

This is the second article in a two-part series on Osteoporosis and its relationship to oxidative stress, lifestyle and diet.

OSTEOPOROSIS

The Bare Bones about Bones

Here's what we know today:ⁱ As living tissue, bones require 24 bone-building materials, including minerals, trace elements and protein.

The most important minerals are calcium, magnesium, phosphorus and potassium — equally important is the balance between these minerals. The body can use these minerals to create bone with the strength of reinforced concrete — but only when they are in proper balance.

That's why proactive programs to maximize bone health are so critical to prevention:

- ✓ strong bones need lots of calcium, but calcium supplementation, alone, just doesn't cut it; you also need magnesium, which increases calcium retention in the bone;
- ✓ phosphorus forms part of the bone mineral structure; but, too much phosphorus, from soft drink consumption or high protein intake, sucks the calcium right back out;
- ✓ Vitamin D and vitamin K are needed to enhance calcium deposition;
- ✓ manganese, boron, zinc, and copper, are also needed for strong bones;
- ✓ vitamin C stimulates formation of the collagen matrix in bone tissue; and,
- ✓ vitamin B12, B6 and folic acid reduce the loss of bone minerals by modulating blood homocysteine levels.

Because bone growth occurs during our youth, the peak bone mass attained early in life becomes the single most important determinant of lifelong skeletal health. After 30-35, bone destruction begins to overtake bone growth, with a net loss of about 0.3 percent per year, accelerating 10-fold at menopause for a period of about 5 to 7 years.ⁱⁱ

It's important to acknowledge a common misconception — that osteoporosis is always the result of bone loss. In fact, an individual who does not reach optimal bone mass during childhood and adolescence may develop osteoporosis *without* the occurrence of accelerated calcium loss.

That's why — particularly for young girls — developing the highest bone mass possible during adolescence will provide the best natural means of prevention against osteoporosis later in life.

We'll look at ways of doing this later; but, first let's look at how you can tell if you're at risk.

Am I at risk?

The fact is you can't actually know you have osteoporosis until you suffer a fracture, but here are some risk factors to watch out for:

You're a prime candidate for osteoporosis if you have the following risk factors:

- ✓ female
- ✓ mid-to-late adulthood (perimenopause)
- ✓ early menopause
- ✓ Caucasian or Asian descent
- ✓ low body mass index (BMI)
- ✓ small frame
- ✓ family history of osteoporosis
- ✓ smoker

- ✓ excessive use of alcohol
- ✓ sedentary lifestyle

So, what should you do if you think you're at risk for osteoporosis or have noticed a gradual loss of height or posture?

You need to get a bone scan; it's the only sure way of determining if you have weak bones. A bone scan is important to establish a baseline for your bone mineral density. Knowing this makes it much easier to track your bone status in subsequent years.

If you *are* a candidate for osteoporosis, ask your doctor what he or she recommends to slow the bone resorption that is the cause of the disease. If the response is to intervene with ERT or a drug therapy program, seek a second opinion – fast.

What can I Do? Key Prevention Strategies

Osteoporosis is increasingly viewed as a paediatric disease, so any prevention plan must incorporate a two-pronged strategy:

- ✓ Maximize bone mineral density during our childhood and adolescent years, periods of active bone growth and deposition, and;
- ✓ Minimize subsequent bone loss during adulthood, particularly during per- and postmenopause years.

Current research suggests that building strong bones in our youth is the most effective preventive measure we can take; however, much can also be done by those who find themselves in a situation of osteopenia, or low bone density, a precursor to full-blown osteoporosis.

Proper diet is everything

The following points briefly highlight a proactive approach that you can take — for yourself and your children — to maximize mineral deposition in the bone and minimize the potential loss of bone density.

From the get-go, we need to emphasize the importance of a diet that is plant-based, with whole grains, legumes and sea vegetables, providing a natural balance of the required minerals and nutrients.

Few people realize that our leafy green vegetables and legumes are a richer and more balanced source of calcium and minerals than milk and dairy products.

In fact, there is strong evidence that the high consumption of dairy products, later in life, has led to an increase in osteoporosis.

Few know, also, that poor diet and lifestyle choices destroy bones:ⁱⁱⁱ

- ✓ High sugar, high fats diets create acidity and leach bone calcium;
- ✓ Diets high in dairy products and protein disrupt the calcium/phosphorus balance and accelerate calcium loss from the bone;
- ✓ salt and caffeine negatively affect calcium status;
- ✓ Excessive alcohol and smoking turn you bones to noodles, and;
- ✓ Lack of weight-bearing exercise causes accelerated bone loss

In a nutshell: eliminate refined and processed foods, increase your intake of complex carbohydrates and essential fatty acids, substitute soy for meat and eat more fruits, particularly the dark berries filled with antioxidants.

Exercise is Essential

Vigorous, weight-bearing exercise stresses bone and muscle tissue, stimulating bone formation and

increasing bone density. Every doctor is familiar with the rapid wasting of muscle and loss of bone density that comes with prolonged inactivity, such as bed-rest.

Patients confined to bed, for a period of time, have been found to lose up to 30% of their bone mass. No bones about it, regular weight-bearing exercise is an absolute must to build and maintain peak bone density — and the sooner in life you begin, the better.

Vitamin D is vital

Vitamin D is vital to calcium absorption and can be obtained through sunlight, diet and supplementation. Sunlight stimulates the formation of vitamin D, without which the body cannot absorb calcium. Vitamin D supplementation is particularly important for the elderly and those confined indoors, or live in Northern climates.

A recent U.S. study of hospital in-patients found that vitamin D deficiency was common, despite the fact that many met or exceeded the recommended daily nutritional intake.^{iv}

Supplementation a must

Poor calcium nutrition is now recognized as a leading risk factor in osteoporosis. In the U.S., today, adolescent girls receive less than 60 percent of the Recommended Daily Allowance for calcium.

Supplement your diet with calcium, magnesium and vitamin D. Calcium supplementation is now recognized by the U.S National Academy of Science as an effective means of restoring bone mineral status and should form a fundamental part of a life-long program of prevention and maintenance.

“Based on cost-effectiveness and clinical efficacy, calcium and vitamin D should be the first-line therapy in patients at risk for osteoporotic fractures.”

*- Paul Ullom-Minnich, MD
University of Kansas School of Medicine*

Numerous studies show that calcium supplementation at 500 to 1,200 mg/day with vitamin D at 500 to 800 IU/day significantly reduces bone loss and reduces the risk of fracture.^{v, vi, vii, viii, ix}

Calcium supplementation also increases bone mineral content in children and adolescents.^{x, xi, xii} That's good news because as little as a 5 percent increase in adolescent bone density can reduce the risk of adult-onset osteoporosis by a whopping 40 percent.^{xiii}

In fact, good calcium nutrition and attainment of high bone density during adolescence leads to improved bone health and reduced osteoporotic risk later in life.^{xiv, xv, xvi}

But don't stop there — supplementation with calcium, vitamin D, magnesium and the other vitamins, minerals and co-factors needed for good bone health, should become a daily regime in optimizing nutrient status.

Supplementing with multiple minerals and vitamins, including calcium, appears to provide greater protection against bone loss than supplementing with calcium alone.^{xvii, xviii}

In particular, addition of vitamin D and magnesium complement calcium's activity.

Several other vitamins and minerals, including: vitamin C, B6, B12, folic acid vitamin K, copper, manganese and zinc all support the efficacy of a broad-spectrum-approach to dietary supplementation on bone mineral status.^{xix, xx}

All of these nutrients can be found in their proper balance in some of the higher quality nutritional supplements available on the market today.

Estrogen alternatives

For those postmenopausal women confused about the recent Estrogen Replacement controversy, consider talking to a medical professional knowledgeable about the use of natural progesterone.

Natural progesterone, combined with proper diet and exercise has been found to steadily increase bone density regardless of age, with patients showing as much as a 29 percent increase in bone mass and density within three years of beginning therapy.^{xxi}

Recent research conducted at the University of British Columbia confirms progesterone's role in rebuilding bone mass and suggests that it is progesterone — not estrogen — that is the key bone-building hormone in women.

You may also wish to consult a naturopathic specialist and consider the use of some of the natural remedies, such as the phytoestrogens found in soy and the use of the herbs, black cohosh, chaste berry and milk thistle, which are also known to modulate estrogen levels.

Where to Now?

With our current healthcare system, once you develop a chronic condition, you will likely suffer from it for life — along with millions of others.

Consequently, the treatment of chronic disease is BIG business for the pharmaceutical companies and practitioners of allopathic medicine — after all, you can patent a drug but you cannot patent a lifestyle.

Let me tell you, changing that mindset will require nothing less than a revolution in current medical practice. So, let's become "Medical Revolutionaries."

Together, we can lead the charge for a more humane medicine:

- ✓ one that is based on a holistic and natural rhythm
- ✓ one that does not reduce every human problem to simple chemical terms
- ✓ one that eschews the presumption that human science knows better than Mother Nature

The recent estrogen hormone replacement debacle is a perfect example of what can occur when scientific arrogance runs ahead of scientific evidence and serves as an alarming illustration of much that is wrong with the current practice of medicine.

As always, Mother Nature has purposes beyond our understanding and does not easily brook the arrogance of scientific transgressions. It is one thing to bring medical science into gentle alignment with nature — it is quite another to set ourselves up in *defiance* of it.

How do we lead this charge?

We begin with ourselves, that's how:

- ✓ by taking charge of our own health and the health of ones we love
- ✓ by embracing, on a personal level, the principles of preventive healthcare
- ✓ by adopting those lifestyle qualities that are known to reduce the risks of degenerative disease.

Just as importantly, we need to become community role models for optimal health, so that others, too, may follow the path:

- ✓ we need to protect our children by enhancing their nutritional IQs
- ✓ we need to educate others about the value of a holistic lifestyle
- ✓ we need to forge real change in our public school systems so that we can ingrain the concept of prevention throughout the formative years

In short, we must play the role of Ambassadors to the Cause of prevention. Our message must be that the inevitability of degenerative disease is a false prophecy — aging and illness are not inseparable, provided you protect yourself along the way.

Prevention — not cure — is the key to life-long health

Get passionate, get smart, get committed and get going — it's our only hope of turning the tide against the prevailing tsunami of degenerative disease that threatens our very survival.

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Disclaimer

This article was researched and compiled for educational purposes only. No person should use the information herein for self-diagnosis, treatment or justification for declining medical treatment. Any individual with a specific health problem referenced in this article should seek advice from a qualified medical practitioner.

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