



OSTEOPOROSIS AT A GLANCE

By Dr. Bo M. Nielsen

More than 200 million people worldwide are affected by osteoporosis, a bone disease that is characterized by the progressive thinning of bone tissue and loss of bone density. This leads to an increased risk of fractures, particularly of the hip, spine and wrist. In the UK, one in two women and one in five men over the age of 50 will suffer an osteoporosis-related fracture at some point.

Why do we lose bone mass?

Our bones are made up of collagen, calcium and other minerals, which together help keep them strong and flexible. Throughout our lives old, damaged bone is removed by specialized cells called osteoclasts and replaced with new bone by cells called osteoblasts. In childhood and teenage years, new bone formation happens at a faster pace than old bone being broken down resulting in increased bone density

and strength. However – due to the natural process of aging – after the age of 30, bone deterioration slowly begins to exceed bone formation, leading to the typical loss of bone density seen in osteoporosis.

How much bone mass do we lose?

Men lose approximately one-half percent of total bone tissue per year while women lose about one percent per year. Bone density loss becomes faster during menopause and some women can lose up to six percent of total bone tissue in just one year during this time.

How is osteoporosis measured?

The most widely used method to measure osteoporosis is dual energy X-ray absorptiometry (DEXA), more commonly known as a bone mineral density scan. DEXA is often performed on areas most likely to be affected by osteoporosis such as the

THEME OSTEOPRO-D

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hip, spine and wrist. Osteopenia, a lower than normal bone mineral density that is as severe as osteoporosis, can also be detected with DEXA.

Traditional osteoporosis treatments

There are various traditional drug treatments for osteoporosis on the market. Perhaps the best known are bisphosphonates (Fosamax, Boniva), which are claimed to prevent bone deterioration and preserve bone mass. However, bisphosphonates as well as many of the other traditional drug treatments can have very unpleasant and sometimes serious side effects.

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DOCTOR'S NATURAL 100% NATURAL AND EFFECTIVE DIETARY SUPPLEMENT FOR OSTEOPOROSIS: **OSTEPRO-D.**

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SYNTHETIC OSTEOPOROSIS MEDICATION SIDE EFFECTS

- Drugs like Fosamax, Boniva or Actonel have resulted in osteonecrosis of the jaw (breaking down of the bone also called Rotting Jaw Bone)
- Increased risk of thigh bone fractures
- Inflammation of the esophagus and gastric ulcers
- Serious eye problems
- Flu-like symptoms (fever, muscle/joint pain, headache)
- Hot flushes
- Blood clots
- Nausea
- Skin rash
- Dizziness
- Mood disturbances
- Irregular heartbeat
- Gallbladder disease

OSTEOPRO-D INGREDIENTS IN DEPTH

Vitamin D, calcium, vitamin K, magnesium, silicon and boron work together in Doctor's Natural OsteoPro-D to provide the optimal effect on osteoporosis treatment and prevention. Let's take a closer look at how each ingredient works.

VITAMIN D

Vitamin D is a fat-soluble vitamin that has gained fame for its role in strong, healthy bones and teeth. Only small amounts of vitamin D can be obtained from fortified milk and dairy products, egg yolks, liver and fatty fish (salmon, tuna, sardines etc.); but by far the largest source of vitamin D is the sun – it is manufactured in the skin by sunlight exposure.

Are you getting enough vitamin D?

According to a 2005 scientific study, a whopping 64% of postmenopausal women are deficient in vitamin D. Of course, this statistic is not exclusive to postmenopausal women; it is estimated that one billion people worldwide are deficient. The weak winter sun, the use of sunscreen when we are in the sun (sunscreen blocks vitamin D synthesis in our skin) and our "indoor" lifestyle make it very hard for us to obtain sufficient levels of vitamin D.

How much vitamin D should you be getting?

The recommended daily allowance (RDA) of vitamin D currently stands at 400 IU, a figure that many researchers consider outdated and simply far too low to prevent osteoporosis and other health conditions.

According to new research from the University of California, 400 IU is not nearly enough to get the health benefits of vitamin D. They are recommending a daily intake of 2,000 IU. By the way, Doctor's Natural OsteoPro-D contains 1,600 IU of vitamin D, which is complemented with an additional 400 IU in our vitamins. If you think 2,000 IU of vitamin D is too much just think of this: 30 minutes of sun exposure generates about 10,000 IU of vitamin D with no side effects whatsoever. Ideally you should be sitting in the sun every day for 20 to 30 minutes. Since this is virtually impossible all year round, supplementation with a high quality vitamin D supplement is really the solution.

Vitamin and your bones

Vitamin D is vital for the absorption of calcium and for the maintenance of calcium and phosphorus levels in the blood that enable bone and tooth mineralization. Vitamin D plays an important role in the removal of damaged bone and replacement of new bone. Without it, our bones would become thin, brittle, deformed and prone to fractures.

Other vitamin D health benefits

Vitamin D is the vitamin to keep on your radar; its many health benefits include:

- Protection against certain cancers by up to 55% (breast, prostate, colon, skin).
- Helps arthritis symptoms.
- Decreases risk of type 1 and type 2 diabetes.
- Decreases risk of heart disease.
- Promotes fertility.
- Helps with PMS.
- Protection against autoimmune disorders

(multiple sclerosis, rheumatoid arthritis, Crohn's).

- Prevents obesity.
- May decrease risk of death from all causes.
- Protection against cognitive decline (Alzheimer's, dementia).
- Reduces chronic pain.
- Boosts mood and protects against depression.

CALCIUM

Calcium is the most abundant mineral in the body and is important for giving firmness and rigidity to bones and teeth. It is also essential for the function of nerves and muscles and plays a role in blood clotting and enzyme activation.

Are you getting enough calcium?

Dairy products such as milk, yogurt and cheese are natural sources of calcium but in reality milk doesn't contain much calcium because pasteurized milk has been stripped of all nutrients, calcium included. Dairy is also high in saturated fat. Healthier food sources of calcium would be broccoli, spinach, kale, almonds, figs and tahini (sesame seed oil). Foods fortified with calcium are not always reliable either because synthetic, less bioavailable forms of calcium are often used and may not even meet daily requirements. Consequently, many people are deficient in this essential mineral. Calcium carbonate (the type found in Doctor's Natural OsteoPro-D) is the most bioavailable form of the mineral and has the highest percentage of elemental calcium present (40%).

Calcium and your bones

Over 99% of your body's calcium is found in bones and teeth, where coupled with collagen, it makes your bones strong and flexible. The remaining calcium is found in your blood, muscle and intracellular fluid. Together with vitamin D, calcium supports bone formation and repair. When your calcium levels drop, where do you think your body gets calcium to increase those levels?

Your body takes calcium from your bones to compensate for low levels. If you replace this lost calcium through diet and supplements, no problem; but if you are not getting enough calcium, sufficient amounts cannot be returned to your bones to maintain them strong and healthy.

Other calcium health benefits

- Helps to maintain healthy weight
- Protects the heart
- Regulates heart pressure
- Lowers high cholesterol
- Eases PMS symptoms
- Protects against colon cancer
- Maintains healthy teeth
- Reduces risk of diabetes

VITAMIN K

Vitamin K is a fat-soluble vitamin that is known for its important role in blood clotting. There are two forms of vitamin K: vitamin K1 (phylloquinone/phytonadione) and vitamin K2 (menaquinone). Vitamin K1 can be found in green leafy vegetables like lettuce, spinach, parsley and broccoli. Vitamin K2 can be found in meat, dairy, eggs and natto (Japanese food made from fermented soybeans) and can be produced by intestinal flora.

Are you getting enough vitamin K?

If you eat a healthy balanced diet, which very few people do, your risk of suffering from significant vitamin K deficiency is low. However, if you suffer from almost any chronic disease the chance is that you will benefit from supplementation with vitamin K. New research indicates that people suffering from heart disease can reduce their risk of dying of the disease by supplementing with 50 to 100 mcg of Vitamin K2.

What form of vitamin K?

Numerous studies show that vitamin K2, in particular MK-7, has more health benefits than vitamin K1. Vitamin K1 makes up for about 90% of a Western diet while vitamin K2 accounts for only 10%, which indicates it would not be a bad idea to supplement your diet.

Vitamin K2 (MK-7) and your bones

Scientific studies are proving time and again that vitamin K2 improves bone health. It not only increases bone mineral density in osteoporosis sufferers but also reduces the risk of fractures by 80%. Vitamin K2 also seems to work in synergy with vitamin D to increase bone density. It is thought that vitamin K2 activates proteins that are essential to bind calcium to the bone matrix, one of which is called osteocalcin.

Other vitamin K2 health benefits

- Reduces risk of heart disease by preventing arterial calcification.
- May help to prevent diabetes.
- May play a role in preventing Alzheimer's disease.
- Researchers believe vitamin K has antioxidant qualities.
- May help to protect against cancer.

DOCTOR'S NATURAL NEW, NATURAL OSTEOPOROSIS SUPPLEMENT OsteoPro-D:

Many people still believe that calcium and vitamin D are the only two nutrients necessary for bone health. However, new research is proving that is just not the case.

Calcium and vitamin D are important no doubt but when combined with several other vitamins and minerals, the effect on osteoporosis is even greater. These include magnesium, vitamin K, silicon and boron, and can be found in Doctor's Natural new osteoporosis supplement, OsteoPro-D.

Content per daily dose (4 capsules)

Name:	Biochemical form:	Active content:
Calcium	Calcium carbonate DC	400 mg
Magnesium	Magnesium citrate	100 mg
Vitamin D3	Cholecalciferol	1600 IU
Vitamin K2 (MK-7)	Menaquinone-7	50 mcg
Silicon	Silicium dioxide	5 mg
Boron	Sodium borate	3 mg



WHAT CAN THE INGREDIENTS IN OSTEOPRO-D DO FOR YOU?

- Increase bone density by increasing natural osteoblast (bone formation) activity.
- Inhibit osteoclast activity (breaking down of bone).
- Vitamin D maintains normal blood levels of calcium and phosphorous and helps in the absorption of calcium.
- Reduce the risk of fractures.
- Maintain healthy bone and joint function.
- Boron increases calcium uptake.
- Ingredients work together in bone metabolism, growth and development.
- Increase muscle power and strength.
- Counteract oxidative stress, which contributes to bone deterioration.
- Enhance the effect of estrogen in women, which has beneficial effects on bone health.

MAGNESIUM

Magnesium is an essential mineral that is vital for over 300 biochemical reactions in our body. It is a component of enzymes required for synthesis of ATP and for the release of energy from ATP. Magnesium is also a component of enzymes involved in muscle contraction and protein synthesis. Half of all the magnesium in our body is found in bone; the rest is distributed throughout our tissue and organ cells. We can get magnesium from nuts, whole grains, legumes, dark green vegetables, seafood and meats.

Are you getting enough magnesium?

Studies show that approximately 70% of us do not have enough body stores of magnesium, possibly because we are not consuming sufficient magnesium from dietary sources.

Magnesium and your bones

Scientific studies support the fact that magnesium is needed for bone health. One particular study found that for every 100 mg per day increase in magnesium, there was about a two percent increase in whole-body bone mineral density. Researchers believe that magnesium deficiency can interfere with and change calcium metabolism and the hormones that regulate calcium.

Other magnesium health benefits

- Regulates blood pressure.
- Protects against heart disease.
- Decreases risk of diabetes.
- Decreases risk of metabolic syndrome.
- Improves brain function and memory.
- Prevents tooth decay.

References:

National Institutes of Health – National Institute of Arthritis and Musculoskeletal and Skin Diseases. National Osteoporosis Society, UK. Mayo Clinic. Tang, B. & all. "Use of calcium or calcium in combination with vitamin D supplementation to prevent fractures and bone loss in people aged 50 years and older: a meta-analysis. The Lancet. Vol. 370. August 25, 2007.

Ryder, K.M. & all. "Magnesium intake from food and supplements is associated with bone mineral density in healthy older white subjects." Journal of American Geriatrics Society. Nov:53(11):1875-80.

Knapen, M.H.J. & all. "Vitamin K2 supplementation improves hip bone geometry and bone strength indices in postmenopausal women." Osteoporosis International. 2009.

Pilz, S. & all. "Low serum levels of 25-hydroxyvitamin D predict fatal cancer in patients referred to coronary angiography." Cancer epidemiology, Biomarkers and Prevention. 2008.

Bertone-Johnson, E. & all. "Calcium and vitamin D intake and risk of incident premenstrual syndrome." Archives of Internal Medicine. June 13, 2005.

Hoogendijk, W.J.G. & all. "Depression is associated with decreased 25-hydroxyvitamin D and increased parathyroid hormone levels in older adults." Archives of General Psychiatry. May 2008.

Hooten, W.M. & all. "Vitamin D deficiency linked to chronic pain." American Society of Anesthesiologists 2007 Annual Meeting in San Francisco, California, October 13-17, 2007.

Pittas, A.G. & all. "Vitamin D and calcium intake in relation to type 2 diabetes in women." Diabetes Care. Vol. 29. 2006. Llewellyn, D.J. & all. "Serum 25-hydroxyvitamin D concentration and cognitive impairment." Journal of Geriatric Psychiatry Neurology. Dec 10, 2008. Melamed, M.L. & all. "25-hydroxyvitamin D levels and the risk of mortality in the general population." Archives of Internal Medicine. 2008.

Norman, A. & all. "The urgent need to recommend an intake of vitamin D that is effective." American Journal of Clinical Nutrition. 2007. Lips, P. & all. "High prevalence of vitamin D inadequacy among community dwelling post-menopausal women with osteoporosis." Presented at the American Society for Bone and Mineral Research (ASBMR) 27th Annual Meeting. September 29, 2005. Pittas, A.G. & all. "Vitamin D and calcium intake in relation to type 2 diabetes in women." Diabetes Care. Vol. 29. 2006. Bertone-Johnson, E. & all. "Calcium and vitamin D intake and risk of incident premenstrual syndrome." Archives of Internal Medicine. June 13, 2005. Heaney, R.P. & all. "Calcium and weight: clinical studies." Journal of the American College of Nutrition. 2002. Zemel, M.B. & all. "Calcium modulation of hypertension and obesity: mechanisms and implications." Journal of the American College of Nutrition. 2001. Peters, U. & all. "Calcium intake and colorectal adenoma in a US colorectal cancer early detection program." American Journal of Clinical Nutrition. November 2004. Beulens, J.W.J. & all. "High dietary menaquinone intake is associated with reduced coronary calcification." Journal of Atherosclerosis. July, 2008. Gast, G.C.M. & all. "A high menaquinone reduces the incidence of coronary heart disease in women." Journal of Nutrition, Metabolism and Cardiovascular Diseases. January, 2009. Yoshida, M. & all. "Effect of vitamin K supplementation on insulin resistance in older men and women." Diabetes Care. November, 2008. Koike, Y. & all. "Vitamin K therapy slows spread of liver cancer." Presented at the 103rd Annual Meeting of the American Gastroenterological Association and Digestive Week. San Francisco. May 19-23, 2002. Allison, A.C. & all. "The possible role of vitamin K deficiency in the pathogenesis of Alzheimer's disease and in augmenting brain damage associated with cardiovascular disease." MEDLINE. August, 2001. National Institutes of Health – Office of Dietary Supplements. Ryder, K.M. & all. "Magnesium intake from food and supplements is associated with bone mineral density in healthy older white subjects." Journal of the American Geriatrics Society. November, 2005. Tosiello, L. "Hypomagnesemia and diabetes mellitus. A review of clinical implications." Archives of Internal Medicine. 1996. Peacock, J.M. & all. "Relationship of serum and dietary magnesium to incident hypertension: the atherosclerosis risk in communities (ARIC) Study." Annals of Epidemiology. 1999. Jugdaohsing, R. & all. "Long-term evaluation of blood silicon and osteocalcin in operatively treated patients with benign bone tumors using bioactive glass and autogenous bone." Journal of Biomedical Materials Research. 2007. Spector, T.D. & all. "Effect on bone turnover and BMD of low dose oral silicon as an adjunct to calcium/vitamin D3 in a randomized, placebo-controlled trials." Presented at the 27th Annual Meeting of the American Society for Bone and Mineral Research (ASBMR). September 2005. Eisinger, J. & all. "Effects of silicon, fluoride, etidronate and magnesium on bone mineral density: A retrospective study." 1993. Loeper, J. & all. "The antiatheromatous action of silicon." Atherosclerosis, 33: 397-408. 1979. Xu, P. & all. "Therapeutic effect of dietary boron supplement on retinoic acid-induced osteoporosis in rats." MEDLINE. 2006. Penland, J.G. "Dietary boron, brain function, and cognitive performance." Environmental Health Perspective. 1994.

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SILICON

Silicon is one of the most abundant elements on earth that plays an important role in keeping us healthy. Silicon is needed to form collagen in bone and for other connective tissues such as tendons and ligaments. It is also required for the growth of hair, skin and nails. Whole grains, cereals, bell peppers, beans and peas are some sources of silicon but much of the mineral is lost during the refining process.

Are you getting enough silicon?

Significant Silicon deficiency is rare but that does not mean we are getting enough. Many researchers believe that we are not getting the optimal daily dose of silicon.

Silicon and your bones

Silicon may be more important than we think for bone health. Researchers so far have found that silicon helps to increase calcium absorption and plays a role in the synthesis of collagen, where calcium is deposited and can strengthen bones. It appears that silicon, along with vitamin D and calcium increases bone density mineralization.

Other health benefits of silicon

- Protects against osteoarthritis.
- Prevents hair loss and promotes hair health.
- May play a role in the prevention of Alzheimer's.
- May help to delay aging.
- Blood vessel health.

BORON

Boron is a trace mineral that although needed in very small quantities is nonetheless required for good health. In our body, boron is mostly deposited in our bones and teeth. Dietary sources of boron include fruits and vegetables such as avocado, plums and grapes, nuts and soybeans.

Are you getting enough boron?

In reality very few people eat a lot of fruits and vegetables on a daily basis and even so, the boron content is not that high and depends on the type of soil in which they were grown. So unless you are eating huge amounts of raw vegetables and fruits every day, chances are you would benefit from more boron.

Boron and your bones

Several scientific studies indicate that boron plays a decisive role in bone and joint health. It is thought that this mineral influences the balance and absorption of calcium and magnesium and helps these substances to build new bone. In one study, boron enhanced the effects of estrogen in postmenopausal women - estrogen as you may know promotes bone health.

Other boron health benefits

- Protection against osteoarthritis.
- Helps to preserve mental function.
- May protect against prostate cancer.
- Counteracts oxidative stress (anti-aging effect).
- Helps with menopausal symptoms.
- Increases male sex hormone levels.