



PRODUCT FACT SHEET

NUTRA CAL 1:1 WITH MAGNESIUM, BORON, AND D3

NUTRA CAL 1:1

ITEM #: 3628-0120-01

BACKGROUND

The process of bone loss is silent. Bone is lost without symptoms and only becomes noticeable on x-rays when 30-50% of bone has been lost. Patients typically become symptomatic only when fractures occur. The importance of bone health becomes obvious when we consider that the lifetime risk for any fracture is very high and lies within the range of 40–50% in women and 13–22% for men (1). Randomized controlled trials have shown that estrogen hormone therapy, selective estrogen receptor modulators, bisphosphonates, teriparatide and strontium ranelate are effective in the prevention of osteoporotic fractures. However, pharmacological intervention should be reserved for patients at risk of fracture, determined with the 10-year probability of fracture using an integrated model of risk factors (2). FRAX is the World Health Organization's fracture risk assessment tool and is available online for use in clinical practice (3).

While the biochemical complexity of bone metabolism and bone disorders are still being unraveled, we now have adequate information to provide clear recommendations. For example, the National Osteoporosis Foundation briefly describes two lifestyles; one that leads to bone health and the prevention of issues and the other that leads to bone problems (4).

Prevention of bone health problems (4): Promotion of bone health problems (4):

- | | |
|-------------------------------|--------------------------|
| 1. Regular exercise | 1. Sedentary living |
| 2. Vegetable and fruit intake | 2. Smoking |
| 3. Adequate calcium intake | 3. Excess alcohol intake |
| 4. Adequate vitamin D status | 4. Poor dietary habits |

If calcium and Vitamin D were removed from the list above, there would be no indication as to which health issue the preventive and promotional factors refer. We typically view these factors as being related to systemic health in general. With this in mind, research suggests that bone and joint health are not purely localized conditions, but manifestations of a systemic health disorder (2,5). A chronic inflammatory/acidic state appears to drive bone loss over time (2,6-8).

A diet rich in vegetables, fruit, tubers, fish and lean meat reduces systemic inflammation and tissue acidity. Additional calories can come from nuts and seeds, particularly chia and hemp. Grains, legumes, and dairy should be consumed in modest amounts (8,9). Foods that should be avoided included refined sugar, flour and oils as they are all highly inflammatory and yet, at this point they represent approximately 60% of the calories consumed by Americans (8).

Several nutritional supplements can be supportive to an anti-inflammatory diet including calcium, magnesium, vitamin D and boron, which are included in Nutra Cal 2:1 and 1:1. The complexity of bone metabolism demands that multiple nutritional factors be addressed, which may explain why mono-therapies with only calcium have not been as successful as anticipated (10). Nutra Cal 2:1 and 1:1 are unique products because each contains all four nutrients.

For those age four and older, the recommended daily intake of calcium ranges from 1,000 to 1,300 mg per day, which can come from food and supplements (11,12). Nutra-Cal 2:1 can provide up to 800 mg of calcium per day, while Nutra-Cal 1:1 can provide up to 400 mg per day.

Unlike calcium carbonate, which must be taken with meals to ensure optimal absorption, the calcium forms used in Nutra Cal are highly absorbable and can be taken with or between meals. Even when calcium citrate and carbonate are given with meals, the citrate variety is better absorbed (13). A combination of supplemental calcium and vitamin D has led to a reduction in fracture and is associated with increased bone mass (13).

DESCRIPTION

Contains four key nutrients needed for optimal bone health, including calcium, magnesium, vitamin D and boron.

HOW SUPPLIED

120 tablet bottle

DIRECTIONS

Take 1 or more tablets per day as a directed by your health professional. Store in a cool dry place and keep out of reach of children.

Supplement Facts

Serving Size 1 Tablet Servings Per Container 120

Amount Per Serving	% Daily Value	
Calcium (malate)	100 mg	10%
Magnesium (malate)	100 mg	25%
Vitamin D3 (cholecalciferol)	500 IU	125%
Boron (Boron gluconate complex)	1.5 mg	*
Malic Acid (from magnesium malate, calcium malate)	550 mg	*

* Daily Value not established.



ANABOLIC LABORATORIES

Pharmaceutical Made Nutritional Products Since 1924



PRODUCT:

NUTRA CAL 1:1

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The National Osteoporosis Foundation has provided several examples of possible interactions between medications and calcium supplements. Talk with your healthcare provider or pharmacist about possible interactions between medications and calcium supplements. Here are a few examples (4):

- Calcium supplements may reduce the absorption of the antibiotic tetracycline.
- Calcium supplements should not be taken at the same time as iron supplements.
- Thyroid hormones should not be taken within four hours of calcium supplements to prevent interactions (unless directed otherwise by a healthcare provider or pharmacist).
- Medications that need to be taken on an empty stomach should not be taken at the same time as a calcium supplement.

Vitamin D (cholecalciferol) is needed for the absorption of calcium from the intestines. The normal serum levels of vitamin D as 25(OH)D is 32-100 ng/ml. In one study, it was demonstrated that calcium absorption was 65% higher in subjects with serum 25(OH)D levels of 35 ng/ml compared to those with less than 20 ng/ml (13). In general, for every 1,000 IU of supplemental vitamin D, we should expect an approximate 10 ng/ml increase in 25(OH)D (14). A supplemental dose of 2,000 IU per day should be adequate to get most individuals close to or over 32 ng/ml. Magnesium has been described as the 5th but forgotten electrolyte (15). The popular press and researchers focus on calcium and typically exclude magnesium. In 1995, Dreosti (16) reviewed the literature on magnesium supplementation and provided us with the following information. In a group of postmenopausal women in Israel suffering from bone health problems who received magnesium supplements in the range of 250 to 750 mg/day for 24 months, either trabecular bone density increased up to 8% or bone loss was arrested (in 87%); in some cases, both an increase in bone density and arrested bone loss occurred. Untreated controls, on the other hand, lost bone density at an average of 1% a year. In a group of postmenopausal women with bone health problems

in Czechoslovakia who received magnesium at levels ranging from 1500 to 3000 mg of magnesium lactate per day for 2 years, nearly 65% were classified totally free of pain and with no further deformity of vertebrae, with the condition in the remainder either arrested or slightly improved.

Magnesium supplementation in young females and young adult males has led to a reduction in bone turnover (17,18). We are told that, "these findings raise an intriguing possibility that daily oral magnesium supplementation may be used to suppress bone turnover, which subsequently may lead to reduced bone loss and, thus, may have a potential utility for issues associated with high bone turnover" (17). Researchers at the Centers for Disease Control assessed the intake of magnesium among white, black, and Hispanic men and women in America. It was determined that all groups consume substantially less than the dietary reference intake for magnesium (19). Daily supplementation with 400 mg of magnesium appears to be an appropriate supportive measure.

As with magnesium, boron has been underappreciated as an important nutrient for bone health. Thus, low boron intake is a relevant nutritional concern, which diets rich in fruits, vegetables, nuts, and legumes can prevent" (20). However, mentioned previously, the vast majority of individuals do not consume adequate amounts of these natural foods. The upper limit of boron is set at 20 mg/day (21). The average intake by Americans is approximately 1-3.25 mg/day (20). At the 95th percentile intake, no segment of the US population has a total intake of boron greater than 5 mg/day (21). Epidemiologic evidence indicates that in areas of the world where boron intakes usually are 1.0 mg or less/day, the estimated incidence of joint health issues ranges from 20 to 70%, whereas in areas of the world where boron intakes are usually 3 to 10 mg, the estimated incidence of joint health issues ranges from 0 to 10% (22). Bone appears to be stronger in individuals who supplement with boron (22). Daily supplementation with 6 mg of boron will provide an optimal environment for bone and joint support.

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