Supplement to

The Art of Getting Well

Treatment and Prevention of Osteoporosis

Sources are given in references.

Authors of contributions\quotations are alphabetically arranged; major author, if any, is underlined.

Nenita Alojado, R.N., John M. Baron, D.O., Jeffrey Bland, Ph.D., Dr. Brattstrom, Mark Diesendorf, Ph.D., William Campbell Douglass, M.D., William J. Faber, D.O., Alan R. Gaby, M.D., A. LeBlanc, Laurent, John R. Lee, M.D., Dr.Kilmer McCulley, P. Minaire, Murray, Rex E. Newnham, Ph.D., D.O., N.D., Dr. F.H. Nielsen, Pizzorno, Poortmans, Jerilynn C. Prior, M.D., Dr. Paul K. Pybus, Neil M. Resnick, Dr. Lawrence Riggs, V. Schneider, Schoutens, L. Schultheis, John Simoons, Ph.D., Edward Thorpe, Ph.D., Yvette Vigna, R.N., David Watts, Ph.D., Morton Walker, D.P.M., David Watts, Ph.D., Jonathan Wright, M.D./Responsible editor/ writer Anthony di Fabio.

"There are three things you can count on,
if you live long enough.
They are death, taxes, and osteoporosis."
William Campbell Douglass[1], M.D.,

Since we are all going to suffer from Osteoporosis, it might be well to learn how to prevent the condition, if possible, and also to learn how to repair the damage.

More than likely your idea of bone is that it is a dead stick, an item that can be seen in the carcass of dead animals and is used to make up skeletons that hang in doctors' offices. Not so!

Bone is live tissue, and like all cells it has some that die and some that are born anew — bone is a growing tissue that sheds dead cells and grows new cells daily. Bone absorbing cells called osteoclasts dig microscopic cavities in the inner surface of bones. Bone-building cells called osteoblasts fill in these cavities with new bone cells. These cells begin rebuilding bone materials by first producing the collagen matrix, and then calcium and phosphorus crystals are laid down in the matrix in a process called bone mineralization. Would you believe that somewhere between 10 and 30 percent of our entire skeleton is remodeled in this manner each year?

There are two types of bone: cortical and trabecular. Cortical bone is very dense and solid, as in the long, hard bones of your arms and legs, and usually the outside layer of bone everywhere. Trabecular bone is much more porous, honeycombed with minute spaces. Inside of the bones, and especially inside the spinal vertebrae is trabecular. All bones have both a hard layer and an inner soft layer in differing proportions.

Osteoporosis literally means "porous bone." Bone is made up of calcium and phosphorus compounds that are laid in a matrix of protein fibers. It gains its strength and rigidity from calcium. The protein — mostly collagen tissue — makes the bone flexible. Other materials that can be found in bone are flouride, sodium, potassium, magnesium, boron, molybdenum, cobalt, strontium and citrate. Mostly these latter elements help hold the calcium and phosphorus compounds together.

Osteoporosis affects first the trabecular areas, which means those bones, like the spine, that have the greatest percentage of trabecular cells show osteoporosis first.

During childhood and early adulthood we grow bone faster than we lose it. By the mid-thirties, we begin to experience a slight and gradual bone loss. But, after menopause, women lose bone mass more rapidly — six times more rapidly than men do. Since men start usually with greater bone mass, they can also afford to lose more than women can.

The rate of bone loss then begins to slow about 65 years of age.

If you are fair-skinned, female, with ancestors from Europe, Japan, or China, you have one chance in four of being genetically predisposed to osteoporosis.

Loss of estrogen[21] after menopause increases the rate at which calcium is lost from your body. If you've had your ovaries removed, your chances of getting osteoporosis increases to one out of two[22]. Unlike the rapid decline of estrogen in women, men have a gradual decline of testosterone, except for those who are chronic alcoholics, a condition that increases the chance of osteoporosis.

One million three hundred thousand women suffer annually from spontaneous fractures because of osteoporosis. As men and especially women age, they become shorter, stooped and often suffer from hip or wrist fractures. When osteoporosis is advanced to the place where thirty to forty percent of bone mass has been lost, the vertebrae start collapsing, and in women this is called the "dowager's hump." As much as five to eight inches in height is lost. Clothing no longer fit, and the proportional features of the body are lost.

Osteoporotics suffer ceaselessly from bone fractures and broken hips -- 1.3 million each year. Those who have hip fractures -- about 80% in the U.S. (about 200,000 per year) -- have Osteoporosis. About twenty percent of those die within three months. According to Rex E. Newnham, Ph.D., D.O., N.D.[27], "magnesium and boron levels in the diet are of utmost importance" for prevention and healing of bone fractures caused by Osteoporosis.

The fear of falling and breaking one's hip keeps osteoporotics from doing many routine errands, thus placing needless restrictions reflecting a dwindling life style.

Most of these cases can be prevented!

Bone loss is not visible, and the problem begins in middle age, or earlier, somewhere around thirty-five to forty-five. There are no diagnostic tests that will warn you when you are beginning to lose more bone than you are building up bone tissue, until the problem has become overlarge.

According to William Campbell Douglass, M.D.[1] from Georgia: "There are two types of osteoporosis and you need to understand the difference.

"The first type, a gradual thinning of the bones over the years, all women will get if they live long enough. A study in the *American Journal of Medicine*[20] reported that '. . . by age 75 years, virtually the entire population of aging women will be subject to fractures . . .' You don't have to panic, but be careful.

In this study, Dr. Riggs found that there was no difference in the sex hormone levels of women with or without osteoporosis. I emphasize that because if this is so then why are millions of women taking synthetic, cancer-causing estrogen (Premarin, Ogen, etc.) 'to prevent osteoporosis'? Do you suppose somebody has been putting us on?

According to Rex E. Newnham, Ph.D., D.O., N.D.[27], "Animal studies have shown that the boron status of the animal affected the response to low dietary calcium. This apparently is seen because boron is active in the parathyroid of the rat. Magnesium is also most important, possibly more important than dietary calcium."

William Campbell Douglass[1] continues with, "As you get older your parathyroid gland starts over-working. . . . It does this because as you get older you don't absorb as much calcium from your food. If your blood calcium falls below a certain level you get spasm of the muscles called tetany. Your heart stops beating. You're finished, dead, kaput.

"The parathyroid gland comes to the rescue by raising your blood calcium level. But you pay a price. That calcium is pulled out of your bones — osteoporosis. So that hydrochloric acid . . . is very important in the prevention of osteoporosis — no hydrochloric acid, no calcium absorption. (That's the punch line.)

"The other type of osteoporosis comes earlier and progresses faster. If you fit in that category you'd better have a doctor who understands nutrition or you are going to be in big trouble."

What Causes Osteoporosis?

Hype from pharmaceutical companies interested in selling a lot of calcium in over-expensive packaging leads most of the American public to believe that taking calcium supplements will prevent or reverse the problem.

Not so!

Most of the calcium preparations that are touted through news media do not work on many women, mainly because for the most part they are calcium carbonate or some calcium compound of equal difficulty to absorb.

According to Pizzarno and Murray's *Textbook of Natural Medicine*[2], "Recently there has been an incredible push for supplementing calcium in an effort to halt bone loss. While this appears to be sound medical advice, osteoporosis is much more than a lack of dietary calcium. It is a complex condition involving hormonal, lifestyle, nutritional, and environmental factors."

According to William Campbell Douglass[1], M.D., as reported in "Death, Taxes and Osteoporosis", over forty percent of women over [the age of] fifty produce less stomach acid than normal. Without stomach acid, calcium carbonate, and like compounds, cannot be utilized. Therefore they do not solve the osteoporotic problem.

If you are achlorhydric (no stomach acid) or hypochlorhydric (reduced stomach acid), then you need to take calcium citrate or calcium lactate, as this form can be absorbed better. Some physicians use Calcium/Magnesium Aspartate. Calcium/Magnesium Orotate is excellent, but the FDA has recently taken this off the U.S. market. Newnham[27] says that "Calcium and magnesium ascorbate are two compounds of which both the acid radical and the metal are needed by the body. These should be the ultimate compounds of choice. These are both in the ultimate of the many boron tablets available."

Douglass[1] also suggests that you can get your doctor to furnish you with hydrochloric acid drops, which will solve digestion problems. Some physicians feel that use of hydrochloric acid is cumbersome and out-of-date and prefer to recommend use of Betaine Hydrochloride with or without Pepsin or Glutamic Hydrochloride with or without Pepsin. The FDA has recently denied use of Betaine Hydrochloride for this purpose, but it is still available without being labeled for digestive purposes.

According to a pamphlet published by Physicians Committee for Responsible Medicine[6], entitled *Osteoporosis*, "Some have suggested that osteoporosis is caused by lack of calcium. But studies show that increasing calcium intake after bones are formed does not prevent or reverse osteoporosis. It now appears that the amount of calcium women consume has nothing to do with the rate at which they lose bone mass with age."

Science magazine[5] noted "the large body of evidence indicating no relationship between calcium intake and bone density." Lawrence Riggs[5] of the Mayo Clinic measured bone densities and calcium intake in women for several years. He reported: "We found no correlation at all between calcium intake and bone loss, not even a trend.'"

From the same source: "Studies now show that high levels of protein — particularly animal protein — in the American diet drain calcium from the body. Observations of various populations worldwide show that societies with high protein consumption have a high incidence of osteoporosis. Eskimos, for example, eat large amounts of protein due to their heavy consumption of fish. Their diet is also extemely high in calcium, yet they suffer from high rates of osteoporosis. The amino acids released by protein in the body tend to deplete calcium from the bones. The calcium is then excreted in the urine.

"Those who consume smaller amounts of protein and avoid animal protein require far less calcium in order to stay in calcium balance. Vegetarians have a lower incidence of osteoporosis than those on a meat-based diet. This is probably due to two factors: they eat more reasonable amounts of protein and they avoid animal proteins. It is important not to overindulge in protein.

Again, according to Dr. Douglass[1] : "One of the best preventives is diet. You don't have to avoid animal protein as long as you get adequate folic acid, B_6 and other nutrients. Refined sugar, cigarette smoking and birth control pills should be avoided. All food should be cooked below the critical temperature of that particular food. Excess cooking of food at a high temperature is one of the major causes of degenerative diseases including osteoporosis."

Homocysteine

William Campbell Douglass, M.D.[1] further adds that, ". . . Methionine, an essential amino acid, is converted into homocysteine. The homocysteine, if not converted to something else, . . . will build up in the blood and tissues causing hardening of the arteries and probably osteoporosis.

"You've got to get rid of the homocysteine in your blood. Dr. Brattstrom[19] from the University Hospital in Lund, Sweden, has shown that women after menopause have signifi-

cantly higher levels of homocysteine than younger women. He also found that 5 mg. of folic acid daily will dramatically reduce homocysteine blood levels.

Dr. Douglass says that "Your doctor can test you to determine if your blood contains excessive homocysteine. Tell him you're worried about your homocysteine level and you want an MDS (mixed disulfide) test."

Other physicians, including Dr. Jonathan Wright[4], feel that testing for excessive homocysteine is easier said than done, that the tests are expensive, and not especially easy to do. They agree that the idea is good, but feel that laboratory testing procedures are not "patient oriented."

Quoting Douglass[1] again: "Dr. Kilmer McCulley of Harvard . . . found that vitamin B_6 is also essential to convert homocysteine to the form that can be excreted in the urine. It's not necessary to get a B_6 test. Just take 50 mg of B_6 twice a day. It's perfectly safe." [Sometimes Pyridoxal HCl (B_6) is not as easily absorbed as its metabolite, Pyridoxal-5-Phosphate: Ed.]

Nutritional Supplementation

Many minerals, besides calcium, are important for the treatment and prevention of osteoporosis, including manganese, molybdenum, selenium and vanadium.

Boron

Boron is another mineral that has been shown to be extremely important for retaining calcium. In a study conducted by the U.S. Department of Agriculture[31], within 8 days of supplementing 3 mg. of boron, a test group of postmenopausal women lost 40 percent less calcium, one third less magnesium, and slightly less phosphorus through their urine.

The first scientific paper showing beneficial effects of boron on various forms of arthritis, and osteopororsis, was in 1979 entitled "Boron Beats Arthritis" to the Congress of the Australian and New Zealand Association for the Advancement of Science, Auckland, New Zeland, by Rex E. Newnham, Ph.D., D.O., N.D.[3]

Dr. Newnham has conducted many studies, both retrospective and clinical, since then to show that boron is essential, and helpful, and if it is lacking, various problems will occur, including osteoporosis[3].

While Boron may not rebuild lost bones, it does seem to prevent the bone loss. Newnham[27] says, "It has been shown with a number of patients that boron will help broken bones to mend in about half the normal time, in men, dogs and horses. No clinical trials have been completed, but the indication is that when boron is added to the diet at the rate of 3 mg. 3 times daily the rate and quality of bone repair is enhanced.

"It is well known that the parathyroid helps control bone mineralization, and work done by Dr. Nielsen[29,30,31] and others has shown that boron is probably essential for the proper parathyroid function in the animal. More research is needed. But this would explain why boron is so effective in the healing of many kinds of arthritis, osteoporosis and broken bones."

Several companies now produce and sell special products containing boron. Tablets made to Dr. Newnham's specification are available in the USA. (See the list of suppliers. Ed.)

According to Gaby & Wright

(*References to Gaby/Wright Article are given immediuately after their nutritional summary.*)

According to Alan R. Gaby, M.D. of Maryland and Jonathan V. Wright, M.D.[5] of Washington, a wide range of additional supplements may aid the osteoporosis problem.

The following summary has been taken from their article *Nutrients and Bone Health*.[12] Supplements for osteoporosis should include more than calcium, but also Vitamin K, Vitamin D, Magnesium, Manganese, Folic Acid, Boron, Strontium, Silicon, Pyridoxine (Vitamin B_6), Zinc, Copper, and Ascorbic Acid (Vitamin C).

"Vitamin K

"Vitamin K is known primarily for its effect on blood clotting. However, this vitamin is also required to synthesize osteocalcin, a protein found uniquely and in large amounts in bone.[12] Osteocalcin is the protein matrix upon which calcium crystalizes. The component of osteocalcin that attracts calcium ions is a modified amino acid, gamma-carboxyglutamic acid, formed by the vitamin K-dependent carboxylation of glutamic acid. Because of its role in osteocalcin production, vitamin K is essential for bone formation, remodeling, and repair.

"It is generally assumed that vitamin K deficiency is rare. However, assessment of vitamin K status is based on relatively insensitive tests, such as prothrombin time. Recent advances have made it possible to measure vitamin K levels in blood. In a series of 16 patients with osteoporosis, mean serum vitamin K concentration was only 35% that of age-matched controls.[13] If osteocalcin synthesis is sensitive to changes in serum vitamin K levels, then the low levels in osteoporotic patients may have clinical significance. That possibility was supported by a recent study in which vitamin K supplementation of a typical Western diet increased urinary excretion of gamma-carboxyglutamic acid by 23%.[14]

"Vitamin K deficiency is probably more common than previously believed. Deficiency may occur in individuals whose vegetable consumption is low. Another factor that could promote deficiency is frequent use of antibiotics which can destroy naturally occurring vitamin K-producing bacteria in the intestines.

"Rats fed a vitamin K deficient diet had significantly increased urinary calcium excretion.[15] Furthermore, vitamin K supplementation accelerated the healing of experimental fractures in rabbits, even though they were already receiving 'adequate' levels in their diet.[16] In a preliminary study of osteoporotic patients, treatment with vitamin K reduced urinary calcium loss by 18-50%.[17] The evidence suggests that, when accelerated bone formation is desirable, as in osteoporosis or after a fracture, a greater amount of vitamin K is required.

"Vitamin D

"Vitamin D is required for intestinal calcium absorption. Reduced plasma vitamin D levels are common in elderly individuals, especially women.[18] Factors that lower vitamin D levels in the elderly include reduced exposure to sunlight, decreased dietary intake, and malabsorption.

"Impaired conversion of vitamin D to its biologically active form, 1,25-dihydroxyvitamin D_3, may in some cases exacerbate a marginal deficiency. Indeed, abnormal metabolism of vitamin D precursors may sometimes be a more significant problem than dietary deficiency.

"Treatment of osteoporotic patients with 1,25-dihydroxyvitamin D_3 increased calcium absorption, improved calcium balance,[19] and reduced bone loss[20] in some studies. However, in other trials, this treatment was without benefit.[21] Routine use of 1,25-dihydroxyvitamin D_3 has been limited by its high cost and by the risk of hypercalcemia associated with long-term therapy.

"Vitamin D should be supplemented in cases where dietary intake and sunlight exposure are inadequate. Measures should also be taken to enhance the conversion of vitamin D precursors to the biologically active 1,25-dihydroxyvitamin D_3. This conversion may be facilitated by treatment with magnesium and boron (see below).

"Magnesium

"Magnesium participates in a number of biochemical reactions that take place in bone. Alkaline phosphatase, an enzyme involved in forming new calcium crystals, is activated by magnesium.[22] The conversion of vitamin D to its biologically active form, 1,25-dihydroxyvitamin D_3, also appears to require magnesium.[23] Deficiency of magnesium can produce a syndrome of "vitamin D resistance."[24]

"Whole-body content and bone concentrations of magnesium were below normal in 16 of 19 osteoporotic women.[25] All sixteen women with low magnesium levels also had abnormal crystal formation in their bones, a factor which might increase the risk of fractures. The three women with normal magnesium status had normal crystal formation.

"The typical American diet is often low in magnesium. Dietary surveys have shown that 80-85% of American women consume less than the RDA for this mineral.[26] Daily magnesium intake in two other studies was only about two-thirds of the RDA.[27,28] These studies suggest that magnesium deficiency is common in the United States.

"Manganese

"Manganese is required for bone mineralization,[29] and for synthesis of connective tissue in cartilage and bone.[30] Rats fed a manganese deficient diet had smaller, less dense bones with less resistance to fractures than those fed adequate amounts of manganese.[29] The optimal intake of manganese is not known, but at least half of the manganese in a typical diet is lost when whole grains are replaced in refined flour.[31] Genetic factors influence the susceptibility of animals to manganese deficiency.[32] It is therefore likely that certain subsets of the human population are unusually sensitive to the effects of marginal manganese intake.

"Interest in the relationship between manganese and osteoporosis was stimulated by observations on a famous professional basketball player, who had repeatedly suffered poorly healing fractures and who was found to have unexplained osteoporosis. Examination of his blood revealed no detectable manganese, as well as deficiencies of other minerals. Within six seeks of supplementing his diet with these minerals, he was back to playing basketball. These observations led to a study of osteoporotic women, in whom blood manganese levels were found to be only 25% that of controls.[33]

"Folic acid

"The importance of folic acid for bone health seems to be related to its role in homocysteine metabolism. Methionine, one of the eight essential amino acids present in food, is converted in part to homocysteine, a potentially toxic compound. The danger of homocysteine has been discovered by studying individuals with a genetic disorder in which abnormally large amounts of homocysteine accumulate. These individuals develop severe osteoporosis at an early age, possibly due to an adverse effect of homocysteine on bone.[34]

"Prior to menopause, women are especially efficient at converting homocysteine to less toxic compounds. This unique metabolic efficiency may account in part for the resistance of premenopausal women to bone loss.[35]

"The following study suggests that, at the time of menopause, a breakdown of homocysteine metabolism occurs, which can be partly corrected by folic acid supplementation. Serum homocysteine levels were measured in female volunteers after administration of methionine. These levels were substantially greater in postmenopausal than in premenopausal women, with no overlap between the two groups. Treatment with folic acid partially prevented the methionine-induced rise in serum homocysteine, even though none of the women were deficient in folic acid by standard laboratory criteria.[36] Thus, it appears that menopause is associated with an increased requirement for folic acid which, if unmet, may result in an elevation of serum homocysteine.

"Folic acid deficiency is relatively common, occurring in as many as 22% of individuals 65 years of age.[37] Typical American diets often contain only half of the RDA for folic acid.[38] Tobacco smoking, drinking alcohol, and using oral contraceptives also tend to promote folic acid deficiency.

"Boron

"Previously thought to be essential only for plants, boron now appears to play a role in human nutrition, particularly in relation to bone health. Postmenopausal women were fed a standard diet for 119 days, supplying about 0.25 mg of boron/day. Supplementation of this diet with boron (3 mg/day) reduced urinary calcium excretion by 44% and markedly increased serum concentrations of the estrogenic hormone, 17 beta-estradiol.[39,50] In fact, the levels of 17-beta estradiol in boron-supplemented women were the same as in women receiving estrogen therapy. This increase in hormone concentration may be important, since 17-beta estradiol is the most biologically active form of naturally occurring human estrogen.

The way in which boron acts in the body is not known. However, it seems to be required for the formation of activated (hydroxylated) forms of certain steroid hormones. Boron is known to complex with organic compounds containing hydroxyl groups. It may therefore participate in hydroxylation steps necessary for the synthesis of 17 beta-estradiol and 1,25-dihydroxyvitamin D_3. Boron deficiency exacerbated signs of vitamin D deficiency in chicks, including abnormal bone formation and elevation of alkaline phosphatase.[41]

Based on animal studies, Nielsen has estimated the human boron requirement to be approximately 1-2 mg/day. Fruits, vegetables and nuts are the main dietary sources of boron. Diets containing inadequate amounts of these foods may be deficient in boron.

Toxicity studies in animals have shown a comfortable margin of safety for 'nutritional' doses of boron (1-3 mg/day). No adverse effects were seen in dogs and rats fed chronically with 350 ppm of boron,[42] which corresponds to approximately 117 mg/day in humans. In certain parts of the world where the diet contains as much as 41 mg of boron/day,[43] no problems have been reported.

The fact that boron raised endogenous estrogen levels does not suggest that this mineral poses the same risks as estrogen therapy. The cancer-causing effect of estrogen is dose-related. Because orally administered 17-beta estradiol (conjugated estrogens) is mostly converted to estrone by the gastrointestinal tract, large amounts of estrogen must be given by mouth to achieve a clinically useful serum level of 17-beta estradiol. In contrast, the amount of endogenously

produced 17-beta estradiol required to maintain beneficial serum levels may be as little as 5% of the oral dose.[44] Thus, boron appears capable of producing an estrogenic effect without exposing the body to dangerous amounts of estrogen.

Another factor that argues against a cancer risk is the apparent participation of boron in hydroxylation reactions. Synthesis of estriol, a weak estrogen with documented anti-cancer activity, involves a hydroxylation step, which would presumably be catalyzed by boron. Increasing estriol levels (as a proportion of total estrogens) may reduce the incidence of certain types of cancer.[45] If boron does indeed increase estriol production then it might actually help prevent cancer.

"Strontium

"Strontium occurs in relatively large concentrations in bones and teeth, where it is thought to replace a small fraction of the calcium in hydroxyapatite crystals.[46] Awareness of the nutritional significance of strontium has been overshadowed by the fear of radioactive strontium, a component of nuclear fallout. Because strontium tends to accumulate in bone tissue, radioactive strontium may be particularly hazardous to vertebrates. On the other hand, non-radioactive strontium occurs naturally in food. This mineral is apparently quite safe, even with long-term administraiton at doses hundreds of times greater than the usual dietary intake.[57]

"Several studies suggest a beneficial effect of strontium on calcified tissues. The incidence of dental caries was reduced in geographical regions with high levels of strontium in drinking water. Furthermore, addition of 0.27% strontium to the drinking water of mice reduced bone-resorbing activity by 11.3%.[48]

"The effect of strontium in human osteoporosis has also been investigated. Thirty-two patients were given pharmacologic doses of strontium (1.7 g/day) for periods ranging from 3 months to 3 years (10 also received estrogen and testosterone). Twenty-seven (84%) experienced marked reduction in bone pain. Radiologic examination showed possible improvement in 78% of the strontium-treated patients.[47]

"The effect of physiologic doses of strontium (several milligrams/day) has not been studied. However, chronic consumption of strontium-depleted, refined foods[49] may adversely affect bone strength.

"Silicon

"High concentrations of silicon are found at calcification sites in growing bone.[50] This mineral appears to strengthen the connective tissue matrix by crosslinking collagen strands.[51] Chicks fed a silicon deficient diet developed gross abnormalities of the skull and had unusually thin leg bones. The number of trabeculae was reduced and there was evidence of impaired calcification.[51,52]

"It is not known whether the typical American diet provides adequate amounts of silicon. As with other nutrients, subclinical deficiencies could result from overconsumption of refined foods. In patients with osteoporosis, where accelerated bone regeneration is desirable, silicon requirements may be increased.

"Pyridoxine (Vitamin B_6)

"Vitamin B_6 deficient diets produced osteoporosis in rats.[53] The effect of B_6 on bone health may involve several different mechanisms. this vitamin is a cofactor in the enzymatic crosslinking of collagen strands,[54] which increases the strength of connective tissue. Vitamin B_6 also helps break down homocysteine,[55] a methionine metabolite which is believed to promote osteoporosis (see section on folic acid).

"Dietary surveys indicate that B_6 intake by American women is frequently less than the RDA.[56,57] Biochemical evidence of B_6 deficiency was found in more than half of a group of presumably healthy volunteers.[58]

"Zinc

"Zinc is essential for normal bone formation.[59] This mineral also enhances the biochemical actions of vitamin D.[60] Zinc levels were low in serum and bone of elderly patients with osteoporosis.[61] Low serum zinc levels were also found in individuals with accelerated bone loss of the alveolar ridge of the mandible.[62]

"The typical American diet is low in zinc. In one dietary survey, 68% of adults consumed less than two-thirds of the RDA for zinc.[63] Widespread dietary zinc deficiency has been reported in other studies.[64,65]

"At present, the picolinic acid salt of zinc (zinc picolinate) appears to have a greater degree of bioavailability than other zinc supplements.[66] Picolinate is a naturally occurring metabolite of tryptophane which is believed to enhance zinc absorption and transport in humans.

"Copper

"Rats fed a copper deficient diet had reduced bone mineral content and reduced bone strength.[67,68] Copper supplementation also inhibited bone resorption in vitro.[69] The mechanism of action of copper is not known. However, this mineral is a cofactor for the enzyme lysyl oxidase,[70] which strengthens connective tissue by crosslinking collagen strands.

"Since a typical American diet contains only about 50% of the RDA (2 mg/day) for copper,[71] deficiency of this trace mineral may be quite common.

"Ascorbic acid (Vitamin C)

"Osteoporosis can result from vitamin C deficiency.[72] Although frank scurvy is rare in the United States, subclinical ascorbic acid deficiency may be common. Biochemical evidence of vitamin C deficiency was found in 20% of elderly women,even though they were consuming more than the RDA of 60 mg/day.[73"]

These twelve nutrients, and ten more, (in appropriate quantities) are supplied in OsteoPrime™ and Osteo Prime™ forte distributed by Bio-Therapeutics, Post Office Box 1348, Green Bay, Wisconsin 54305 [1-800-553-2370]. These twenty-two combined nutrients were formulated by our two referral physicians, Jonathan Wright, M.D. and Alan Gaby, M.D. as a supplement. OsteoPrime forte is designed for high risk individuals. **They are both available only through health care practitioners**. (Since they both contain Vitamin K, individuals taking the prescription drugs Coumadin or Warfarin should not take these supplements.)

"References to "According to Gaby & Wright

[Editorial Note: The first eleven and the last nine of the original Gaby/Wright references are in their original article but not in this slight condensation.]

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Environmental Toxins

The *Textbook of Natural Medicine* (Pizzorno and Murray)[13] disagrees with the presumption that Flouride strengthens bone structure, as "its validity has not survived the scrutiny of controlled studies."

Newnham[27], says"People who have been ingesting fluoride for years can develop dental fluorosis which can be seen easily, and they also develop skeletal fluorosis which cannot be seen. Because doctors were never taught about this few of them recognize it and simply call the problem arthritis. Boron is the natural antagonist to fluoride and will overcome its effects. Too much fluoride in the diet tends to osteosclerosis and this uneveness in bone density will show as more marked areas of poor bone structure when osteoporosis starts to occur. A worthwhile study would be to examine X-rays of cases of osteoporotic fracture in areas of high fluoride and areas of low fluoride in the water. See the work of Mark Diesendorf, Ph.D.[28]." (See : "Fluoride: Governmentally Approved Poison," http://www.arthritistrust.org.)

Also Aluminum over-exposure, Pizzorno and Murray[13] feel, "may be an important [negative] factor in some patients."

David Watts[14], Ph.D. says that "Lead is known to

interfere with collagen synthesis, and Cadmium has been shown to decrease the mineral content of bone, thereby contributing to osteoporosis."

Hormonal Therapy

Estrogen

Estrogen has long been used in treatment of osteoporosis, especially for those women who no longer produce a sufficient quantity. Estrogen as normally used and available in the United States, however, has some serious side effects, such as cancer of the uterus, gall bladder disease, high blood pressure, blood clots and abnormal vaginal bleeding. Furthermore, estrogen may not be doing the job it is thought to do. The problem has to do with the kind of estrogen available in the United States, according to Jonathan Wright, M.D. There is a form of estrogen available on prescription that, taken along with Vitamin E and Omega 6 and Omega 3 fatty acids will do the job. It is called *Triest*, and contains a small amount of Estradiol and Estrone and a major amount of Estriol. I understand that this combination can also be used for prevention of Osteoporosis by cancer patients under medical supervision. The Vitamin E and Omega 6 and Omega 3 fatty acids assist in preventing thrombolic diseases[4]. Edward Thorpe, Ph.D., suggests caution in the use of Triest, because females of certain families have a genetic sensitivity to estriol. This sensitivity can be determined by appropriate urine screening during mid-teens. Apparently, after the mid-teens, there is no further danger in the application of estriol[23].

Progesterone

According to John R. Lee, M.D., "Conventional treatment with vitamin D, calcium, and estrogen will delay but not reverse osteoporosis. The addition of fluoride may increase bone mass but fails to increase bone strength; fracture incidence is actually increased in non-vertrebral bone by fluoride. . . . The hypothesis that progesterone and not estrogen is the missing factor was tested in a clinical setting and was found to be extraordinarily effective in reversing osteoporosis[24]."

Dr. Lee followed 100 post-menopausal white woman average age of 65.2 years. The majority had already noted height loss, and many had already observed one or more bone fractures. He said, "The benefits from the treatment program were so obvious to these patients that no problems with patient compliance arose. . . . Height loss was stabilized, previous musculoskeltal aches and pains disappeared and no osteoporotic fractures occurred. . . .the average 3-year change in density, instead of losing an expected 4.5% actually increased 15.4%. Patient age was found not to be a factor; the increase in bone density for those 70 years older was identical with that of those less than 70. The most important factor in relative gain in bone density was found to be the initial lumbar bone density; i.e., those with the lowest bone densities experienced the greatest relative improvement.[24]"

Additional studies by Jerilynn C. Prior, M.D., Yvette Vigna, R.N. and Nenita Alojado, R.N.[25] seem to support John Lee's use of progesterone. They concluded in their studies that "Cyclic medroxyprogesterone (Provera) treatment replaces the hormone progesterone that is missing during anovulatory cycles. This treatment may prevent spinal bone loss and promote gains in bone density. Cyclic Provera also produces a predictable flow and prevents a potentially increased endometrial cancer risk. Cyclic progesterone replacment is a rational treatment for amenorrhea and ovlulation disorders, which must be suspected, documented and treated. Recent studies suggest that this treatment may be important in the prevention of osteoporosis."

John R. Lee, M.D. and other physicians have learned to apply a progesterone cream directly to the skin, and have found relief for PMS, Pre- and Post-menopausal conditions and Osteoporosis.

Nandrolone Decanoate

Nandrolone decanoate, under the name of Decadurabolin[R], has been reported to be used for reversal of Osteoporosis in parts of Africa and Europe[26]. It is injected intra-muscularly, 100 mg. once each month.This was Dr. Paul Pybus, deceased Chief Medical Advisor for The Rheumatoid Disease Foundation and also by our former Research Director, John Simoons, PhD formerly employed by Organon pharmaceuticals, the company that owns and produces Decadurabolin[R]. As this substance is not widely used for Osteoporosis in the United States, caution is advised. It may be perfectly safe, but, on the other hand, since hormone stimulation must be involved in its use, one should take care that your physician knows its safety and efficacy for this particular use.

According to Newnham[27], "Work done by the Human Nutrition Research Center in North Dakota[29,30] has shown that a boron supplement would restore the hormone levels to normal in elderly women after they had been eating a low boron diet. Many elderly people eat a low boron diet these days. Boron supplements are safer and better than using synthetic hormones."

Exercise

"Exercise is another important feature of an osteoporosis prevention program. At about age 35, human bones begin to lose mass. To prevent osteoporosis, one must build bone mass early in life in order to withstand bone loss in later years. This is accomplished by weight-bearing exercises such as walking, dancing and playing tennis."

Notice emphasis on "weight-bearing exercises."

Until relatively recently it was felt that exercise alone would help to prevent or reverse osteoporosis. After all, the body and its parts, respond as a demand system: i.e. the more one uses the muscles, the stronger one becomes, the more one uses one's brain, the better one can use the brain and so on. It therefore follows that the more one uses your muscles and bones in exercise, the less osteoporosis.

Relatively recent studies of the effects of weightlessness on the human body by American, English, Russian, and French scientists demonstrate that exercise alone is not enough to prevent bone loss. The exercise must be "weight-bearing;" i.e **against gravity**.

These same studies also show that there is no apparent difference between bone loss suffered by astronauts, bone loss suffered by those immobilized in bed (disuse Osteoporosis), and those of us conducting our everyday activities and who have Osteoporosis. It's quite predictable, therefore, that space research funds are being expended to find a way for astronauts to travel for long durations in space without bone loss, and that such discoveries, when found, will help us here on earth. If a positive means is not discovered, we will not be able to explore or even to colonize moons or planets a long distance from earth.

According to L. Schultheis[6] "Mechanical forces appear to coordinate the fundamental bone shaping processes by a negative feedback control system."

In "Can The Adult Skeleton Recover Lost Bone?" A. LeBlanc and V. Schneider[7] say: "We conclude that recovery [from bone loss] can be expected, but the rate and extent will

be individual and bone site dependent."

In P. Minaire's[8] article "Immobilization Osteoporosis; A Review," he says that "The prevention is based on exercise if the load is applied intermittently for a daily period. It seems also that muscle weight is an important determinant of bone mass. There is a potential for recovery during subsequent late (about six months) inactive phase. Permanent losses [from immobilization] could be prevented by appropriate measures, pharmacology or exercises applied during the first months of immobilization. No recovery has been demonstrated after the inactive phase has been reached, whatever the treatment."

And finally, Schoutens, Laurent and Poortmans[9] say:" Bone mass and muscular mass show a parallel evolution during growth, and parallel involution with age. However, the bone loss related to the withdrawal of oestrogens is independent of muscular waste. The extensive study of disuse osteoporosis shows that exercise without weight-bearing cannot counteract the loss of bone mass provoked by bed rest or weightlessness. Physical training, even at low frequency (30 to 60 min/day, 2 or 3 days/week), can increase bone mass or reduce bone loss associated with age. This effect is even present when exercise is practised by very old people at a seemingly low level of muscular tension on bone . . . . Equal distribution of tension on all parts of the skeleton is probably not mandatory to obtain a general effect of exercise on bone mass. It is assumed that muscular exercise acts through tension exerted on bone, but the exact mechanism is unknown, as are the specifications of effective exercise in terms of site of application, intensity, frequency and duration. Moreover, little is known about the expected synergy between exercise and occupational activity."

In the *JAMA* section , State of the Art/Review[10,] "'Senile' Osteoporosis Reconsidered" by Neil M. Resnick et. al. The summary is quoted: "Osteoporosis is a devastating, morbid, and costly condition whose ravages are felt most profoundly by women over age 70 years. Yet most research on its prevention and treatment has focused on perimenopausal women [women just before, during, or just after menopause], although there are significant differences between perimenopausal and older women in factors related to bone mineral metabolism, rates of bone loss, the structural integrity of remaining bone, risk factors for fractures, and the types of fractures sustained. Currently recommended therapies, which slow bone loss in perimenopausal women, may be of less benefit for older women whose loss of bone has already slowed or ceased and whose remaining bone may be of inadequate quantity and quality to prevent fracture. Thus, the application of currently available modalities is unlikely to mitigate significantly the consequences of osteoporosis in this population. Further research is urgently needed, and some directions for future investigation are suggested."

Chelation Therapy

Ethylene diamine tetracetic acid, known as EDTA, is successfully used for treating many diseases, because repeated infusions make it easier for the body to more fully and properly nourish each cell. Better nourished cells produce healthier organs, which, in turn, provide for greater reserve potentials and improved functioning. (See : "Chelation Therapy," http://www.arthritistrust.org.)

But, Chelation Therapy also reverses Osteoporosis! This was verified by a one percent sampling using a densitometer on bones of 20,000 patients who had Chelation Therapy. This retrospective study covered 15 years in many clinics and was privately funded by John M. Baron, D.O.[11] of Cleveland, Ohio, along with other physicians and PhDs.

What happens is this: As EDTA is dripped into the veins over a three and one half hour period, it picks up calcium from the circulatory system, thus lowering the calcium present in the blood serum. The body senses this lowered amount of calcium and turns on the parathyroid gland. That gland produces parathormone, a substance that activates calcium from other places in the body, and stuffs the calcium where it belongs, in the teeth and bones, thus helping to reverse Osteoporosis.

Herbal Medicine

The *Textbook of Natural Medicine* [15] recommends, in addition to most of the above supplements, Pranthocyanidins and Anthocyanidins from many berries, including hawthorn berries, blackberries, blueberries, cherries and raspberries. "Supplementation with concentrated extracts of high intake of those berries rich in these flavonoids may offer significant benefit in preventing osteoporosis."

Phytooestrogens are "components of many medicinal herbs. . . that may be suitable alternatives to estrogens in the prevention of osteoporosis in menopausal women.

"Herbs which possess both proven estrogenic activity and a long historical use in treating various female complaints include: *Angelica sinensis* (Dong quai), *Glycyrrhiza glabra* (licorice), *Aletris farinosa* (unicorn root), *Cimicifuga racemosa* (black cohosh), *Foeniculum vulgare* (fennel), and *Helonias opulus* (false unicorn root)[15]."

A physician versed in naturopathic medicine will be able to individually define necessary supplements and supporting or reinforcing supplements.

Rules of Prevention

Although physicians may differ on details of treatment, there are some rather constant agreements on the specifics of prevention and treatment of Osteoporosis:

1. One should consume a diet consisting mainly of vegetables. Or at least minimization of protein consumption is recommended, along with the other elements of a healthy diet, including fresh vegetables and fruits, whole grains and nuts, proper essential fatty acids (which implies avoiding the wrong kinds of fatty acids), cold water fish,and avoidance of birth control pills, tobacco, alcohol, sugars and processed grains, such as white flour. Increasing folic acid consumption may permit increased protein consumption

According to Newnham[27], "It is important that the fruits and vegetables consumed should be organically grown. That is, no chemical fertilizer should be used to force them to grow faster or bigger than is normal. Whenever plants are forced with soluble chemical fertilizers the trace elements suffer. A native corn plant grown in unfertilized soil will absorb say 1000 mg of trace elements which enters into two corn cobs weighing one kilogram, but a similar hybrid corn plant grown in a well fertilized soil will absorb no more than 1000 mg of trace elements, and often less, but this is then spread over 20 corn cobs weighing 15 kilograms. So each kilogram of corn from the commercial plant has one fifteenth of the trace elements of the native corn. Then in the processing of the corn more minerals are lost as these help to cause rotting of the corn. White flour lasts indefinitely but whole flour lasts only a few months, because white flour lacks the minerals that are needed for the spoiling process. Packet foods lack these essential minerals. It is important to never discard the water used for cooking vegetables as most of the valuable minerals are in that

water.

"Fruits grown on a backyard tree contain more trace minerals for the same reason. A good, small well-grown apple can contain 5-10 mg. of boron, but a commercially grown apple may have as low as 1 mg of boron. We need at least 3 mg a day and if we have osteoporosis or arthritis to overcome it is wise to take up to 9 or 10 mg boron a day."

2. One should insure -- lacking proper soils (not polluted with herbicides, et. al. and holding appropriate minerals) and fresh vegetables from good soils -- that vitamin and mineral supplements include Vitamin K, Vitamin D, Magnesium, Molybdenum, Vanadium, Manganese, Folic Acid, Boron, Strontium, Silicon, Pyridoxine (Vitamin B_6), Zinc, Copper (to be taken at a different time than the Zinc), and Ascorbic Acid (Vitamin C), and Vitamin E, this latter in a non-esterfied, mixed tocopherols form. Prior to indiscriminate use of various vitamins and minerals, it may be useful to use any of several clinical tests for their deficiencies or over-abundances. If done correctly, blood sera, hair analysis and tissue analysis may be in order.

3. As one ages, to insure that stomach acids (HCl) are of sufficient strength and, if not, to supplement HCl or its equivalent.

4. To exercise via any mode that allows the muscles (and bones) to work against gravity: running, dancing, walking, tennis, other ball games, "pumping iron" and so forth.

5. However possible, stay away from Aluminum, Floride, Cadmium and Lead excesses[13].

It's interesting to note that for almost all disease conditions, recommended preventive measures follow the same roadway: proper nutrition, exercise and appropriate vitamin and mineral supplements!

Rules of Treatment

Since we are all of us bound to suffer from some degree of Osteoporosis, the question occurs as to what should we do when this happens?

According to "Osteoporosis Prevention May be Achieved by Early Intervention," *Townsend Letter for Doctors*[16], in a study "which involved more than 800 women, Jeffrey Bland, Ph.D., and his colleagues at the Bionutritional Research Foundation confirmed the importance of premenopausal assessment of bone density in the prevention of postmenopausal bone fractures. . . Screening and intervention are particularly critical for women with a family history of bone loss and easy fracture.

"In the study, one group of women identified as high risk were given hormonal therapy and placed on a program of diet modification and regular exercise. When they were compared to a control group of women at high risk who did not receive intervention therapy, the treatment group showed increased bone density. Methods of screening and monitoring included CT scanning, duophoton absorptiometry and radiographic photodensitometry.

"An aggressive program of therapy to maintain bone density, according to the authors, includes diet modification, hormonal support after menopause, increased physical activity and life style modification, including cessation of cigarette smoking.

"'If the bad news is that bone loss in older women is a growing and serious problem,' Dr. Bland stated, 'the good news is that preventive techniques and dietary modification can help most women affected by bone loss. Screening, as our study shows, can match the problem with the solution."

1. It should be understood without saying it, therefore, that all of the above recommendations for prevention, should also be followed for treatment, and in addition we can do the following:

2. Following Newnham's advice[27], "When treating osteoporosis it is wise to make sure that one is consuming at least 3 mg of supplementary boron with each meal. This gives the parathyroid every opportunity to improve the bone mineralization. We don't want chelated boron as so many are trying to sell. The boron must be readily available to every part of the body that needs it. Only one boron tablet has ever passed any hospital trial, and these have been improved by" Dr. Newnham.

3. As one ages and/or if one has circulatory problems, to have treatments with EDTA Chelation Therapy.

4. Ask your physician for the MDS (mixed disulfide) test to determine homocysteine level and supplement with folic acid, if warranted.

5. If estrogen replacement is indicated, get *Triest* instead , and a physician who knows how to use it along with the proper kind of Vitamin E, and the correct forms of Omega 6 and Omega 3 fatty acids; or, find a physician who understands the usage of herbs for Osteoporosis, as described earlier.

6. If indicated try progesterone ointment. John R. Lee, M.D., found that nightly application of a topical ointment of 3% natural progesterone for two weeks per month resulted in a significant increase in bone mass, in an uncontrolled study of 100 postmenopausal women. Although studies like this are not well accepted by established medicine, they are surely worthwhile looking into.

7. Whenever the body is subject to disease there are often two components that you and your doctor must separate out, and treat. The first, of course, is the basic cause of the disease itself. The second, is the damage that the disease has done to your body.

We cannot leave the subject of Osteoporosis without mentioning that there are many treatment modalities which you and your doctor must look at -- to ease the load on your body -- any portion of which might in some way either known or unknown be contributing to the Osteoporotic condition. Any and all treatments that will improve your overall health are important. Physicians will differ as to the "best" treatment, and perhaps they should, as each of us also differs. According to Newnham[27], "Far too many methods such as screening and chelation for osteoporosis and arthritis involve expensive medical procedures, and that is, I am afraid, what the medical industry wants. They don't want a simple, cheap supplement. I did have patents but too many companies have copied more or less, but I try to stay one jump ahead with a better formula. That is why I use calcium and magnesium ascorbate, so that all the molecule is used. I try to keep things cheap so that everybody can afford the tablets. I will never get rich this way but I don't want riches, it is better to know that people are being helped." That, after all, is the point of every good physician's viewpoint -- to help. But even more important, is the effort that leads to your own personal insight on how to help yourself.

8. There is a treatment modalitiy of great import that is often overlooked -- or at least has been greatly overlooked for more than 35 years.

It is a therapy practiced by only about 600 U.S. physicians, both MDs and DOs. It is known as Sclerotherapy by DOs and as Proliferative Therapy by DOs. Some physicians have also recently began calling this form of treatment Reconstructive Therapy, which defines what it does for the human

frame.

As there is now two excellent books on the subject, *Pain, Pain Go Away*[17] by William J. Faber D.O. and Morton Walker, D.P.M. and *Prolo Your Arthritis Pain*[17] Away by Ross A. Hauser, M.D. and Marion A. Hauser, M.S., Rd. we won't dwell too much on its nature. Briefly it is based on the observation that the human skeleton in its living form is held together -- maintains its natural human configuration -- by tendons and ligaments. The muscles do not hold the body together -- it's the tendons and ligaments. Muscles give power.

As the body ages, collagen tissue, that acts as a spacer and shock absorber throughout the skeleton, decreases. There is, indeed, a shrinking of bone tissue accompanied by a decrease in this collagen tissue with Osteoporosis. As the bones shrink and the shock absorbers decrease in size, the tendons and ligaments are no longer of the correct lengths to properly stabilize the skeleton.

Consequence is that the body -- in a very unconscious and automatic manner -- attempts to compensate by doing several things: growing calcium spurs in painful locations, crushing or grinding bone tissue, placing more tension on various tendons or ligaments on opposite sides of the body, thus creating additional pain, and so on. X-rays do not show where the ligments and tendons are stretched or torn.

Many pains appear in remote parts of the body; i.e., remote from the actual source of skeletal disturbance.

Physicians who use this treatment modality will find those points in the skeletal structure where tendons and ligaments need to be tightened up. At those specific points they will insert any of several substances -- often a natural bodily substance called sodium murrhuate -- which promotes the growth of collagen tissue and fibroblasts by normal physical mechanisms.

Your body, then, begins building fibroblasts and collagen tissue in such a way that tendons and ligaments are restored to their natural tautnesses with appropriate lengths.

It is necessary, however, to have a reasonably good metabolism; i.e. your thyroid should be functioning reasonably well. If not, then best to have thyroid supplements for a number of weeks prior to seeking this kind of therapy. If your metabolism is running low, or marginally low, your body will not build fibroblasts and collagen tissue very rapidly, and therefore you will not perceive results that are your due.

It is clear that this kind of treatment is virtually a must for anyone who begins to suffer or has suffered from Osteoporosis, Osteoarthritis, or Rheumatoid Disease -- not to mention various kinds of accidents or sports problems.

Indeed, specialists in this mode of treatment state that 30% of all human pains can be solved by Reconstructive Therapy coupled with Neural Therapy, (*Instant Pain Relief*[18] by William J. Faber DO and Morton Walker, DPM) a treatment modality that has proven effective in releasing bound-up energy resulting from scars from various kinds of internal or external operations.

Case History of Rex E. Newham, Ph.D., D.O., N.D.[27]

"I was not a medical man, but a teacher of soil science, agricultural botany and chemistry. Thirty years ago I developed arthritis and was given drugs which failed to help the condition. There is a cause for every effect and I soon realized that I should try to find the cause for my arthritis. Then I realized that most of the fruit and vegetables I was eating was mineral deficient. Even the pastures around Perth, Australia were often deficient in several minerals.

"All the common minerals were checked and none were relevant, but boron was written off as being not relevant to man or animal, yet it was very necessary for plants and it helped in their calcium metabolism. I looked into boron and 45 or more grams was a poisonous amount, so I took less than a thousandth of this amount twice daily and in 3 weeks all pain swelling and stiffness had gone. I was cured with no side effects.

"The next thing was to tell the university medical people and the public health authorities, but none of them were interested. Then I told a few people who had arthritis and they were thrilled as they were getting better. But it meant that they buy a packet of chemical that was labelled 'Poison -- for killing cockroaches and ants.' Some people believed the label and stayed with their arthritis. In due course of time people persuaded me to have tablets made with a safe quantity of boron. This I did.

"I tried to enter a normal medical school but was too old to be accepted. So I quit teaching and qualified in alternative or complementary medicine, as a naturopath, homoeopath, osteopath and nutritionist. This latter was fortunate as doctors normally fail to study nutrition, yet it holds the key to nearly all of our maladies today. I later qualified for Ph.D. in nutrition.

"The first [boron] tablets took 2 years for me to sell 1000 bottles, but within 5 years they were selling at 10,000 per month; and that was without advertising, but every satisfied user told a few more so the business just grew. It was getting too much for me and I went to a drug company for help in marketing. They made most of their money from aspirin which was the main medical drug for arthritis and I thought they would be interested in finding a real cure for arthritis. I was wrong and a fool for thinking so.

"They said they were not interested, but they were most concerned; not about people with arthritis, but about losing some of their profits. This company had members on at least two government committees, and these men had boron declared poison in any concentration. It actually has about the same toxicity as common salt. But I was fined nearly $1000 for selling a poison, and they succcessfully put me out of business in Australia. So I moved overseas where boron is not poison by law. Actually there is no such thing as a poisonous substance, there are only poisonous concentrations. We don't call oxygen a poison, yet pure oxygen will soon kill a person if breathed continuously for a time.

"Following up on my early work the U.S. Human Nutrition Research Center in North Dakota[29, 30, 31] has shown that boron works through the parathyroid to stop or reduce calcium loss in osteoporotic women. Boron also helps to increase the natural hormones in these older women to normal. This could obviate the use of hormone replacement therapy which can be cancer forming when synthetic hormones are introduced into the body. I have tried to have formal studies done on bone density but those concerned don't seem to want to work with boron. Those patients who have used boron just don't seem to develop osteoporosis, they just remain well.

"The effect of boron on bone fractures is also interesting as these fractures just heal well in about half the normal time, in both man and animal. Horses and dogs with broken legs or even a broken pelvis have recovered fully. Yet it has been impossible to get orthopaedic surgeons to try this remedy in a proper trial.

"I did have patents in six countries for my formula, but these are not worth the paper they are written on. Other people can copy the important aspects of a formula but vary it a little

and they are not infringing the patent. Even one company copied exactly and even used my patients in their advertising. Then in court they were made to apologise. This all means that I will never gain much from a monetary aspect, but there is a lot of satisfaction in knowing that people are getting better. I only wish that more knew about it and that the authorities did not just try to cover up this work.

"It seems as if the 'health authorities' just want more and bigger hospitals with more top jobs and expensive drug bills with more undertakers in business. I would rather see a healthy population and healthy people to not need hospitals."

Dr. Newnham's experiences are normal in the field of health treatment and prevention. It is consistent with every other field of medicine for every condition. There is almost always alternative or complementary paths to health.

As there are many paths to freedom of the spirit, there are many ways to seek bodily health.

In using any therapy, the important part is knowing that you are better, and that the treatment you've selected works for you!

DR. MERCOLA'S COMMENT

in www.mercola.com regarding an article *The Protein and Calcium Paradox in Osteoporosis* By Dr. Robert Heaney in *American Journal Clinical Nutrition* April 2002;75(4):609-10.

"One of the arguments vegetarians are fond of stating is that increased protein intake, especially animal protein, results in loss of calcium from the bone.

"As Dr. Heaney explains this is not entirely true. If one has inadequate protein intake it is clearly quite detrimental to bone density. There are many studies that clearly demonstrate this.

"However, if one has excess protein intake and does not adequately have sufficient calcium in the diet, the protein will cause loss of calcium from the bones into the urine to buffer the system.

"Having large amounts of raw vegetables which are high in calcium and other acidic buffering agents will clearly compensate for this.

"Additionally, sufficient quantities of vitamin D in the summer from sun and in the winter from cod liver oil will also maximize calcium absorption to more than compensate for the loss of calcium from protein intake in most people.

"So if you have osteoporosis, or osteopenia you will clearly want to have sufficient."

Information Sources, References and Supplement Suppliers

Listed in what follows are sources of information that may help you in preventing or treating Osteoporosis:

Information Sources

1. American Academy ofAdvancement in Medicine, 6151 West Century Blvd., Los Angeles, CA 90045. Source of physicians who do Chelation Therapy. *The Rheumatoid Disease Foundation/The Arthritis Trust of America* also has some physicians listed who do Chelation Therapy for which please enclose tax-exempt donation to cover cost of postage and handling. (See http://www.arthritistrust.org.)

2 Candidia Research and Information Foundation, PO Box 2719, Castro Valley, CA 94546; (510) 582-2179. Non-Profit, Tax-Exempt, Charitable Foundation.

3. Douglass, William Campbell, M.D. writes and publishes a newsletter *Second Opinion*, interesting for layfolks. PO Box 888, Warwoman Road, Thurmond Building, Clayton, GA 30525.

4. Newnham Rex , PhD, DO, ND *Away With Arthritis*,, Cracoe House Cottage, Cracoe, Skipton, North Yorkshire BD23 6LB England. This pamphlet, written for layfolks, discusses Newnham's research on use of Boron.f postage and handling. (See http://www.arthritistrust.org.)

5. Price-Pottenger Nutrition Foundation, Inc. 5871 El Cajon Blvd, San Diego, CA 92115; (619) 582-4168. Their newsletter and other literature are good sources for data on proper nutrition. Non-Profit, Tax-exempt, Charitable Foundation.

6. Physicians Committee for Responsible Medicine, PO Box 6322, Washington, D.C. 20015 (202) 686-2210. Non-profit, tax-exempt charitable foundation.

7.The Arthritis Trust of America/The Rheumatoid Disease Foundation, 7376 Walker Road, Fairview, TN 37062-8141, can supply a listing of physicians, many of whom will work with you to help solve your medical problems. Please enclose an addressed legal size, stamped envelope and tax-exempt donation to help defray the cost of physician referral. (Also available at http://www.arthritistrust.org.)

8. *Townsend Letter for Doctors* is an informal newsletter for doctors communicating to doctors -- but it is also excellent for layfolks. It is published monthly, contains a large number of interesting articles on various medical conditions, is generally easy to read and to understand. ISSN 1059-5864, 911 Tyler Street, Port Townsend, WA 98368-6541 or call (206) 385-6021 regarding subscription price.

9. Wright/Gaby Nutrition Institute, PO Box 32188, Baltimore, MD 21208.

Supplement Suppliers -- an Incomplete Listing

Sources for various essential fatty acids, minerals and vitamins and vitamin supplements follow. Note, some are for physicians only!

1. Bronson Pharmaceuticals 4526 Rinetti Lane, PO Box 628 La Canada, CA 91012-0628. An excellent source for powdered Vitamin C in the form of Ascorbic Acid, Sodium Ascorbate, and Calcium Ascorbate.

2. AC Grace Co. 1100 Quitman Road, Big Sandy, TX 75755 (214) 636-4368. Source of proper type of Vitamin E.

3. Advanced Medical Nutrition, Inc. 2247 National Avenue, PO Box 5012,Hay- ward, CA 94540-5012. Various vitamins and minerals.

4. Bio-Therapeutics, PO Box 1745, Green Bay, WI 54305, outside U.S. call collect (414) 435-4200, inside U.S. 1-800-553-2370. Note: Physicians only!

5. Bio-Tech, PO Box 1991, Fayetteville, AR 72702, 1-800-345-1199. Various vitamin and mineral supplements.

6. Cardiovascular Research Ltd. 1061-B Shary Circle, Concord, CA 94518; 1-800-351-9429. Various vitamin and mineral supplements.

7. Henderson Metabolic Services, Inc., 8304 Harford Road, Baltimore, MD 21334;1-800-289-4674. Various vitamin and mineral supplements.

8. Inter-Cal Corporation, 421 Miller Valley Road, Prescott, AZ 86301; (602) 445-8063. Source of Ester C^{R}.

9. Klabin Marketing, 115 Central Park West, 5A, New York, NY 10023; (212) 877-3632. Among other products, distributes a new form of Vitamin C, called Ester C^{R}.

10. Klaire Laboratories, Inc., 1573 W. Seminole, San Marcos, CA 92069 1-800-533-7255 or (619) 744-9680. Various vitamin and mineral supplements.

11. Miller Pharmacal Group, Inc. 245 W. Roosevelt Rd., PO Box 279, West Chicago, IL 60185; 1-800-323-2935 or 1-708-231-3632. Various vitamin and mineral supplements.

12. New Dimensions Distributors, Inc. 16458 East Laser Drive, Suite A-7, Fountain Hills, AZ 85268; 1-800-624-7114; (602) 837-8322. Source for good Flaxseed Oil (Fatty Acid).

13. Thorne Research, Inc. 901 Triangle Drive, PO Box 3200, Sandpoint, ID 83864; (208) 263-1337. Note Physicians only! Various vitamin and mineral supplements.

14. Vitaline Formulas 722 Jefferson Ave., Ashland, Or 97520; 1-800-648-4755. Various vitamin and mineral supplements.

15. For Your Health Pharmacy, Kent Washington for supplies of Triest. Write to Edward Thorpe, Ph.D., Box 5198, 349 West Georgia, Vancouver, Canada V6B 4B3.

16. Professional and Technical Services, Inc., 3331 N.E. Sandy Blvd., Portland Oregon 97232 for supplies of Progesterone creams and oils for topical treatment.

17. Dr. Don Breen, Osteo-Trace tablets, 1535 North Limestone Street, Springfield, OH 45503. These are tablets made to Rex E. Newnham's specifications.

18. Mumme Enterprises, Osteo-Trace, 1321 Meridican Ave., South Pasadena, CA 91030. These are tablets made to Rex E. Newnham's specifications.

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2. *Textbook of Natural Medicine*, Pizzorno & Murray, 1989, VI: Osteop-3.

3. Rex Newnham, Personal Communication from; also see *Away With Arthritis*, Rex E. Newnham, Cracoe House Cottage, Cracoe, Skipton, North Yorkshire BD23 6LB, England.

4. Jonathan Wright, M.D., Alan R. Gaby, M.D., Personal Communication.

5. *Science News*, August 1, 1986.

6. Schultheis, L. *Exp-Gerontol.* "The Mechanical Control System of Bone in Weightless Spaceflight and In Aging," 1991; 26(2-3): 302-14

7. LeBlanc A., Schneider, V., *Exp-Gerontol.* 1991; 26 (2-3): 189-201,

8. Minaire, P., *Clin-Rheumatol. "Immobilization Osteoporosis; A Review,* 1989; 8 Suppl 2: 95-103.

9. A. Schoutens; E. Laurent; JR. Poortmans , *Sports-Med.* "Effects of Inactivity and Exercise on Bone,"1989 Feb; 7(2): 71-81,

10. Resnick, Neil M., *JAMA*, State of the Art/ Review, "Senile' Osteoporosis Reconsidered, February 17, 1989, Vol. 261, No. 7, p. 105,

11. Fabio, Anthony, *The Art of Getting Well*, The Arthritis Trust of America/The Rheumatoid Disease Foundation, (See http://www.arthritistrust.org.), p.83.

12. Gaby AR, Wright JV, "Nutrients and Osteoporosis"*Journal of Nutritional Medicine*, Volume 1, Volume 1, pp. 63-72, 1990. Reprints may be obtained by sending a self-addressed stamped envelope to Wright/Gaby Nutrition Institute, PO Box 21535, Baltimore, MD 21208.

13. Pizzorno & Murray,*Textbook of Natural Medicine*, 1989, VI: Osteop-5.

14. Watts, David, Trace Elements, Inc. PO Box 5822, Savannah, GA 31414.

15. Pizzorno & Murray, *Textbook of Natural Medicine*, 1989, VI: Osteop-6.

16. Report on Jeffrey Bland, Ph.D.,*Townsend Letter for Doctors*, October 1989, p. 497.

17. Faber, William J. and Walker, Morton, *Pain Pain Go Away*, Ishi Press International, 1400 N. Shoreline Blvd., Building A7, Mountain View, CA 94043, 1990; Ross A. Hauser, M.D., Marion A. Hauser, M.S., R.D. *Prolo Your Arthritis Pain Away*, Beulah Land Press, 715 Lake Street, Suite 600, Oak Park, IL 60301, 2000.

18. Faber, William J. and Walker, Morton, *Instant Pain Relief*, Freelance Communications, Stamford, CT, 1991.

19. Brattstrom, et. al;*Metabolism*, Vol. 34, #11, November 1985.

20. Riggs & Melton, *American Journal of Medicine*, , 75 #6, 1983.

21. Robert Berkow, Ed, *The Merck Manual*, 13th Edition, Merck Sharp & Dohme Research Laboratories, Rahway, N.J. p. 1365 1977.

22. Marion Laboratories, Inc., Osteoporosis: Is it in Your Future? Kansas City, MO 64137,
p. 4. Feb. 1984.

23. Edward Thorpe, Ph.D., Personal Communication, Triest can be obtained by writing to Dr. Edward Thorpe, Box 5198, 349 West Georgia, Vancouver, B.C., Canada V6B 4B3. Dr. Thorpe does not sell Triest, but is a consultant for the company that does. A medical doctor must request it as his prescription and there is no insurance refund or tax invoice provided as the company is simply an exporter, not a pharmacy.

24. John R. Lee, M.D., "Is Natural Progesterone the Missing Link in Osteoporosis Prevention and Treatment?" *Medical Hypotheses*, (1991), 35, 316, 318.

25. Jerilynn C. Prior, M.D., Yvette Vigna, RN, Nenita Alojado, RN, "Progesterone and the Prevention of Osteoporosis," *The Canadian Journal of Ob/Gyn & Woman's Health Care*, Vol. 3, Number 4, p. 178-184, 1991.

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29. Forrest H. Nielson, "Boron Affects Magnesium Deprivation and Aluminum Toxicity in Rats," North Dakota Academy of Science, Vol. 40, USDA, ARS, Grand Forks Human Nutrition Research Center, Grand Forks, ND, 58202, p. 82, 1986.

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Real Patients Experience the Benefits of the Bone-Building Mineral -- and So Can You

by Jonathan Wright

(Reprinted by permission from *Nutrition & Healing*, Vol. 12, Issue 1, February 2005)

Two years ago, I told you about the mineral strontium and its bone protecting and rebuilding benefits. We've been using it at the Tahoma Clinic as part of our overall osteoporosis prevention and treatment programs since a few months before then. The results have been phenomenal, especially when compared with patent medicines used for the same condition. So this month, let's take a few minutes and look at some impressive case histories of Tahoma Clinic patients who have used strontium.

First, there's LC, a 60-year-old woman who came to the Tahoma Clinic with a baseline bone density score of 85 percent of "young normal" (her bones compared to those of a normal young woman) and 97 percent of "age matched" bone density. Because of an undiagnosable neurologic illness, she hadn't been able to exercise much. So her osteoporosis prevention program consisted of bioidentical hormones, calcium, magnesium, boron, and other nutrients. She'd also been using Fosamax®, which her primary care doctor had prescribed.

In February 2004, she added strontium to her program. Seven months later, her repeat scan showed a leap upward from 85 to 94 percent of "young normal" and 97 to 106 percent of "age-matched" women. Her primary care doctor tried to tell her that the Fosamax® she'd been taking "finally kicked in." But she'd had annual bone density scans for several years prior, with no significant improvement on any of them. Only after she began taking strontium did she have that "leap upward." So she told him that the difference was obviously due to the addition of strontium.

Another 60-year-old woman, AS, had her latest bone density scan in December of 2003. Compared with her prior scan of November 2002, she'd gained 4.1 percent bone density at the lumbar spine, and 7.1 percent at the left hip. The only thing she'd done differently since her last scan was adding strontium to her supplement program.

And last but not least, there's RD, who is 72. At her February 2003 scan, her left hip bone density varied between 41.9 and 60.5 percent of "young normal" and between 64.3 and 84.4 percent of bone density for "age matched" women. Her vertebral bone density varied between 76.1 and 82.1 percent of "young normal" and 97.4 and 99.5 percent of "age matched" women. Her doctor recommended injections of Forteo®, but she told him she was planning to start strontium supplementation (to go along with her other supplements). When she came to the Tahoma Clinic for help with the strontium therapy, she said the doctor told her there was no proof that strontium could do anything at all.

But at her next bone density scan in August 2004, her left hip bone density had gone up from 50 to 74.2 percent of "young normal," and 78.4 to 99.2 percent of "age-matched" controls. And her vertebral bone density now varied from 79.5 to 89.2 percent of "young normal," and from 102.4 to 108.8 percent of "age-matched" women.

Let Strontium Do the "Heavy Lifting" in Your Bone-Building Program

While none of these women had the most severe degrees of osteoporosis, research has shown that strontium therapy, along with calcium and vitamin D, can significantly improve even the most severe osteoporosis. Much of the recent research used strontium renalate, which does not necessarily apply to other strontium research. But prior research showed improvement in osteoporosis with all different forms of strontium, such as strontium lactate, strontium gluconate, and strontium carbonate. Tahoma Clinic patients have all used strontium citrate. This means to me that it's the strontium itself (along with calicum, vitamin D, and other nutrients) doing the "heavy lifting."

On a technical, but important note, strontium doesn't cause abnormal bone crystal formation like fluoride does. Abnormal bone crystal formation has been associated with an increase in fracture risk. Bone crystal formed during strontium supplementation appears normal under microscopic examination, is flexible like normal bone, and is associated with a significant decrease in new fracture risk.

The most important thing to remember about strontium therapy for osteoporosis: *Always* use more calcium than strontium, It's probably best to use at least twice as much calcium. Experimental animals given more strontium than calcium develop abnormally formed bones.

Strontium citrate is available as StrontiumSupport (AOR, Inc.), or as part of a bone-building combination called *Osteo-Mins AM & PM*, which includes other crucial bone-building nutrients: calcium, magnesium, vitamin D, manganese, boron, zinc, copper, and many others. Both are available through natural food stores, compounding pharmacies, and the Tahoma Clinic Dispensary (www.tahoma-clinic.com; Phone (425) 264-0059). I am not affiliated with AOR Inc., but I do work with Progressive Laboratories to make the *Osteo Mins AM & PM* formulas available.