

## Calcium

There is more calcium in the human body than all the other minerals combined, with more calcium supplements sold than any other mineral. The key to calcium use is quality of assimilation, not in the quantity ingested. Sadly, quite often the most popular calcium products on the market are non-absorbable by our bodies and are about as useful to our health as licking the sidewalk regarding calcium being bio-available for our bodies to use.

Our bodies use calcium to aid in the prevention of osteoporosis, arthritic diseases, and immune system boosters just to name a few. Calcium must be in the ionized form for maximum assimilation. To become ionized, an electrical charge must be gained. If it is not ionized, it will not be assimilated for use. The problem is that most calcium comes in carbonate form. Carbonates are very difficult for the body to use; they require multiple steps before they become ionized for absorption in the body. Carbonates are a product of limestone, again you might as well be licking the sidewalk. Carbonate calcium products require high amounts of hydrochloric acid for assimilation along with high levels of digestive enzyme to break them down. Two by-products lacking in optimal amount in most people's digestive systems to begin with. Look for highly absorbable forms of calcium like calcium lactate, calcium citrate, or some type of similar highly acidic base calcium as they require very few enzymatic steps to reach their ionized form of calcium. The form of calcium utilized and absorbed from our GI tract is calcium bicarbonate. The faster the conversion of calcium products to calcium bicarbonate the better.

The role of Vitamin D in calcium assimilation is that of picking up calcium from the gut, and putting it in the blood to later be distributed in the tissue via Vitamin F, perhaps better known as polyunsaturated fatty acids like fish oils, flaxseed, etc. The key players in the assimilation and absorption of calcium lie in the role of these poly-unsaturated fatty acids. They transport the calcium from the blood to the tissue, bones, etc. Kidney stones, osteoporosis, cataracts, calcium accumulation in arteries, are all signs of poor calcium absorption and poly-unsaturated fatty acid deficiencies. Not an excess of calcium ingestion, again it is a lack of calcium utilization.

Another important factor in calcium absorption is its role in the function of white blood cells when an infection occurs in the body. Adequate serum calcium levels are necessary for optimal function of white blood cells locating infections in what is known as the calcium wave effect. In both osteoporosis and osteopenia, prevention lies in the assimilation and utilization of calcium, and its bone-building counterparts. The key here being bone strength, not bone density. Here lies my problem with bone density testing and the use of bisphosphonate drugs for treatment of bone density issues such as osteopenia. Bone health requires the orchestrated turnover of bone. Bisphosphonate drugs inhibit the osteoclastic process, resulting in increased body density but does nothing to improve bone strength. Not to mention the horrific complications seen only with bisphosphonates. Osteonecrosis, bone death, like the rotting of the jaw bones and weakening of weight bearing bones, like the femur. So, for prevention of osteoporosis, think bone strengthening supplements and exercise, weight bearing exercises are

best. Additionally, the supplementation with highly absorbable (preferably plants based) calcium products and their synergistic counterparts (minerals like Magnesium, Boron, Vitamin C, Vitamin D, and others).

### **Calcium and Chlorophyll Connection:**

Chlorophyll is essential for the proper absorption of calcium due to its function in the activation of osteocalcium. Without adequate osteocalcium the body is not able to assimilate calcium resulting in excess accumulation of calcium oxalate in the blood a major component of kidney stones, osteoporosis atherosclerosis in blood vessels, arthritis in joints, and cataracts.

Some **clinical signs** of calcium deficiencies:

-Leg cramps predominantly lower legs (worse at night) \*Think calcium and magnesium supplementation

-Growing pains in children due to low calcium reserves in tissue (not able to meet the demand for growing bones). Milk does not work here! \*Think about plant-based calcium supplementations.

### **Estrogen**

Some breakthrough research on Estrogen, and its relationship with longevity and cancers has encouraged modern medicine to finally come around to acknowledging the medicinal benefits of cruciferous vegetables (such as Kale, Broccoli, Brussel Sprouts, etc.). New products are hitting the market like Diindolylmethane or DIM, and indole-3-carbinol (I3C) which are making headlines in medical circles in their ability to reduce the risks of cancers related to elevated estrogen 2/16 hydroxy estrogen ratios. And check this out, it is the easiest and safest way of testing—a urinary sample. It gets better though; these same vegetables play a major role in liver and kidney detoxification through what is known as the cytochrome P450 Pathway.

The medical establishment is now entrusting these cruciferous vegetables as precursors in the prevention of ovarian, uterine, breast, and prostate cancer. Great news to finally see coming out, seeing how the research and literature has been out for over 10 years now. Again, let me reiterate the positive symptoms of inflammatory prostate disorders are typically linked with elevated proinflammatory estrogens in the older male, not his testosterone that often gets all the bad press concerning prostate issues.

Estrogen balance plays a major role, according to breakthrough hypothetical research as being a key player in the longevity of female lifespans due in part to its role in elimination of stored toxic protein waste product reserves in connective tissues increasing one's rate to senescence and death. Estrogens are found to have contra-effects in the male when estrogens are elevated above the maximum normal male levels, thus resulting in degenerative changes such as man-boobs, tire around the waist, prostate issues, and premature death.