

CALCIUM

Common Names: *calcium carbonate, calcium citrate, calcium gluconate, calcium chloride*

Scientific Names: *calcium, Ca*

Effectiveness: Supplement if diet is low in calcium for bone health.

This is even more important if you are using steroids (such as prednisone).

Safety:

Generally safe if taken within daily recommended range (total from both diet and supplements).

What is calcium?

- Calcium is a mineral found in our diet that is essential part of bones and teeth. Muscles including the heart, the blood clotting system, and nerves need calcium to work.
- Calcium exists in various salt forms and each provides a different amount of elemental calcium. This is why calcium supplements contain two different numbers on the bottle.

What is the recommended dose?

- Health Canada recommendations for daily calcium intake (diet and supplements combined) for healthy adults range between 1000 and 1200 mg based on age and pregnancy status.
- Dietitians of Canada provides an easy-to-read list of common foods that are rich in calcium
- The North American diet generally provides 250 – 300 mg of calcium per day from non-dairy food (or food not fortified with calcium). This amount will be higher if your diet has lots of dark green vegetables and fish.
- The maximum amount of calcium absorbed at one time is approximately 500mg, so you may need to split your supplement doses (ie, 500 mg twice daily)
- Vitamin D is often recommended with calcium to help with absorption.

Amount of Elemental Calcium in Common Calcium Salts

Calcium Salt	Amount of Elemental Calcium	Food Requirement
Calcium carbonate 1g	400mg (40%)	Take with food
Calcium chloride 1g	273mg (27%)	Take with or without food
Calcium acetate 1g	253mg (25%)	Take with or without food
Calcium citrate 1g	211mg (21%)	Take with or without food

What it is it used for in people with rheumatic conditions?

- Bone loss is a natural aging process. Patients with rheumatic inflammatory conditions may experience faster bone loss. This could lead to osteoporosis and fractures.
- Some medications used to treat rheumatic conditions (prednisone in particular) can also further reduce the strength of bones. (14) Getting enough calcium (1200mg) is recommended to maintain healthy bones.

How is it thought to work?

- Calcium in foods or supplements is absorbed from the digestive tract with the help of vitamin D. It becomes available to cells that maintain and repair bone. It is also used for many other body functions.

Does it Work? What the Science Says:

Not taking corticosteroid:

1000 – 1200 mg per day (total intake from diet and supplements) – see [Health Canada recommendations](#)

- Studies suggest that adequate daily intake of calcium alone or in combination with vitamin D can help reduce osteoporosis and prevent fractures in men and especially in postmenopausal women
- Studies demonstrate that adequate calcium intake reduces rate of bone loss in postmenopausal women from 2% to 0.25-1% annually.
- Supplement with calcium when diet is deficient
- Taking more than recommended amount may increase risk of adverse effect such as kidney stones

Taking corticosteroid:

1200 – 1500 mg per day (total intake from diet and supplement)

- American College of Rheumatology recommends total daily intake of 1200 – 1500 mg of calcium (diet + supplements) as well as 800 – 1000 IU of vitamin D supplements in patients receiving therapy with corticosteroids.
- Studies in patients with rheumatic conditions demonstrate that adequate calcium and vitamin D supplementation reduces corticosteroid associated bone loss and risk of osteoporosis.
- Some people may require medications such as bisphosphonates for prevention or treatment of steroid-induced osteoporosis. The decision to start treatment will depend on other risk factors, as well as the dose and length of steroid treatment.

Osteoporosis:

1000 – 1200 mg per day (total intake from diet and supplement)

- Osteoporosis Canada recommends calcium and vitamin D (through diet or supplement) as adjunct to osteoporosis treatment.
- The recommended calcium intake (from all sources) in men 18-50 years and premenopausal women is 1000mg per day; in individuals > 50 years it is 1200mg per day.
- Calcium and vitamin D should not be the sole treatment of osteoporosis.
- Medications such as bisphosphonates are also used for the treatment of osteoporosis.

What are possible side effects and what can I do about them?

- Taking calcium within the recommended daily dose is generally well tolerated. Some common side-effects may include: constipation, belching and flatulence.
- Some research suggests that taking high doses of calcium supplements (in the upper range of 1200 – 1500 mg daily) may increase the risk of heart attacks. More studies are needed to fully assess this risk. We recommend getting as much of your daily required intake of calcium from your diet as possible. Sources of calcium from food/dairy products do not appear to have this same risk of heart attack.

Interactions

With drugs:

- Calcium salts can lower the effect of some medication by binding to the medication and reducing the amount that is absorbed from the stomach. Some common examples are: levothyroxine (Synthroid, Eltroxin), digoxin (Lanoxin), antibiotics (such as tetracycline, doxycycline, minocycline, ciprofloxacin, levofloxacin and moxifloxacin), iron salts (e.g. ferrous sulfate), bone building medications such as risedronate (Actonel), alendronate (Fosamax), etidronate (Didronel), and others. Let your pharmacist know that you are taking calcium supplements so they can provide advice on how to manage these interactions.
- The absorption of calcium carbonate will be lowered by taking medications that increase the acidity of the stomach. If you are on these medications, use calcium citrate as a supplement instead of calcium carbonate.
- Common medications that lower stomach acid may include: *ranitidine (Zantac)*, *famotidine (Pepcid)*, *omeprazole (Losec)*, *rabeprazole (Pariet)*, *pantoprazole (Pantoloc)*, *lansoprazole (Prevacid)*, *esomeprazole (Nexium)* and others.

With other diseases:

- For some patients with a certain type of kidney stones, calcium can make them worse.

For more information about calcium, consult your physician and pharmacist.