

# Calcium and Osteoporosis

by

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Osteoporosis (overly porous or weak bones) is one of the most common afflictions among middle aged and elderly people, with approximately 10 million Americans affected, of whom 8 million are women. An estimated 20 million more suffer from osteopenia (softening of the bones), a condition which typically precedes full-blown osteoporosis. While osteoporosis is not, in and of itself, life-threatening, it can easily lead to bone fractures that can become progressively debilitating as a person gets older. In fact, most elderly people hospitalized with osteoporosis related hip fractures die within one year. Even under less grim circumstances, osteoporosis reduces the quality of life for those afflicted with it.

The response of the mainstream medical community is usually two-pronged: drugs and calcium supplementation. Drugs, such as the widely prescribed Fosamax, seem to hold out some promise, but, on closer examination, do so by a kind of chemical sleight-of-hand. Bone is a living tissue, with a metabolism that is controlled by two types of cells, osteoclasts and osteoblasts. Osteoclasts break down old, worn-out bone so it can be replaced by the new bone that is produced by the osteoblasts. Fosamax works by blocking the action of the osteoclasts, preventing them from breaking down old bone tissue, while continuing to allow the osteoblasts to go about building new bone. The problem is that you end up with bones that have greater density, but that lack flexibility, and are therefore more brittle than ordinary bones. Obviously, this is not an ideal solution.

The other recommendation generally made is for calcium supplementation. Since calcium is the most abundant mineral in the body, and since 98% of the body's calcium is found in bone tissue, this would seem to be a no-brainer. However, this strategy is based on the assumption that osteoporosis is a disease of calcium deficiency, whereas it is often a disease of calcium metabolism. Furthermore, it assumes that the calcium ingested will necessarily end up in the bone; but calcium, if not properly metabolized, can just as easily end up in the joints (contributing to osteoarthritis), soft tissues (contributing to tissue calcification), or the lining of the arteries (contributing to atherosclerosis, or hardening of the arteries). In fact, it is quite ironical that the medical community—which has been notoriously resistant to nutritional supplementation—recommends calcium at all, as calcium is every bit a major player in the formation of arterial plaque as is cholesterol. Yet we have simplistically demonized cholesterol (which plays many vital roles in the body) while deifying calcium (which can lead to all kinds of mischief if it ends up in the wrong places)!

Calcium needs adequate stomach acid in order to be properly absorbed—a deficiency of which is common among the elderly—as well as co-factors like vitamin D, magnesium,

and such trace minerals as boron and strontium. Even if calcium is indeed deficient in the diet, simply pouring more into the body will not necessarily produce the desired results. Furthermore, bone is built around a protein matrix, around which the minerals crystallize. If there is not adequate protein in the diet (or enough hydrochloric acid to digest it), all the calcium in the world will not do you any good.

In biochemistry textbooks, calcium is considered an alkalizing mineral, and is known to be one of the primary buffering agents used by the body to keep the blood pH stable. However, Metabolic Typing is based on the observation that how people metabolize food and nutrients is determined by which of two dominance systems (the Oxidative, or energy generating, and the Autonomic, or energy regulating) controls their metabolism. From this perspective, calcium is only alkalizing to the two Oxidative types (Fast and Slow Oxidizers), but is acidifying to the two Autonomic types (Sympathetics and Parasympathetics). While *dietary* calcium and all other nutrients are required by everybody, *supplemental* calcium is only desirable for one member of each dominance system: Fast Oxidizers, in whom it helps to alkalize their overly acidic blood; and Parasympathetics, in whom it helps to acidify their overly alkaline blood. (Remember that, calcium, like all nutrients, will work oppositely in members of the two dominance systems). Conversely, supplemental calcium would tend to further alkalize the already overly alkaline Slow Oxidizer, while further acidifying the overly acidic Sympathetic. Thus, too much supplemental calcium given to the wrong Metabolic Types can actually create or exacerbate a blood pH imbalance. Because the body draws on the minerals stored in bone tissue to buffer blood pH, this will often result in a net loss of bone tissue.

Maryann was a middle aged woman with osteoporosis who had been told by her doctor to take 1,500 mg of calcium. However, she continued to lose bone, until she happened into our office. We determined that she was a Sympathetic type, one of the two Metabolic Types who typically do not require supplemental calcium. In fact, the calcium she had taken had exacerbated her acidic blood pH, leaching more minerals out of the bone, causing further bone loss. When we adjusted her diet and took her off calcium, her rate of bone loss dropped by an astonishing 50% in 3 months.

Doris was a postmenopausal woman whose doctor discovered during a routine physical that she was not taking calcium. She told him that Dr. Kristal had told her that it was wrong for her Metabolic Type, and would further weaken her bones, a comment the doctor dismissed as nonsense. He ordered a bone density test, but, to his surprise and consternation, he discovered that she had 3% more bone density than the average woman her age.

Irene was a woman in her early sixties whom we tentatively typed as a Sympathetic. However, on follow-up testing, her blood became more, not less, acidic. We then determined that she was actually a Fast Oxidizer (the other acidic Metabolic Type), and not a true Sympathetic. After switching her to the appropriate diet and giving her supplemental calcium, we saw her bone loss markers return to normal within a few months, demonstrating, once again, the importance of eating according to your Metabolic Type to optimize physiological function.

## Bone Density Testing

There are two primary ways to measure bone density, both approved for use by the FDA. The one favored by most medical doctors is dual energy x-ray absorptiometry, commonly referred to as a **DEXA scan**. This method uses x-ray technology to assess the density of the bone in various parts of the body. This is then compared to the bone density of an average 35 year-old woman and rated accordingly.

The DEXA scan is the best method available to assess *the absolute amount of bone lost*, but it has two drawbacks. First, its interpretation is open to question, and different doctors will often read the same scan differently. Secondly, and more importantly, it is an invasive test that exposes the body to potentially harmful x-rays. Contrary to what radiologists will usually tell you, the amount of radiation used in these tests is *not* insignificant. In fact, *there is no such thing as a safe dose of x-ray radiation*, as has been elegantly and conclusively demonstrated by one of the country's preeminent medical researchers, Professor John Gofman (for more information on his ground-breaking work, go to [www.x-raysandhealth.org](http://www.x-raysandhealth.org)). Dr. Gofman recommends that one should always consider the risk-benefit ratio of any medical x-ray, and only agree to it if the data collected will be able to positively effect the course of future treatment.

The other way of assessing bone density is the **pyrilinks test**. Unlike the DEXA scan, the pyrilinks test does not measure the absolute amount of bone lost; rather, *it measures the rate at which you are currently losing it*, something the DEXA scan is unable to do. While both approaches offer valuable information (and a combination of the two is perhaps ideal), the pyrilinks test is more useful in practice, as it provides a simple way to monitor changing levels of bone loss over time. Best of all, it is completely non-invasive, involving a simple analysis of bone breakdown by-products in the urine. Although the pyrilinks test is not widely available at this time, we are happy to announce that it is available through our clinic.

## Bone Density Testing

***Please take a minute to read the following information, and to take the appropriate action immediately.*** Ever since Congress passed the landmark Dietary Supplement Health and Education Act (better known as DSHEA) in 1994 which protected consumers' access to nutritional supplements, powerful forces have been at work to undermine it. The pharmaceutical companies feared a loss of revenues from people turning to supplements instead of their overpriced patent medicines, while the FDA (Food and Drug Administration), who work rather too closely with the drug companies, feared the loss of

the massive drug approval fees that it collects from the drug companies. The one-sided attacks against supplements and herbal products that regularly appear in the media can be traced to these special interest groups.

The latest, and most serious challenge comes from the so-called **Dietary Supplement Safety Act of 2003**, known as **SB (Senate Bill) 722**. This bill, under the guise of protecting the consumer from unsafe products, would give the already powerful FDA draconian powers that could radically drive up the price of supplements, restrict consumer access to them, and even force supplement companies out of business. At its discretion, *based on a single consumer complaint*, the FDA could demand that a supplement company produce clinical proof of the safety of its products, even products that are already known to be safe, an extremely costly and lengthy process that flies in the face of the spirit of the earlier DSHEA act, which placed the burden of such proof on the FDA.

Ironically, under the terms of DSHEA, the FDA *already* has all the powers it needs to remove any dangerous products from the marketplace; and a manufacturer is already forbidden from marketing a product that is unsafe. ***Please contact your senators immediately by phone, fax or e-mail and urge them to vote no on SB-722*** to preserve your freedom of access to nutritional supplements. If you are unsure who your senator is, visit [www.congress.org](http://www.congress.org). Don't delay, act today!