.
 - Stretching fitness: Whether through yoga, Tai Chi or other methods, stretching fitness helps prevent falls and fractures (though not improving BMD).
 - Aerobic fitness: Also improves fracture risk without affecting BMD.
 - Resistance fitness: Improves BMD and fracture risk uniquely to the body part being exercised.
8. Medical Illness: For each additional disease the person is diagnosed with (high blood pressure, diabetes, cancer, etc.), the greater the risk of fracture for that given BMD.
9. Medicines: For each additional medicine a person takes, the higher the risk of fracture for that BMD.
10. SSRI medications (anti-depressants) DOUBLE the risk of fracture.
11. Cardiovascular medications increase the risk of falls and fractures.
12. Hypnotic medications (sleeping pills) are a stronger risk factor for fracture than a low BMD.

IV. Diagnosis

1. I recommend a BMD Analysis through DEXA or QCT for white women over 50 years of age and white men over 65 years of age, earlier if significant risk factors are present.

2. I also recommend testing Urinary N-Telopeptide—the “bone breakdown marker”—as levels of this marker are an independent risk factor for fractures and serve as the best way to monitor therapy effectiveness.
3. Serum [Vitamin D](#) Levels are the most important vitamin tests to measure and independently help you determine your overall mortality risk.

V. Treatment

(Please review the [Foundations of Health](#) article.)

1. Multi-Mineral Supplements
 - Calcium, although a vital mineral, should never be taken on its own without its ‘family members’.
 - Calcium supplements, when taken on their own, have been unequivocally proven to cause heart attacks, strokes, and death in randomized clinical trials (British Medical Journal, Feb 2008).
 - Multi-Minerals, however, are vastly superior at slowing bone turnover and promoting life.
2. Vitamin D
 - The average dosage of 4000 IU per day is necessary to reach optimal levels of vitamin D in the blood stream.
 - Hormone Replacement Therapy
 - When individualized, and while using clinical judgment, hormone replacement therapy is the single best treatment for fracture prevention and life-promotion.
3. Antiresorptive Treatment
 - A variety of bisphosphonates (Actonel, Fosamax, etc.) have been proven to decrease vertebral fractures by 40 to 60 % and non-vertebral fractures by 15 to 60%
 - Selective estrogen receptor modifiers (SERMs) and calcitonin have significant risks and/or minimal benefits.
4. Bone Formation Stimulators
 - Teraparotide (Forteo) is the most proven therapy for those who have “failed” antiresorptive therapy. It is injected daily for 18 to 24 months. Insurance reimbursement is limiting.

VI. Conclusion

We all age. The question is, when does ageing become a disease? When doctors are placing nearly every white woman over 50 on medication, does it sound like good medicine or good marketing? The debate rages on.

Your Journey to Health & Healing,
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