

# Osteoporosis

Don't let your bones age faster than you do

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# Bones: Your Major Support Organ

## This bone disease kills more women than breast cancer

You may be surprised but in the USA more women die from fracture of the neck of femur than die of cancer of the breast, cervix and uterus COMBINED (it is a similar story in other developed countries).

A fracture of the femur is dangerous for an elderly man or woman, because it leads to immobility. That in turn increases the risk of pneumonia, which is the usual cause of death in these sad cases.

The femur fractures easily in older people because of bone thinning or osteoporosis, which in turn is caused by gross ignorance of nutritional essentials.

I have said often that osteoporosis is a whole body disease; it is NOT a lack of calcium. We're awash with calcium! (calcium is hardening of the arteries, brain plaques, crusty joint and other aging deposits: who needs calcium?)

The trouble with aging is that, as we grow older, the calcium ends up in the wrong place. That's caused by having the faulty nutritional dynamics. Bone is a living tissue, it is built up and broken down constantly. Doctors and drug companies who try to portray bone as a static vessel, filled with a certain amount of calcium—like a full, half-full or quarter-full cup—are just plain idiots.

Your entire skeleton replaces and remodels itself every few months; and I mean every molecule! If you help your bones, by doing it right and feeding them well, they will support you into your ninth, tenth, even twelfth decade.



## The Chinese Story

It's widely held that calcium deficiency is the cause of osteoporosis and that if you consume plenty of milk, you will get all the calcium you need and never experience osteoporosis.

That's pure bunk. A myth that sticks and sticks...

Consider that in China, where the traditional diet included no dairy products whatever, osteoporosis was completely unknown until Westernization.

Next consider the USA, which has the highest consumption of dairy products in the world and yet also has the highest incidence of osteoporosis.

What does that tell you about the value of milk? In fact I'll shock you by saying that a handful of doctors like me have been arguing for 40 years that **milk is mainly what CAUSES osteoporosis**, through malabsorption due to gut inflammation from milk.



## Hip Fractures and Bone Strength

**Hip fractures are the most serious consequence of osteoporosis.**

About 20 percent result in death, and those who survive often have disability and loss of independence. The cost is an estimated \$12.8 billion to \$17.8 billion per year for medical care, extended treatment facilities, and the value of lost productivity.

Yet, this important anti-aging factor is often overlooked. Hormones and super nutrients may be more glamorous. But basic nutrition is, and always will be, the number one factor in bone health.

There is no reason to suffer this infirmity or risk a disastrous fracture.

It's true that bone loss is a natural part of the aging process. Starting around the fourth or fifth decade of life, both men and women lose bone mass at a rate of 0.3 to 0.5 percent per year.

But after the onset of menopause, the rate of bone loss in women can increase as much as 10-fold due to the reduced production of estrogen. In fact, women can lose up to 20 percent of their total bone mass in the first 5 to 7 years following menopause.

By age 70 or 80, women have typically lost about 30 to 50 percent of their bone mass, compared with a loss of only 20 to 30 percent among men.

## Bone Densitometry

Probably the single biggest factor in whether a woman will develop osteoporosis is whether she starts out with thin bones or not! Those with dense bones at the age of 35 are unlikely to reach severe osteoporotic levels even during the seventh and eighth decade.

**Those whose bones are thin even before menopause are likely to end up with difficulties, no matter what treatment is attempted.**

So it is important to find out where you stand. Bone densitometry, a simple screening, should tell you where you stand. It is to be hoped that routine bone densitometry screening will be available to all women, even pre-menopausally.

Use your doctor to get densitometry but don't pay too much attention to what it says to do (which is just what drug reps tell him to say to you).



# Treatment

**The best treatment by far is avoidance.**

That comes from wise nutrition, as I'll explain later.

The trouble is, existing therapy is largely unsuccessful. The reason is, it's based on the obsession to find patented and expensive "cures", instead of correcting basic nutritional factors.

The current approach focuses mainly on estrogen, supposedly to retard the advance of the menopause, and calcium supplementation.

However, estrogen therapy really only defers the inevitable and therefore its 'success' as a treatment is debatable. Moreover, some doctors would see the risk of hormone replacement therapy as wholly unacceptable when used for this purely prophylactic reason.

Calcium supplements (around 800 to 1500 mg a day) are usually recommended but it must be said that studies on how effective this is are confused and contradictory. Calcium supplementation will not restore lost bone tissue.

The paradox is, as I said, that calcium deposition is a factor in many aging conditions, such as hardening of the arteries, arthritis, kidney stones, gallstones, and cataracts, so for some patients taking calcium supplements, it may be a question of aging one way or decaying another!

The really important nutrients, as we shall see, do not include calcium.



## Hormone Supplements

These do have a beneficial effect but at what price? We all know the inherent dangers of taking estrogen replacement therapy. Most women in the Western world today are already estrogen dominant and the risks of hormone-related breast cancer etc. simply goes up, the more estrogen the woman takes.

Actually, progesterone supplementation makes more sense. This brings back the estrogen dominance to more of a balance.



Estrogen does, in fact inhibit the osteoclast cells that function to resorb bone and as a result can slow the rate of bone loss.

But estrogen cannot rebuild bone. Progesterone rebuilds bone by stimulating the osteoblast cells, which re-mineralize and restore bone mass.

Estrogen without the balance of progesterone is fraught with side effects: hypertension is one example. Also, salt and water retention, increase in blood clotting, promotion of fat synthesis, hypothyroidism, fibrocystic breast disease, increased risk of gallbladder disease and gallstones, liver dysfunction, increased risk of endometrial cancer of the uterus, pituitary prolactinoma tumor and probably breast cancer are also possible.

## Pueraria Mirifica

Pueraria mirifica is a herbal preparation from Thailand (we sometimes jokingly call it HRT, meaning “herbal remedy from Thailand”). It is one of the most potent estrogen antagonists known, yet quite safe.

It does not block all estrogen functions. But I study I found on PubMed made it clear that it does reduce alkaline phosphatase, a marker for bone breakdown and resorption [Menopause. 2008 May-Jun;15(3):530-5].

It’s probably just as good for men as they age, too. Another study on PubMed, on castrated rats, showed that they did not fall into the rapid female pattern of bone loss [Maturitas. 2007 Mar 20;56(3):322-31. Epub 2006 Nov 13].

Dosage: 1 -2 mg per kilo of body weight per day.

## Bisphosphonates

Marketing this class of drugs has been a triumph of marketing spin over science and common sense. They don’t work as described and the “science” is very hazy. Not enough to justify the risk.

Yes risk. Everybody knows now about jaw necrosis and that bisphosphonates can increase the risk of certain fractures of the femur.

Other detrimental effects they wreak of healthy metabolism will certainly come to light, as time goes by.

Brands include: Actonel, Atelvia, Boniva, and Fosamax. As soon as the patents run out, all the science about their dangers and ineffectiveness will surface. Till then, Big Pharma is keeping the lid on problems.

## What About Exercise?

Exercise has been shown to have a positive effect on bone density; thus, those who lead sedentary lives are more likely to develop osteoporosis. Animal studies show that lack of use leads to rapid bone re-absorption (breakdown by cells). Therefore, it is likely regular gentle exercise will benefit all women at or beyond the menopausal years.

However, no study I know of has shown that older women are able to replace lost bone through exercise.

Moreover, if you overdo it, excessive exercise causes cessation of periods. That's due to lack of estrogen. Well, for reasons already explained, lack of estrogen is a prime factor in osteoporosis, so you do NOT want to over-exercise.

## So What Does Work?



### Nutrition

The truth is that osteoporosis is a holistic condition and needs treating holistically. It is doubtful if single nutrient supplements, even such obvious ones as calcium and vitamin D, would be effective in the absence of good whole-body nutrition.

Bone, remember, is more than just a collection of calcium apatite crystals. It is an active living tissue, constantly remodeling itself through deposition and absorption and continually participating in a wide range of biochemical reactions — reactions that will be compromised by any degree of under nutrition.

We can consider several of these. As usual, all play a part and you can't get much benefit from just concentrating on one.



## Magnesium

**Without doubt, the number one deficient nutrient and the KEY to this problem, is magnesium.**

The critical bone enzyme alkaline phosphatase (involved in forming new calcium crystals) is activated by magnesium. Its relative lack, therefore, could be expected to block the deposition of new bone tissue. Whole-body concentrations of magnesium were found to be below normal in 16 out of 19 osteoporotic women.

*Take 300- 400 mg daily, in addition to rich dietary sources.*

## Vitamin D

We all know vitamin D prevents rickets, which is softening of the bones. It does this by making calcium more available to the bones (where it should be). It must make sense to take vitamin D.

Now we know how good an anti-oxidant, immune modulator and antimicrobial. It even lowers the risk of cancer. So don't hesitate to take vitamin D in large amounts: take only vitamin D3 (cholecalciferol).

*Forget the pathetic RDA: take 4,000- 5,000 IU. It's dirt cheap.*

## Vitamin K

This may surprise some people. Vitamin K is known to be important primarily for its effects on blood clotting. However, it is also required for synthesizing osteocalcin, a protein found uniquely in bone and on which the calcium crystallizes.

It is usually assumed that vitamin K deficiency is rare, but in one study (of only 16 patients) with osteoporosis, their mean serum vitamin K levels were only 35% of those of age-matched controls.

*Take vitamin K2 (not K1): 10 mg daily if you can afford it (it is rather expensive).*

## Manganese

This is also required for bone mineralization. Rats fed on manganese-deficient diets had smaller and less dense bones. In one study of osteoporotic women, blood manganese levels were found to be only 25 per cent of those of controls!

*About 5 mg daily is accepted generally as a suitable supplement.*

## Folic Acid

The interest in this vitamin co-factor stems from the fact that homocystine metabolism seems to be at least partially folic acid-dependent, and patients with a genetic failure in the metabolism of homocystine are known to develop severe osteoporosis at an early age. Folic acid deficiency is relatively common, particularly in those who do not follow a hunter-gatherer type diet.

*Supplementation would therefore seem to be prudent. Try to get 500 mcg daily. Some countries have a legal upper limit. You really need 3 mg. You'll need a script for those levels (it may expose vitamin B12 deficiency, which is dangerous).*

## Boron

Previously thought to be important only for plants, we now know that boron plays a role in human nutrition, particularly in relation to bone health.

Supplementing the diet with boron was shown to reduce urinary calcium excretion by 44%. Interestingly, it also increased the serum concentration of the hormone 17-beta-oestradiol, which may be the most biologically active form of naturally occurring human estrogen.

*Dietary requirements are not known. I have found that 3 mg daily will produce benefits.*

## Strontium

Strontium has been shown to prevent chemical irritations of the skin, it plays an important role in building strong bones, reduces dental cavities, and bone pain.

In the largest published clinical trial, 1,649 postmenopausal women with osteoporosis received 680 mg per day of strontium or placebo for three years. Compared to the

placebo group, strontium reduced the incidence of vertebral fractures by 49% in just one year.

We used to get adequate strontium through our drinking water, and through foods since it is naturally present in water and soil. However, these days it's almost impossible to get strontium this way because of water treatment that kills strontium and soil that has lost all of its nutritional value because of overuse.

According to one study, 170 mg of strontium per day, seems to be more effective than 680 mg per day for reducing fracture risk, which raises the question as to whether a lower doses might be as effective.

*My colleagues and I who are in the know think more in terms of 5 mg or 10 mg daily.*

### **Other Important Nutrients**

Attention has also been focused on a number of other nutrients including silicon, vitamin B6, zinc, copper, and vitamin C. In other words, we are working towards the conclusion that any important nutrient could lead to as yet undiscovered deficiencies in bone metabolism; good holistic nutrition is vital.

## Things To Avoid

Some drugs accelerate bone loss. Particularly important are steroids such as prednisolone, though it appears that the type of osteoporosis this can lead to is quite different biochemically from post-menopausal osteoporosis. Certain anticonvulsants (phenytoin, for example) may also lead to increased bone reabsorption.

The science for bisphosphonates is beginning to fall apart. Women who took bisphosphonates for five years or longer were found to have a 2.7-fold greater risk for certain thigh fractures than women who took them for less than 100 days.

The researchers concluded that some long-term bisphosphonate users may benefit from a “drug holiday” -- stopping the drugs for a while and then restarting. But Park-Wyllie, quick to protect its profits, says this has not been studied.

Smoking is said to hasten the menopause by about five years and reduces oestrogen levels thereafter. Other evidence suggests that smoking may alter osteoblast function (osteoblasts are the cells that ‘build’ bone).

There are also racial and genetic factors that you can’t avoid. However, remember there are epigenetic factors which can switch off bad genes and switch on good ones.

In any clinical evaluation of osteoporosis, a number of disease states need to be considered. All are rightly the preserve of a qualified physician, and are not for self-medication. They include anorexia nervosa, testicular failure, thyrotoxicosis, bone cancer disease, and immobilization after surgery.





## Thyroid Hormone and Osteoporosis

### Now something new and up-to-date:

An important hot study (British Medical Journal, April 28th 2011) has linked having too much thyroid replacement therapy to a significant increase in bone fractures in the elderly.

Obviously, this knowledge needs to be part of any comprehensive report on bone strength and nutrition. Older individuals already have an increased risk of fractures, so this may make the problem much worse.

Previous studies have told us there is a problem; in fact it is 120 years since the effect of excess thyroid hormone on bone was first described. Yet research, to date, has been slight. It is clear: too much levothyroxine can lead to much reduced bone density and therefore increased risk of fractures (an excess of thyroid hormone can also affect neuromuscular function and muscle strength and increase the risk of arrhythmias and falls, which can raise the risk of fractures independent of bone density).

The researchers reviewed over 200,000 cases, so this is a pretty major study. The individuals were all 70 years or older and taking levothyroxine. They were followed up for almost 4 years, looking for fractures of the wrist or forearm, shoulder or upper arm, thoracic spine, lumbar spine and pelvis, hip or femur, or lower leg or ankle. , continued until March 31, 2008 (mean duration of follow-up, 3.8 years).

The 3 defined groups of levothyroxine levels were: high ( $> 0.093$  mg/day), medium ( $0.044 - 0.093$  mg/day), and low ( $< 0.044$  mg/day), in the year before fracture.

About 10% of levothyroxine takers (22,236) had a fracture during follow-up; 18,108 (88%) were women, which just goes to show how much more at risk women are.

The incidence of fractures went up in direct proportion to the dose of levothyroxine.

This study was not able to review the original case notes for laboratory and radiologic data. Nevertheless, I rate this as a very significant study and it showed that the optimal dose of levothyroxine for an elderly person is surprisingly low.