

Posted on [June 28, 2018 \(August 8, 2023\)](#) by [Dr. Besheen Baker](#)

Minerals Spotlight: Boron Health Benefits and History



You may not be able to imagine that Borax, this humble insecticide and laundry detergent, has the potential of singlehandedly bringing down our entire economic system. But you do not need to worry, the danger has been recognized and the necessary steps are already being taken to defuse the situation.

What is boron?

I will start with the basics and you will understand what I mean as the story unfolds. Borax is a naturally occurring and mined mineral salt and the source of other manufactured boron compounds. The main deposits are in Turkey and California. Chemical names are:

1. sodium tetraborate decahydrate
2. disodium tetraborate decahydrate

This means it contains four atoms of boron as its central feature combined with two sodium atoms and ten molecules (or sometimes less) of crystallization water. Ingested boron compounds are rapidly and nearly completely excreted with the urine.

Formerly, boric acid was widely used as a preservative in foods but is now banned for this purpose in most countries and is also banned from public sale in Australia.

Is boron important to the human body?

According to conventional medicine, it is not known if boron is essential for humans, but research shows that we do need it. The reason why it was difficult to answer this question is the presence of boron in all plants and unprocessed foods. Diets with a fair amount of fruit and vegetables provide about 2 to 5 mg of boron per day, but this also depends on the region where the food was grown and how it was grown. In reality, the average intake in developed countries is 1-2 mg of boron per day. Institutionalized patients may receive only 0.25 mg of daily boron. Chemical fertilizers inhibit the uptake of boron from the soil: an organic apple grown in good soil may have 20 mg boron, but if grown with fertilizer, it may have only 1 mg of boron. Fertilizers combined with poor food choices have greatly reduced our boron intake compared to 50 or 100 years ago. Further, unhealthy cooking methods greatly reduce the availability of boron from food. The cooking water of vegetables containing most of the minerals may be discarded during home cooking or commercial processing; phytic acid in baked goods, cereals and cooked legumes may greatly reduce availability, while gluten sensitivity and Candida overgrowth inhibit the absorption of minerals. All this makes health problems due to boron deficiency now very common.

Health Benefits of Boron

Due to their content of boron, borax and boric acid have basically the same health effects with good antiseptic, antifungal, and antiviral properties but only mild antibacterial action. In plants as well as animals, boron is essential for the integrity and function of cell walls and the way signals are transmitted across membranes. Boron is distributed throughout the body with the highest concentration in the parathyroid glands, followed by bones and dental enamel. It is essential for healthy bone and joint function, regulating the absorption and metabolism of calcium, magnesium and phosphorus through its influence on the parathyroid glands. With this, boron is for the parathyroids what iodine is for the thyroid.

What does boron do in the body?

Boron deficiency causes the parathyroids to become overactive, releasing too much parathyroid hormone which raises the blood level of calcium by releasing calcium from bones and teeth. This then leads to osteoarthritis and other forms of arthritis, osteoporosis and tooth decay. With advancing age, high blood levels of calcium lead to calcification of soft tissues causing muscle contractions and stiffness; calcification of endocrine glands, especially the pineal gland and the ovaries; arteriosclerosis, kidney stones, and calcification of the kidneys, ultimately leading to kidney failure. Boron deficiency combined with magnesium deficiency is especially damaging to the bones and teeth. Boron affects the metabolism of steroid hormones and especially, of sex hormones. It increases low testosterone levels in men and estrogen levels in menopausal women. It also has a role in converting vitamin D to its active form, thus increasing calcium uptake and deposition into bone and teeth rather than causing soft tissue to calcify. Also other beneficial effects have been reported such as improvement of heart problems, vision, psoriasis, balance, memory and cognition.

The German cancer researcher Dr Paul-Gerhard Seeger has shown that cancer commonly starts with the deterioration of cell membranes. As boron is essential for cell membranes and boron deficiency widespread, this may be an important cause for the initiation of tumor growth. Boron compounds have anti-

tumor properties and are “potent anti-osteoporotic, anti-inflammatory, hypolipemic, anti-coagulant and anti-neoplastic agents.” This overview shows the wide-ranging influence of boron on our health. In the following, I want to describe some of these health effects in greater detail.

Boron for Arthritis: The research of Rex Newnham

In the 1960's, Rex Newnham, Ph.D., D.O., N.D, developed arthritis. At that time he was a soil and plant scientist in Perth, Western Australia. Conventional drugs did not help, so he looked for the cause into the chemistry of plants. He realized that plants in that area were rather mineral deficient. Knowing that boron aids calcium metabolism in plants he decided to try it. He started taking 30 mg of borax a day, and in three weeks all pain, swelling and stiffness had disappeared. He told public health and medical school authorities about his discovery, but they were not interested. However, some people with arthritis were delighted as they improved. Others were scared to take something with a poison label on the container and meant to kill cockroaches and ants. Eventually, he had tablets made with a safe and effective quantity of borax.

Within five years and only by word of mouth he sold 10,000 bottles a month. He could no longer cope and asked a drug company to market it. That was a major mistake. They indicated that this would replace more expensive drugs and reduce their profits. It so happened that they had representatives on government health committees and arranged that in 1981, Australia instituted a regulation that declared boron and its compounds to be poisons in any concentration. He was fined \$1000 for selling a poison, and this successfully stopped his arthritis cure from spreading in Australia. Subsequently he published several scientific papers on borax and arthritis. One was a double-blind trial in the mid 1980's at the Royal Melbourne Hospital which showed that 70% of those who completed the trial were greatly improved. Only 12% improved when on placebo. There were no negative side-effects, but some reported that their heart ailment had also improved, and there was better general health and less tiredness.

Most of his later research was devoted to the relationship between soil boron levels and arthritis. He found, for instance, that the traditional sugarcane islands, due to long-term heavy use of fertilizers, have very low soil-boron levels. Jamaica has the lowest level, and arthritis rates are about 70%. He noted that even most dogs were limping. Next comes Mauritius with very low boron levels and 50% arthritis. The daily boron intake in these countries is less than 1 mg/day. An interesting comparison is between Indian and native Fijians. The Indians are estimated to have an arthritis rate of about 40% and eat much rice grown with fertilizer, while the native Fijians with an estimated arthritis rate of 10% eat mainly starchy root vegetables grown privately without fertilizer. These are also high in Israel with an estimated daily boron intake of 5 to 8 mg and only 0.5 – 1% arthritis.

Boron benefits for bone density and health

Bone analysis showed that arthritic joints and nearby bones had only half the boron content of healthy joints. Equally, synovial fluid that lubricates joints and provides nutrients to the cartilage is boron deficient in arthritic joints. After boron supplementation, bones were much harder than normal, and surgeons found them more difficult to saw through. With additional boron, bone fractures heal in about half the normal time in both man and animal. Horses and dogs with broken legs, or even a broken pelvis, have fully recovered. Borax is also effective with other forms of arthritis, such as Rheumatoid Arthritis, Juvenile Arthritis, and Lupus (Systemic Lupus Erythematosus). For instance, Dr. Newnham saw a young girl aged 9 months with juvenile arthritis. He was able to cure her in 2 weeks.

He wrote that people can commonly get rid of their pain, swelling and stiffness in about 1 to 3 months. Then, they can reduce treatment from 3 to 1 boron tablet (each 3 mg) per day as a maintenance dose so that they can avoid any future arthritis. He also stated that patients with rheumatoid arthritis commonly

experienced a Herxheimer reaction [healing reaction], and that this is always a good prognostic sign. They must persevere, and in another 2 or 3 weeks, the pain, swelling and stiffness will be gone.

I found this statement not only interesting, but also surprising. The Herxheimer reaction is an early aggravation of symptoms with increased pain. It is commonly due to toxins released by killed Candida and mycoplasma. This is very common with antimicrobial therapy, and borax definitely is an exceptionally good and strong fungicide. What surprises me, however, is that this fungicidal effect is already present at this rather low dose of 75 to 90 mg of borax. Equally surprising is the finding that also up to 30% of those with osteoarthritis experienced a Herxheimer reaction, suggesting that the border between osteoarthritis and rheumatoid arthritis is rather fluid. I believe that in long-standing and especially resistant cases, it will be advisable to use other antimicrobials in addition.

Osteoporosis and Sex Hormones

Boron deficiency causes greatly increased amounts of calcium and magnesium to be lost with the urine. A borax supplement will reduce the daily loss of calcium by nearly 50%. As this calcium comes mainly from reabsorbed bone and teeth, boron deficiency may be the most important factor in causing osteoporosis and tooth decay. It has been estimated that 55% of Americans over 50 have osteoporosis, and of these, about 80% are women. Worldwide, 1 in 3 women and 1 in 12 men over the age of 50 may have osteoporosis, and this is responsible for millions of fractures each year. Rats with osteoporosis were given a boron supplement for 30 days with the result that their bone quality was now comparable with that of the healthy control group and of a group supplemented with estradiol.

Boron supplement for Estrogen

The beneficial effect of borax on bones seems to be due to two interrelated effects: a higher boron content of the bones which makes them harder and a normalization of sex hormones which stimulates the growth of new bone. Low estrogen levels after menopause are thought to be the main reason why so many older women develop osteoporosis. In men, testosterone levels decline more gradually which seems to be reflected in their later onset of osteoporosis as a group. Research has now shown that boron supplementation in postmenopausal women doubles the blood level of the most active form of estrogen, 17-beta estradiol, to the level found in women on estrogen replacement therapy. Equally, the blood levels of testosterone more than doubled. With HRT [hormone replacement therapy], there is a higher risk of breast or endometrial cancer which is not known to happen with hormones produced by the body as with borax supplementation.

Some women get premenstrual problems because estrogen levels are too high and progesterone too low and therefore, may be afraid of using boron. However, I found no evidence that boron raises estrogen above normal healthy levels. Boron may balance levels of sex hormones similar to the action of maca root powder. Maca acts on the pituitary gland not only to increase but also to balance our sex hormones and seems to stimulate our own progesterone production as needed. A recent study in younger men (29 – 50) showed that the level of free testosterone (the form that matters most) had risen by one third after a daily supplementation of about 100 mg of borax for one week. This is of special interest for bodybuilders.

Boron supplement for testosterone

Contrary to the medical preference of chemically castrating men with prostate cancer, research with boron has shown that elevated testosterone levels are beneficial by shrinking prostate tumors and PSA levels, PSA [prostate specific antigen] being a marker for tumors and inflammation in the prostate. Also, significantly improved memory and cognition in elderly individuals may be partly due to increased levels of sex hormones and partly to improved membrane functions of brain cells (9). I have been asked about boron supplementation for women with estrogen-sensitive breast cancer. Breast cancer is related to calcifications in the breast. In my opinion, it is more important to normalize the calcium-magnesium

metabolism and cellular membrane functions rather than feel restricted by a possibly faulty medical concept, especially as I believe that cancer can usually be controlled with long-term antimicrobial therapy. Therefore, I would use boron as well as maca in this case

Best Boron Supplements in Mt. Pleasant

There is another 5 pages to this amazing article, and we simply didn't have the room for it! Please come in for a complete copy or look it up on the internet. We are now carrying Fruite B, a wonderful Boron supplement. I have been taking it since January and have noticed improved mental clarity, reduction in radiation stress from the Japan leak which is on-going since March 2011. Additionally, my joints and back are significantly better and I am only using 1 per day; others could benefit from two a day to start and later, go back to 1 capsule per day. We thought you should know about boron, please seek out the rest of the article!

Hugs, Bessheen