



## Liquid Calcium

Stock #3191-6 (16 fl. oz.)

Liquid Calcium is a tasty nutritional supplement that provides enhanced calcium absorption and utilization by combining bioavailable forms of calcium with nutrients required for optimum assimilation. In addition, Liquid Calcium may also help to buffer an acidic body pH, which is a common element of and may be a contributing factor to the development of degenerative and auto-immune diseases.

Unlike other liquid calcium supplements, NSP's Liquid Calcium does not taste "chalky" or "gritty," and it's naturally-sweetened, tropical fruit flavor can be enjoyed by both children and adults.

Each tablespoon serving of Liquid Calcium provides:

Calcium (as phosphate, citrate, lactate) - 500mg

Magnesium (as oxide) - 200mg

Vitamin D (as cholecalciferol) - 200IU

Zinc (as gluconate) - 1.5mg

**Calcium** is the most plentiful mineral in the body, with about 99% stored in bones and teeth. Calcium is a lifelong dietary requirement, necessary for muscle contractions, nerve transmission, immune system maintenance, regular heartbeat, and the production of biological energy. Calcium also safeguards the body against cardiovascular disease by reducing high blood pressure and lowering cholesterol, thus reducing the probability for heart attacks and strokes. In addition, menopause symptoms such as nervousness, irritability, insomnia and headaches have been treated with calcium, magnesium and vitamin D—a deficiency of calcium available for absorption causes a decrease in estrogen output. Likewise, calcium can also help reduce symptoms of PMS, including preventing premenstrual tension and menstrual cramps. Furthermore, recent research published in the *New England Journal of Medicine* suggests that calcium may offer protection against colon cancer. Of course, calcium has been successfully used in the prevention and treatment of osteoporosis—taking calcium supplements in the evening appears to be better for preventing osteoporosis than taking calcium in the morning. Plus, since an acidic environment enhances calcium absorption, taking calcium with meals has been shown to improve overall calcium absorption without the need for added hydrochloric acid (HCl). Incidentally, calcium requires sufficient magnesium and vitamin D for absorption and utilization. In fact, calcium cannot be properly absorbed without adequate amounts of vitamin D.<sup>1-8</sup>

**Magnesium** works closely with calcium to regulate both blood pressure and muscle activity, and in the blood-clotting process. Magnesium transports calcium into the cells and is necessary for calcium to function properly. Magnesium is also an essential component in the formation of bone and protein. In fact, nearly 70% of the body's supply of magnesium is found in the bones. In addition, magnesium is involved in almost every function of the body. For example, magnesium is required for cardiac health, proper functioning of nerves and muscles, and the regulation of blood sugar levels—magnesium plays an important role in insulin secretion and function. Magnesium also helps maintain the acid-alkaline (pH) balance of the body. Unfortunately, magnesium deficiency is common among individuals taking "potassium-depleting" prescription drugs or if taking too many laxatives. Symptoms of magnesium deficiency include depression, fatigue, abnormal heart rhythms, loss of appetite and muscle spasm and weakness.<sup>2,3,8</sup>

**Vitamin D's** most important function is to maintain sufficient blood levels of calcium. To this end, vitamin D promotes calcium absorption by stimulating the production of *calbindin* (a protein necessary for intestinal absorption of calcium), by facilitating calcium transport, and by reducing urinary calcium loss in order to keep calcium in the body and spare calcium stores in the bones. Vitamin D is also required for the proper utilization of magnesium. Recent research shows that low levels of vitamin D contribute to the progression of osteoarthritis. Vitamin D participates in other body functions as well, including normal blood clotting, cardiac function, immune system activity and blood cell formation. In addition, vitamin D is necessary for healthy blood levels of insulin and has been reported to assist the body in processing sugar. It is important to note that bile acid sequestrants—a class of cholesterol-lowering drugs that include *cholestyramine* and *colestipol*—reduce the absorption of fat-soluble vitamins such as vitamin D.<sup>2,3,5,7,8</sup>

**Zinc** is essential for cell growth and replication and is an important component in the calcification of bones—the highest concentrations of zinc are found in the bones, as well as in the eyes, hair, liver, prostate and semen. Zinc also helps form the collagen matrix—the protein-based foundation on which bones are built, which gives bones their strength and makes them resistant to fractures. In addition, zinc may play a part in the activity of osteoblasts (bone-building cells). Consequently, the most significant result of zinc deficiency is impaired or stunted growth. Zinc

is also necessary for fertility and reproduction, immune system health, insulin function, night vision, taste and appetite, and virtually every enzymatic reaction that occurs in the brain and central nervous system. Recent research suggests that high calcium intake, coupled with inadequate zinc intake, may increase the potential for zinc deficiency. Thus, an increase in calcium intake should be complemented by zinc supplementation.<sup>7-9</sup>

It is important to note that numerous antibiotics, bile acid sequesterants, certain chemotherapy drugs, corticosteroids, NSAIDs (non-steroidal anti-inflammatory drugs), and thyroid hormone medications may interfere with or impair calcium absorption and may increase calcium excretion. On the other hand, calcium supplementation may decrease the absorption and bioavailability of tetracycline, thus reducing this drug's effectiveness. For these reasons, calcium supplements should be taken at separate times from drug administration. In addition, individuals with hyperparathyroidism or kidney disease should consult their healthcare provider before taking calcium supplements.<sup>7,10</sup>

#### References:

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- <sup>3</sup>Dunne, L. *Nutrition Almanac, 3rd edition.* NY, NY: McGraw-Hill, 1990.
- <sup>4</sup>Brown, H. "Cancer at the millennium." *Energy Times*; 1999, 9(5): 22-28.
- <sup>5</sup>Torkos Phm, S. "Drug-Nutrient Interactions: A Focus On Cholesterol-Lowering Agents." *International Journal of Integrative Medicine*; 2000, 2(3): 9-13.
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- <sup>7</sup>Bergner, P. *The Healing Power of Minerals, Special Nutrients and Trace Elements.* Rocklin, CA: Prima Publishing, 1997.
- <sup>8</sup>Spiller PhD, G. & Bruce DPH, B. *Calcium: Nature's Versatile Mineral.* NY, NY: Avery, 2000.
- <sup>9</sup>Lieberman PhD, S. & Bruning, N. *The Real Vitamin & Mineral Book; 2nd Ed.* Avery Publ., 1997.
- <sup>10</sup>Lininger Jr, S., et. al. *A-Z Guide to Drug-Herb-Vitamin Interactions.* Rocklin, CA: Healthnotes, 1999.