



Colorado Center for
BONE RESEARCH

CALCIUM SUPPLEMENTS

Calcium supplements offer a convenient alternative to women (and men) unable to consume enough calcium from diet alone. They vary in type of calcium salt, calcium content, formulation, price, and absorbability.

The two most often used calcium supplement types contain either calcium carbonate or calcium citrate, but a wide variety of calcium salts is found in calcium supplements, including calcium acetate, calcium citrate, calcium gluconate, calcium lactate, and calcium phosphate. Calcium is also available in bone meal (calcium phosphate) as well as dolomite or oyster shell (both calcium carbonate) supplements.

Recommended calcium levels refer to “elemental calcium”. Different calcium salts may contain different percentages of elemental calcium. Calcium carbonate provides the highest percentage (40%); thus, 1,250 mg of calcium carbonate provides 500 mg of elemental calcium. Calcium citrate (tetrahydrated form) contains 21% elemental calcium; 2,385 mg of calcium citrate provides 500 mg of elemental calcium. All marketed calcium supplements list the elemental calcium content.

Various formulations of calcium supplements are available, including oral tablets, chewable tablets, dissolvable oral tablets, and liquids. Another formulation for individuals with difficulty swallowing is an effervescent calcium supplement, typically calcium carbonate combined with materials such as citric acid that facilitate dissolving in water or orange juice.

Calcium supplements also vary by price. Calcium carbonate products are typically less expensive than most other types of calcium supplements.

Absorbability is also a concern. Calcium carbonate and calcium citrate are equally well absorbed if taken with meals, the normal way of assimilating any nutrient. Calcium citrate malate is highly bioavailable, as are supplements containing calcium that is chelated to an amino acid, but lesser used supplements are typically more expensive than calcium carbonate. Studies comparing various commonly used calcium compounds found few differences in their

bioavailability when supplements were taken with food. To maximize absorption, calcium supplements should be taken in doses of 500 mg elemental calcium or less, throughout the day, and usually with meals. Consumption of calcium supplements with meals can also minimize the potential for rare GI side effects.

Pharmaceutical formulation of the supplement (i.e., the other ingredients in the tablet and how they are packed together) actually makes more of a difference in absorbability than does the chemical nature of the calcium salt. Name-brand supplements are more predictably reliable than store-brand products.

(Information condensed from Menopause, Vol.13, No.6, 2006, p.870-871)