

Calcium

Are you dairy-free? Make sure you're getting enough calcium

BY KELLY DORFMAN, MS, LND

"I avoid milk and cheese. They make me stuffy," Susan explains as she hands me her food diary. Jamie, a woman I saw earlier in the week, reports that both gluten and dairy bother her stomach. In Alice's case, dairy gives her chronic constipation. For these women, symptoms resolve after each eliminates milk, cheese, yogurt and ice cream from her diet. But each now worries about missing critical nutrients without the dairy—and with good reason.

Dairy is one of the foundations of the American diet, providing a significant source of protein, riboflavin, calcium and vitamin D. For vegetarians, dairy can also deliver needed vitamin B12.

Protein is easily obtained from nondairy sources, such as meat, eggs, nuts, seeds and beans. Riboflavin (vitamin B2) can be found in liver, almonds, soybeans, spinach, beef, asparagus, eggs and mushrooms. Vitamin D is best obtained from sun exposure. There are very few natural food sources of vitamin D but a notable amount is provided in fortified milk, as well as fortified orange juice and almond milk.

Dairy's blockbuster nutrient is calcium. A cup of low-fat yogurt can have 400 mg of calcium. The next best nondairy source is ½ cup of tofu if it's made with calcium sulfate. A cup of kale, considered an excellent vegetable source, has 100 mg. Salmon and sardines are good sources of calcium but only if you eat the bones.

The common argument against calcium supplements is that there are plenty of other dietary sources, especially green vegetables. But the truth is that getting enough calcium without dairy products is a rarely achieved dream. The recommended amount of calcium for ages 4 and up is between 1000 and 1300 mg a day. That would take 2 cups of beans, ½ cup tofu and 7 cups of green vegetables per day.

Without dairy, people, especially women, need a calcium supplement.

Popping Pills

When choosing a calcium supplement, the three most important considerations are (1) the delivery method, (2) the carrier of calcium and (3) other synergistic nutrients in the supplement.

Delivery method is either liquid, chewable, capsule or tablet. Capsules (either gelatin or vegetarian) are a good choice for calcium because they're easier to swallow than hard tablets. They also dissolve easily and release their contents once they hit the stomach. Calcium pills tend to be large, reducing the chances that people will take them. In one well-known calcium study, half the participants neglected to take their supplements and ruined the research. If you have no trouble swallowing large pills, you'll be able to take fewer pills if you choose a tablet.

In my experience, there's poor compliance with liquid calcium supplements unless people are highly motivated. The liquids and better chewables tend to have a chalky texture but they're the best choice for people who have trouble swallowing pills.

Powders dissolve in juice and make a tangy beverage. Many of the chewables are delicious and taste like candy.

However, gummy chewables are bad for your teeth (ironic if you're taking calcium to help your teeth and bones) and they don't contain sufficient amounts of magnesium. Check the form of calcium in chewables, as many brands use the less desirable calcium carbonate.



Best Food Sources of Calcium

Food	Milligrams Per Serving
Almonds (1 oz).....	70 mg
Black-eyed peas, boiled (1 cup).....	211mg
Broccoli, raw (1/2 cup).....	21mg
Calcium-fortified orange juice (6 oz).....	261mg
Chinese cabbage, raw (1 cup).....	74mg
Mozzarella, part skim (1½ oz).....	333mg
Sardines, with bones (3 oz).....	325mg
Tofu (firm), made with calcium sulfate (1/2 cup).....	253mg
Tofu (soft), made with calcium sulfate (1/2 cup).....	138mg
Turnip greens, boiled (1/2 cup).....	99mg
Yogurt, plain, low-fat (8 oz).....	415mg
Yogurt, with fruit (8 oz).....	350mg

Source: Calcium: Dietary Supplement Fact Sheet, National Institutes of Health Office of Dietary Supplements (U.S. Dept of Health and Human Services)

The better-absorbed calcium citrate is acidic, so be sure to have something in your stomach before taking it and brush your teeth afterward.

The carrier denotes the substance tied to the calcium. Mineral nutrients like calcium, magnesium, zinc and copper can't be consumed as raw elements. They must be bound to a substance that carries the micronutrient into the body and releases it.

When calcium is used with its best carrier, the total percentage of elemental calcium in the supplement is lower. Calcium carbonate, the most concentrated and popular carrier, is 40 percent calcium by weight. It's also the hardest to absorb. Calcium citrate, which is only 21 percent calcium, has better absorption. One pill can hold 500mg of calcium carbonate but it takes 2 or 3 pills to get the same amount of calcium in the better-absorbed, less concentrated calcium citrate.

Choose a supplement that doesn't use just calcium carbonate but offers some combination of calcium chelate, malate, citrate, hydroxyapatite or other protein binder.

Beyond calcium, **other synergistic nutrients** aid absorption and are essential for bone health. Strontium, boron, vitamin K and silicon work together for better absorption to benefit your bones, but magnesium and vitamin D are most important.

So look for a calcium supplement that's balanced with magnesium and contains some vitamin D for maximum utilization. (Vitamin D and magnesium can also be taken separately.) Magnesium helps convert vitamin D to its active form so the body can absorb the calcium. It also stimulates calcitonin, a hormone that takes calcium out of the blood and puts it into the bone.

Magnesium is non-toxic but too much can cause loose stools. (The laxative Milk of Magnesia is a concentrated form of magnesium.) A typical calcium and magnesium supplement will be 2 parts calcium to 1 part magnesium. If you're prone to constipation, consider a calcium/magnesium supplement with a 1 to 1 ratio.

Contact your health care provider if you have any questions about your calcium levels or questions about medication interactions. Calcium supplements are generally safe but as those with food sensitivities know, anything can bother anyone.

* Despite this fortification, about 70 percent of the U.S. population is low in vitamin D. Most people need extra vitamin D--dairy or no dairy. To confirm you're taking the correct amount, have your doctor test your blood vitamin D levels after you've taken a vitamin D supplement for at least a month.

Calcium Supplements

Capsules

- **Blue Bonnet** Calcium and Magnesium with Boron (vegetarian capsules), kosher
- **Country Life** Calcium and Magnesium with Vitamin D Complex Veggie Caps
- **Enzyme Research Products** Calcium Magnesium Potassium with Enzymes
- **Doctor's Best** Calcium Bone Maker Complex
- **Pure Vegan** Cal/Mag

Liquid

- **Tropical Oasis** Liquid Calcium Magnesium Orange Flavor
- **Life Time Calcium** Magnesium Citrate Natural Blueberry Flavor or Grape Flavor

Dissolvable Powder

- **Thorne Research** Cal-Mag Citrate
- **Pure Encapsulations** Cal/Mag with Cofactors

Chewables

- **Pioneer Nutritional Formulas** Chewable Calcium Magnesium, Dark Chocolate
- **Twinlab** Calcium Citrate Chewable Wafers