

BONNEX

The Natural Calcium Supplement





Calcium Citrate	1000 mg
Offering Elemental Calcium of	210 mg*
Vitamin D3	200 I.U.
Magnesium	100 mg
Zinc	4 mg

**equal to 525 mg of Calcium Carbonate*

Calcium Citrate is as much as 2.5 times more bioavailable than other forms, such as Calcium Carbonate supplements—and safer.



Calcium Citrate (Bonnex) is superior to Calcium Carbonate

	Calcium Citrate	Calcium Carbonate
Source		
Solubility	Soluble in water	Insoluble in water
Absorption ⁽¹⁾	<ul style="list-style-type: none"> • ≥ 42% absorption • Independent of gastric pH 	<ul style="list-style-type: none"> • ≤ 22% absorption • Depending on gastric pH (with meal)
Bioavailability ⁽²⁾	178 mg.min/dl	91 mg.min/dl
Safety ⁽³⁾	Reduced risk of Oxalate stone	Oxalate stone formation associated with Calcium Carbonate supplements

"From (these) studies it appears that Calcium Citrate Malate is a better dosage form than Calcium Carbonate for Calcium supplementation in adolescents."

Age	Male	Female	Pregnant	Lactating
0-6 months*	200 mg	200 mg		
7-12 months*	260 mg	260 mg		
1-3 years	700 mg	260 mg		
4-8 years	1,000 mg	1,000 mg		
9-13 years	1,300 mg	1,300 mg		
14-18 years	1,300 mg	1,300 mg	1,300 mg	1,300 mg
19-50 years	1,000 mg	1,000 mg	1,000 mg	1,000 mg
51-70 years	1,000 mg	1,200 mg		
71+ years	1,200 mg	1,200 mg		

The need for Calcium Supplements

- For most, diet provides only half of the daily required calcium intake;
- Calcium is the most widely used supplements worldwide;
- *No more than 500 mg calcium is considered optimal dose;
- For women in pregnancy & lactation, menopause and older age, recommended supplementation: 500 mg to 1000 mg

**Journal of Bone and Mineral Research, 2009*

Dietary Reference Intakes (DRIs) developed by the Food and Nutrition Board (FNB) at the Institute of Medicine of the National Academies (formerly National Academy of Sciences)

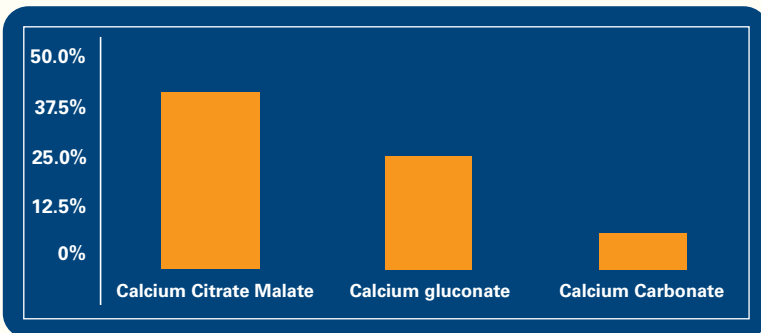
Better Absorption

Calcium Citrate is better absorbed than Calcium Carbonate

Source	Approximate Solubility mM/liter	Number of Subjects Tested	Fractional Absorption With a Meal	Fractional Absorption Without a Meal
Calcium oxalate	0.04	39	0.102 ± 0.040	
Hydroxyapatite	0.08	21		
Calcium carbonate	0.14	10/43	0.296 ± 0.054	0.235 ± 0.123
Tricalcium phosphate	0.97	10	0.252 ± 0.130	
Calcium citrate	7.3	7		0.242 ± 0.049
Calcium citrate malate	80	20	0.363 ± 0.076	
Bisglycinocalcium	1500	13		0.440 ± 0.104

Reference : Heany RP. et al, 1990. reprinted with permission

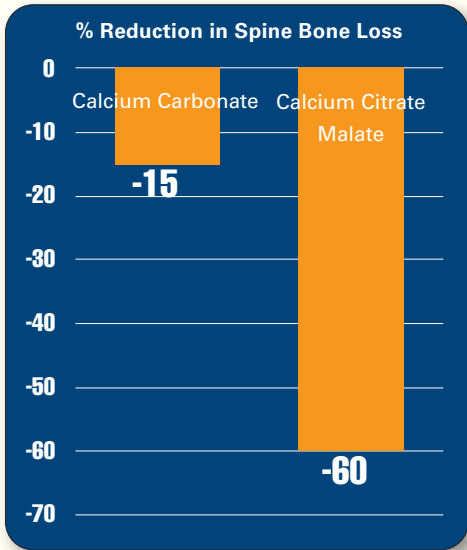
Absorption rates of commercially available calcium supplements vary



Calcium carbonate as low as 22 percent and calcium citrate malate as high as 42 percent (Intestinal Absorption)

Reference : Alternative Medicine Review Monographs; page 63

Better Efficacy



Significant reduction in loss of Bone Mass Density compared to calcium carbonate

Postmenopausal women were given either 500 mg calcium carbonate or calcium citrate malate for 2 years

Reference :

Dawson-Hughes B, Dallal G, Krall E. et al. A controlled trial of the effect of calcium supplementation on bone density in postmenopausal women. N Engl J Med 1990;323: 878-883.

Higher Bioavailability

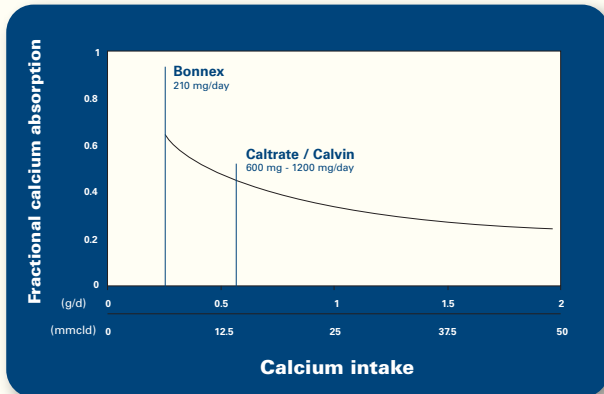
178 mg/dl for Citrate vs. 91 mg/dl for Carbonate in a study involving 1200 mg Calcium Citrate and Calcium Carbonate taken orally

	Placebo	Carbonate	Citrate
ΔC_{\max} (mg/dl)	0.81 (0.58-1.05)	0.72 (0.56-0.89)	1.11 (0.94-1.29)
ΔC_{\max} (%)	8.1 (5.8-10.4)	7.4 (5.6-9.2)	11.6 (9.5-13.6)
ΔAUC (mg-min/dl)	107 (59-154)	91 (58-125)	178 (141-214)

Reference : Robert P. Et al. Relative Bioavailability of calcium from calcium formate , calcium citrate and calcium carbonate, JPET June 2005 vol. 313 1217-1222

Optimum quantity

Optimum quantity of Calcium for maximum absorption



- The amount of calcium consumed regulates the efficiency of intestinal calcium absorption.
- Calcium absorption efficiency increases when calcium intakes are low and decreases when calcium intakes are high
- Calcium supplement is best taken in small quantities, 1-2 times a day, depending upon need.
- The higher the amount in any one time, the less the body retains and absorbs.

Reference : Goodman & Gilman's Manual of pharmacology and therapeutics, 11th edition Pg 1059., Am J Clin Nutr. 2003;7 8:110-6.

BONNEX

1. **High solubility** : calcium citrate 7.3 mM/L, calcium citrate malate 80 mM/L, calcium carbonate 0.14 mM/L
2. **Better absorption** : calcium citrate 42%, calcium carbonate 22%
3. **Superior bioavailability** : 2.5 times more than calcium carbonate
4. **Better efficacy** : significant reduction in loss of Bone Mass Density (-60%) compared to calcium carbonate (-15%)
5. **Independent of gastric pH** : can take it at any time, unlike the calcium carbonate form which is recommended with food
6. **Optimum quantity of calcium for maximum absorption**
7. **Safety** : reduced risk of oxalate stone formation
8. The best choice for people with inflammatory bowel disease and other conditions that hamper calcium absorption

(1) *Alternative Medicines Review Monograph*, pp 63;

(1) Barger-Lux MJ, et al. Calcium absorbability from milk products, an imitation milk, and calcium carbonate. *Am J Clin Nutr* 1988;47:93-95.

(2) *Journal of Pharmacology and Experimental Therapeutic*, June 2005, vol. 313

(3) Harvey JA, Zobitz MM, Pak CY. Calcium citrate: reduced propensity for the crystallization of calcium oxalate in urine resulting from induced hypercalciuria of calcium supplementation. *J Clin Endocrinol Metab* 1985;61:1223-1225.