Your Monthly Update

Dear Colleague

Welcome to the July 07 newsletter from Pure Bio Ltd.

Did you know:

Incorporating pistachios into the diet can significantly reduce cholesterol and help to prevent narrowing of the arteries, according to a trial by Pennsylvania State University. Volunteers who ate 3oz. (85g) of pistachios per day for one month lowered their total blood cholesterol by 8.4%.

We always welcome feedback and suggestions.

In response to a specific request, we are re-visiting the topic of osteoporosis.

Osteoporosis

Protocol Summary

Ranking	Nutritional Supplements	Botanical Medicine
Primary	Calcium Strontium Vitamin D	
Secondary	Copper Fish oil and Evening primrose oil (in combination) Folic acid (to lower homocysteine) Ipriflavone Isoflavones (from red clover Magnesium Phosphorus (for elderly people taking calcium supplements) Soy Soy isoflavones (genistein) Vitamin B12 (to lower homocysteine) Vitamin K	Progesterone
Other	Boron Fish oil Fluoride Silicon Vitamin B6 (to lower homocysteine) Vitamin B-complex Zinc	Black cohosh Horsetail

Primary – Reliable and relatively consistent scientific data showing a substantial health benefit.

Secondary – Contradictory, insufficient, or preliminary studies suggesting a health benefit or minimal health benefit.

Other – An herb is primarily supported by traditional use, or the herb or supplement has little scientific support and/or minimal health benefit.

Osteoporosis is a condition of decreased bone density. It affects one in six women and one in eight men over the age of fifty and is most common among post-menopausal women.

An individual's peak bone mass occurs between the ages of twenty and thirty. Bones reach their maximum density and strength during this time. After peak bone mass is reached, bone rebuilding gradually wanes. For women, the greatest bone loss occurs in the years immediately after menopause when oestrogen levels decline. At this time, bone loss ranges from 4% to 8%.

Risk Factors for Osteoporosis

Women (although osteoporosis also occurs in men)

- **Age 50 or older**
- **Past menopause**
- **Prolonged hormonal imbalances**
- **Excess use of certain medications, such as steroids**
- **Not enough calcium or vitamin D in the diet**
- **Lack of exercise**
- **Thin, "small-boned" body frame**
- **Caucasian**
- **History of fracture**
- **Family history of osteoporosis**
- **Smoking, caffeine, or alcohol consumption**

Dietary Modification

Carbonated drinks **- Soft drinks are high in phosphoric acid and sugar, making these drinks highly acidic. Calcium is the main mineral utilized by the body to neutralize that acid. So phosphoric acid or high amounts of other acids depletes calcium levels, causing calcium to be pulled from the bones. Calcium is pulled out of the body when this happens, and this lowers blood calcium levels. To remedy this, the parathyroid gland restores calcium balance in the blood by pulling calcium from your bones. Consequently, anything highly acidic like soft drinks can directly lead to osteoporosis.**

Meat and Grains **- A diet high in meat and carbohydrates, with few greens or fruits will be highly acidic also, causing the body to utilize calcium to neutralize the acids.**

Milk and Dairy **- African women in the United States eat at least four times more calcium than African women in Africa, and have nine times more osteoporosis. Asian women in the United States eat at least 60% more calcium than Asian women in Asia, and yet have three times more osteoporosis. Calcium consumption in Hong Kong and Greece doubled in the last 30 years, and the rate of osteoporosis tripled in Hong Kong, and more than doubled in Greece.**

Post-menopausal women in America who consume calcium rich dairy products have over three times more osteoporosis than those who do not. The Harvard Nurses Study, and a similar study done by the dairy industry found that the more dairy products we consume, the more bone we lose.

Another study concluded that women who drank two or more glasses of milk per day increased their risk of fractures compared with women who drank less than one glass per week, and that consumption of yogurt, cheese and other dairy products also increased the risk of fractures.

Milk contains 10 times more calcium than magnesium and this has a disruptive effect on the balance of osteoclastic and osteoblastic activity in the bone.

Osteoclasts and osteoblasts are activated by the parathyroid hormone (PTH) which encourages osteoclasts to pull calcium from the bones. Calcitonin stimulates osteoblasts to deposit calcium into the bones.

A lack of magnesium increases the activity of PTH. This results in excessive stimulation of osteoclasts, which causes net bone loss. Increasing magnesium is the only natural way to correct this.

Rates of osteoporosis are lowest in cultures where the ratio of calcium to magnesium is between 2 parts calcium to 3 parts magnesium, down to as much as 3 parts calcium to 2 parts magnesium. The ratio of calcium to magnesium in dairy products is 10:1. In nations with high rates of osteoporosis, the ratio of total calcium to magnesium intake is at least 2:1, usually over 3:1.

On the average, a vegan diet (no meat or milk) provides about 500 mg. per day of both calcium and magnesium. Studies show that vegans have stronger bones than meat and milk product eaters, especially after the age of 50.

Most grains are acid-forming, except millet and buckwheat, which are slightly alkaline. Sprouted seeds and grains become more alkaline in the process of sprouting. Vegetable and fruit juices are highly alkaline. The most alkaline foods are: figs, juices of all green vegetables and tops of carrots and beets, celery, pineapple and citrus juices; and vegetable broth.

Stress **- Cortisol increases calcium loss from the bone and into serum.**

Steroids also block the absorption of calcium into bone

Sugar **intake increases calcium excretion.**

Short-term increases in dietary salt **result in increased urinary calcium loss, which suggests that over time, salt intake may cause bone loss. Increasing dietary salt has increased markers of bone loss in postmenopausal (though not pre-menopausal) women.**

Caffeine **increases urinary loss of calcium. Caffeine intake has been linked to increased risk of hip fractures and to a lower bone mass in women who consumed inadequate calcium. General recommendation is to decrease caffeinated coffee, black tea, and caffeine-containing soft drinks as a way of improving bone mass.**

Curiously, while caffeine-containing tea consumption has been linked to osteoporosis in some studies, others have reported that tea drinkers have a *lower* risk of osteoporosis than do people who do not drink tea. Possibly, the calcium-losing effect of caffeine in tea is overridden by other constituents of tea, such as flavonoids.

Soy foods, **such as tofu, soy milk, roasted soy beans, and soy protein powders, may be beneficial in preventing osteoporosis. Isoflavones from soy have protected against bone loss in animal studies. In a double-blind trial, postmenopausal women who supplemented with 40 grams of soy protein powder (containing 90 mg of isoflavones) per day were protected against bone mineral loss in the spine, although lower amounts were not protective. In a double-blind study, administration of the soy isoflavone genistein (54 mg per day) to postmenopausal women for one year reduced bone**

breakdown, increased bone formation, and increased bone mineral density of the hip and spine. *The effect on bone density was similar to that of conventional hormone-replacement therapy.*

Lifestyle Modification

Smoking leads to increased bone loss. For this and many other health reasons, smoking should be avoided.

Exercise is known to help protect against bone loss. The more weight-bearing exercise that is undertaken by men and postmenopausal women, the greater their bone mass and the lower their risk of osteoporosis. Walking is a perfect weight-bearing exercise. For pre-menopausal women, exercise is also important, but taken to extreme, it may lead to cessation of the menstrual cycle, which *contributes* to osteoporosis.

Excess body mass helps protect against osteoporosis. As a result, researchers have been able to show that people who successfully lose weight have greater bone *loss* compared with those who do not lose weight.

Nutritional Supplement Treatment Options

Although insufficient when used as the only intervention, calcium supplements help prevent osteoporosis. Though some of the research remains controversial, the protective effect of calcium on bone mass is one of very few health claims permitted on supplement labels by the U.S. Food and Drug Administration.

CALCIUM - In some studies, higher calcium intake has not correlated with a reduced risk of osteoporosis—for example, in women shortly after becoming menopausal or in men. However, after about three years of menopause, calcium supplementation does appear to take on a protective effect for women. A review of the research shows that calcium supplementation plus hormone replacement therapy is much more effective than hormone replacement therapy without calcium. In order to achieve the 1,500 mg per day calcium intake many researchers deem optimal, 800 to 1,000 mg of supplemental calcium are generally added to the 500 to 700 mg readily obtainable from the diet. Calcium has been shown to be effective in helping to build bone mass. For optimum nutrition, the range of calcium intake is between 1000-1500mg per day depending on your age, dietary intake, and other health conditions. Calcium is found in yogurt, green vegetables such as kale, soy products and tofu, seafood such as salmon and oysters, and sesame seeds.

PHOSPHORUS - While phosphorus is essential for bone formation, most people do not require phosphorus supplementation, because the typical western diet provides ample or even excessive amounts of phosphorus. One study, however, has shown that taking calcium can interfere with the absorption of phosphorus, potentially leading to phosphorus deficiency in elderly people, whose diets may contain less of the mineral.

IPRIFLAVONE is a synthetic flavonoid derived from the soy isoflavone called daidzein. It promotes the incorporation of calcium into bone and inhibits bone breakdown, thus preventing and reversing osteoporosis. Many clinical trials, including numerous double-blind trials, have consistently shown that long-term treatment with 600 mg of ipriflavone per day, along with 1,000 mg supplemental calcium, is both safe and effective in halting bone loss in postmenopausal women or in women who have had their ovaries removed.

VITAMIN D increases calcium absorption; and blood levels of vitamin D are directly related to the strength of bones. Mild deficiency of vitamin D is common in the fit, active elderly population and leads to an acceleration of age-related loss of bone mass and an increased risk of fracture. In double-blind research, vitamin D supplementation has reduced bone loss in women who consume insufficient vitamin D from food and slowed bone loss in people with osteoporosis.

Impaired balance and increased body sway are important causes of falls in elderly people with osteoporosis. Vitamin D works with calcium to prevent some musculoskeletal causes of falls. In a double-blind trial, elderly women who were given 800 IU per day of vitamin D and 1,200 mg per day of calcium had a significantly lower rate of falls and subsequent fractures than did women given the same amount of calcium alone.

Despite inconsistency in the research, many doctors recommend 400 to 800 IU per day of supplemental vitamin D, depending upon dietary intake and exposure to sunlight.

Vitamin D is also found in foods such as egg yolks, liver, salt-water fish, and fortified beverages.

FISH OIL / EPO - A preliminary trial found that elderly women with osteoporosis who were given 4 grams of fish oil per day for four months had improved calcium absorption and evidence of new bone formation. Fish oil combined with evening primrose oil (EPO) may confer added benefits. In a controlled trial, women received 6 grams of a combination of EPO and fish oil, or a matching placebo, plus 600 mg of calcium per day for three years. The EPO/fish oil group experienced no spinal bone loss in the first 18 months and a significant 3.1% increase in spinal bone mineral density during the last 18 months.

VITAMIN K - is needed for bone formation. People with osteoporosis have been reported to have low blood levels and low dietary intake of vitamin K. One study found that postmenopausal (though not pre-menopausal) women may reduce urinary loss of calcium by taking 1 mg of vitamin K per day. People with osteoporosis given large amounts of vitamin K2 (45 mg per day) have shown an increase in bone density after six months and decreased bone loss after one or two years.

Vitamin K is found in green, leafy vegetables such as broccoli, brussels sprouts, collard greens, lettuce, and spinach.

MAGNESIUM - In a preliminary study, people with osteoporosis were reported to be at high risk for magnesium malabsorption. Both bone and blood levels of magnesium have been reported to be low in people with osteoporosis. In a two-year, controlled trial, supplementing with 250 mg up to 750 mg per day of magnesium arrested bone loss or increased bone mass in 87% of people with osteoporosis.

One trial studying postmenopausal women combined hormone replacement therapy with magnesium (600 mg per day), calcium (500 mg per day), vitamin C, B vitamins, vitamin D, zinc, copper, manganese, boron, and other nutrients for an eight- to nine-month period. In addition, participants were told to avoid processed foods, limit protein intake, emphasize vegetable over animal protein, and limit consumption of salt, sugar, alcohol, coffee, tea, chocolate, and tobacco. Bone density increased a remarkable 11%, compared to only 0.7% in women receiving hormone replacement alone.

ZINC - Levels of zinc in both blood and bone have been reported to be low in people with osteoporosis, and urinary loss of zinc has been reported to be high. In one trial, men consuming only 10 mg of zinc per day from food had almost twice the risk of osteoporotic fractures compared with those eating significantly higher levels of zinc in their diets.

COPPER is needed for normal bone synthesis. Recently, a two-year, controlled trial reported that 3 mg of copper per day reduced bone loss. The recommended dosage is 2 to 3 mg of copper per day, particularly if zinc is also being taken, in order to prevent a deficiency. Supplemental zinc significantly depletes copper stores, so people taking zinc supplements for more than a few weeks generally need to supplement with copper also.

BORON supplementation has been reported to reduce urinary loss of calcium and magnesium in preliminary research.

STRONTIUM may play a role in bone formation, and also may inhibit bone breakdown. In a three-year double-blind study of postmenopausal women with osteoporosis, supplementing with strontium, in the form of strontium ranelate, significantly increased bone mineral density in the hip and spine, and significantly reduced the risk of vertebral fractures by 41%, compared with a placebo. The amount of strontium used in that study was 680 mg per day, which is approximately 300 times the amount found in a typical diet. Although the amounts of strontium used in these studies was very high, the optimal intake remains unknown. Strontium preparations, providing 200 to 400 mg per day, were used for decades during the first half of the twentieth century without any apparent toxicity. People interested in taking large amounts of strontium should be supervised by a doctor, and should make sure to take adequate amounts of calcium. It should be noted that, although supplementing with strontium increases bone mineral density, only part of the increase is real. The rest is a laboratory error that results from the fact that strontium blocks X-rays to a greater extent than does calcium. People taking large amounts of strontium should mention that fact to the radiologist when they are having their bone mineral density measured, so that the results will be interpreted correctly.

FOLIC ACID, VITAMIN B6 and VITAMIN B12 are known to reduce blood levels of the amino acid homocysteine. Homocystinuria, a condition associated with high homocysteine levels, frequently causes osteoporosis. Therefore, some researchers have suggested that these vitamins might help prevent osteoporosis by lowering homocysteine levels.

PROGESTERONE - Preliminary evidence suggests that progesterone might reduce the risk of osteoporosis. A preliminary trial using topically applied natural progesterone cream in combination with dietary changes, exercise, vitamin and calcium supplementation, and oestrogen therapy reported large gains in bone density over a three-year period in a small group of postmenopausal women, but no comparison was made to examine the effect of using the same protocol without progesterone.http://www.purecaps.com/healthnotes.asp?org=pureencaps&ContentID=1050006 - top#top

Botanical Treatment Options

RED CLOVER - In a double-blind study, supplementation with isoflavones from red clover for one year reduced the amount of bone loss from the spine by 45%, compared with a placebo. The supplement used provided daily 26 mg of biochanin A, 16 mg of formononetin, 1 mg of genistein, and 0.5 mg of daidzein.

HORSETAIL is a rich source of silicon, and preliminary research suggests that this trace mineral may help maintain bone mass. Effects of horsetail supplementation on bone mass have not been studied.

BLACK COHOSH has been shown to improve bone mineral density in animals fed a low calcium diet, but it has not been studied for this purpose in humans.

For further information, contact:

Tracy S Gates

Director

PURE BIO LTD.

01403 730342

info@purebio.co.uk