

# New Horizon Fitness

## Avoiding Osteoporosis



**O**steoporosis is a disease where bones lose mass and become so weak that they break easily. It affects women at about four times the rate of men. There are no other crippling, sometimes fatal PREVENTABLE diseases with the reach of osteoporosis.

For the U.S. population over 65, over 55% will be affected. One in two women will experience a related bone fracture. Yearly, 30,000 Americans age 65 or older are hospitalized for a hip fracture, **25% of those die within a year** and another 20% remain confined to a nursing home (1,2).



Even if you avoid a major fracture, many people develop a visible and painful dowager's hump (3). This is caused by the back vertebrae fracturing and collapsing. Many osteoporosis sufferers spend their final years limited in motion, constantly in pain and fearing a crippling fracture.

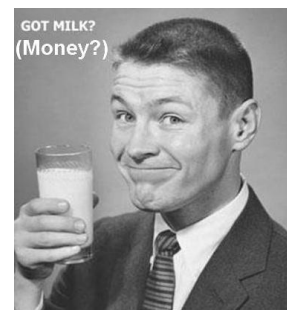
### Dairy Products Are Not the Whole Answer

If you get your health information from the American Dairy industry, you may believe the best way to prevent this disease is to consume dairy products. Let me "break" you of that misconception. Some dairy products are a good source of dietary calcium. But bone density is not just a matter of

calcium intake, but also of calcium conservation. Many dairy products contain so much of the "bone buster" sodium; you end up in a deficit. Countless studies have failed to find benefits from dairy product consumption. In 2000, the American Journal of Clinical Nutrition published a meta-analysis of 44 different studies on calcium and osteoporosis dating from 1985 (4). Their conclusion, **"the body of scientific evidence appears inadequate to support a recommendation for daily intake of dairy foods to promote bone health in the general US population."**

So why are we Americans constantly encouraged to consume more dairy products? To answer that question you have to **follow the money**.

In the face of declining per capita dairy consumption, Congress passed two measures, the Dairy Act in 1983 and the Fluid Milk Act in 1990. Milk producers are required to donate 35 cents per hundred pounds of milk to a quasi government corporation for "educating" the public. The "Got Milk" campaign cost over 100 million dollars. Estimates are these programs have returned 5 times as much in profits as they cost (5). Great for the farmers, not so good for a misinformed public. Milk and some other lower sodium dairy products can be a helpful source of calcium but this is far from the whole answer.



### Think Bone Bank

Your bones are not static fixed structures but living organs consisting of a protein (collagen) matrix and minerals. A dynamic remodeling process takes place to repair and reinforce bone as needed. Calcium is routinely removed and re-deposited. Just

increasing calcium intake is not enough. In many developing countries the population intake of calcium is 1/3 of ours, but they have no higher incidence of osteoporosis (6). Bone loss is natural for women after menopause and for men as testosterone levels decline. **The most important way to avoid the effects of natural bone loss is to “bank” or build strong bones before you turn 20.**

Your ability to build additional bone mass after early adulthood drops off dramatically. Besides the nutrients, to be discussed later, **weight bearing exercise is a powerful stimulant to bone creation and retention.**



## Risk Factors

There are many factors that raise the risk of developing osteoporosis. The National Osteoporosis Foundation lists ageing in general, being a female, a family history, a history of fractures, female of Caucasian or Asian race, small bone structure, excessive alcohol consumption, and certain medications and life style factors (7). Men are not immune to osteoporosis but the rate of bone loss is not as dramatic as post menopausal women.

If you are taking common multivitamin supplements, you could be contributing to osteoporosis. As little as 1.5 – 3.0 mg of Vitamin A in water-miscible, emulsified or solid retinol form is associated with reduced bone density (8,9). Multivitamins and separate vitamin A supplements often contain 10,000 IU or 3.0 mg of this type of retinol. Add that to what a person might consume from Vitamin A fortified foods and you are well over the damage threshold. It is believed that Vitamin A in the precursor form of beta-carotene does not contribute to this overdose. Also Vitamin A in a natural oil form such as cod liver oil only has 1/10 of the potential toxicity of the water-miscible, emulsified or solid forms of retinol Vitamin A (10).

What makes many dairy products a poor guardian of bone health is the excess salt (sodium) that many cheeses contain. Excess sodium is emerging as another major bone “thief”. Your body excretes excess sodium in the urine which pulls calcium with it. Estimates are each additional one gram intake of sodium (from sodium chloride or salt) creates a calcium loss of 20-40 mg (4). While milk has very little sodium, a few portions of American, Cottage or other cheeses can give you a day’s worth of sodium in one sitting.



## Guarding Your Bone Health

Since most of us can’t change what we did up to age 25, adults must focus on conserving the bone mass we have. Exercise along with adequate calcium and OPTIMUM vitamin D intake is important. But there is another vital nutrient out there that has no well-financed lobby promoting its virtue.

The evidence points to adequate **potassium** intake as perhaps the single most important factor to maintain bone density (4). The most likely mechanism is that the modern diet, heavy in grains, produces a chronic metabolic acidosis (11). The body compensates by de-mineralizing bone calcium. Fruits and vegetables, rich with the alkalizing salt potassium, eliminate the need to draw on calcium and magnesium stores. Potassium also reduces urinary calcium excretion stimulated by high sodium (salt) consumption.

In 2004 another study of 891 menopausal and post-menopausal women found potassium and **magnesium** had the greatest impact on bone density (6). Again, both are the same minerals that are found in a diet rich in fruits and vegetables.

Adequate magnesium supports bone health in many ways. It adds to the structural integrity of bones by providing flexibility. It is involved in the transport of calcium and plays an important part in activating vitamin D. Low serum magnesium levels are strongly correlated to osteoporosis (6). Like potassium and other minerals, it has no well-financed lobby promoting its use.

Zinc, copper, manganese and boron are other micronutrients associated with bone health. Fruits and vegetables should provide much of this. However, commercial farming techniques have lessened the micronutrients content of some produce. Moderate alcohol consumption, specifically boron-rich red wine has also shown to improve bone density.

Vitamin D has a well-established role in the absorption and conservation of calcium. Evidence is accumulating that the recommended intakes and supplementation levels are too low to achieve the optimum bone-building and cancer-fighting effects of this hormone-like vitamin. Overdosing on Vitamin D is a possibility as well, so ask your doctor about testing your level. The correct test is 25(OH)D, also called 25-hydroxyvitamin D. Try to achieve a value of between 115–128 nmol/l and/or 45-60 ng/ml through controlled sun exposure or by D3 supplementation. Talk to your physician about high dosage prescription Vitamin D if you are real low.

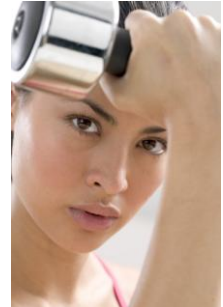
Often overlooked for prevention of osteoporosis is adequate vitamin K. This vitamin regulates the deposition of calcium throughout the body. With adequate Vitamin K, calcium is maintained in the



bones and not wrongly deposited in soft tissues such as the walls of blood vessels (12). This is key to cardiovascular health as well.

## You Can't Break Wolff's Law

Over 100 years ago, anatomist and surgeon Julius Wolff postulated that bone will adapt to the loads it is placed under. Science has since proved that bones undergo constant remodeling where calcium and other minerals are moved in and out of a collagen matrix. Load bearing exercises stimulate your body to build bone structure in response. Simply put, **use it or lose it.**



Besides helping you avoid osteoporosis, weight bearing exercises help you maintain a leaner body structure, avoid injury, reduce depression and even positively influence cardiovascular health. Recent evidence points to specific types of “stressful” exercise as providing the best osteoporosis protection. Contact me for information on how these types of exercises may or may not be appropriate for your situation.

## When All Else Fails

You have probably heard of the heavily advertised osteoporosis drugs (biophosphates) Boniva, Actonel or Fosomax. Not a milligram of calcium is contained in any of these. They work by killing the body's osteoclast cells which move calcium out of the collagen matrix. Certainly if you are facing serious osteoporosis, these are a viable last resort. But killing your body's osteoclast cells interrupts the natural remodeling process. Bone remodeling keeps bones strong, repaired and somewhat flexible.

Though rare, after five years of using biophosphates, thigh bones have just snapped in two while the person was standing (13). The calcium mass was there, but the bone had become brittle from the lack of remodeling. Other reported side effects of biophosphates include atrial fibrillation and osteonecrosis (death/decay) of the jaw bone. Prevention is the better approach than high risk drugs.

## Bottom Line

Regarding osteoporosis, there is a ton of misinformation being propagated by various food industries and of course the “pill first” pharmaceutical companies. Exercise, a healthy whole foods diet and strategic supplementation are the natural solution to preventing osteoporosis.

Start with a potassium (plant) rich diet and consider calcium supplements that contain 75% as much magnesium. Most people can benefit from at least 1000 IU of Vitamin D daily for numerous reasons including bone strength. If you have a nutrient blind physician who will not order a Vitamin D test, I can provide information on alternative test options.

Post menopausal women and other high risk individuals should consider specialized osteoporosis nutrients. Collagen calcium chelate, Vitamin K2 and an extract from plums are nutrients that have delayed or reversed osteoporosis in recent studies (14). See the Life Extension’s Bone Strength Formula on my websites’ products page.



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