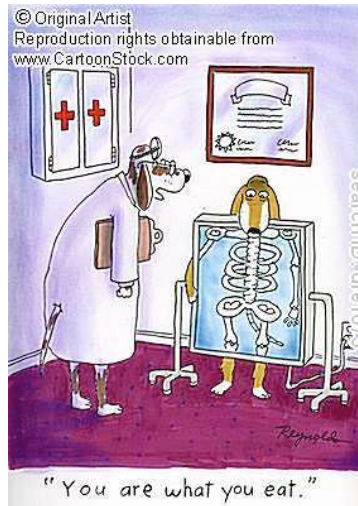


Solutions for Building Stronger Bones... ...Beyond Calcium!



1. Stay **alkaline** by eating three meals and two snacks a day based on a rainbow of brightly coloured produce (see pH chart).
2. Adequate **protein** is essential. Protein's net acid load can be offset by eating more alkalizing fruit and vegetables.
3. Supplement with anti-inflammatory omega-3 **fish oils**: EPA and DHA. They increase calcium absorption and accelerate calcium's delivery to the bones.
4. Get your **Vitamin D3** – from diet (including supplements) and sun exposure. It helps with calcium absorption in the intestines and it's needed for bone development.

Food sources of Vitamin D3: cold saltwater fish and other seafood (like salmon, halibut, herring, tuna, Atlantic mackerel, oysters, and shrimp) and their liver and oils. Shiitake and morel mushrooms are also good sources.

5. **Reduce stress** (which is acid-forming), **exercise** (which lowers stress while increasing bone mineral density), and use **probiotics** (from supplements, *plain organic yogurt*, or *fermented foods like sauerkraut, miso, and apple cider vinegar*) to improve absorption of bone-building nutrients.
6. **Vitamin K1** (*from green vegetables or "greens drinks"*) is converted into biologically active Vitamin K2 in the intestines (**Vitamin K2** is also found in *egg yolks, butter, and fermented soy foods*).
7. **Magnesium, phosphorous, and strontium** (found along with calcium in most foods) are bone-builders.

Food sources of magnesium: blackstrap molasses, brown rice, buckwheat, corn and rye, dandelion greens, dark-green vegetables, figs, legumes, nuts, seeds, wheat germ and amaranth, whole-grain cereals.

8. **Vitamins B6** (pyridoxine), **B9** (folic acid/folate), and **B12** (cobalamin) are water-soluble vitamins that produce hydrochloric acid in the stomach so calcium and foods dissolve. They also reduce systemic inflammation by reducing elevated and damaging homocysteine levels and C-reactive protein.

Food sources of Vitamin B9: beans, eggs, fish, lentils, meat, miso, nuts, organ meats, poultry, shellfish, some fortified cereals, tempeh and extra firm tofu.

Food sources of Vitamin B12: beans/peas/legumes, cheese, dairy products, eggs, fish, lentils, meat, nuts and seeds, organ meats, poultry, shellfish, some fortified cereals, tempeh and miso, turkey.

9. The minerals **boron** and **silicon** reduce bone loss.

Food sources of boron: almond butter, almonds, apples (red), applesauce, avocado, broccoli, carrots, celery, cherries, dry red wine, flaxseed, grape juice, grapes, hemp seed, legumes, oranges, parsley, peaches, peanut butter, peanuts, pears, plums, prune juice, prunes, raisins, spinach, squash, strawberries.

Food sources of silicon: barley, beans/peas/legumes, bell peppers, brown rice, cucumbers, fruits (especially the skins), green leafy vegetables, leeks, Mother's milk, nuts and seeds, oats, onions, parsnips, whole grains.

10. **Vitamin C** plays an important role in collagen production, the first step in bone formation.

Food sources of Vitamin C: all sprouts, broccoli, cabbage, cantaloupe, citrus fruits (oranges, grapefruit, lemons, limes), red peppers, tomatoes.

11. There is a correlation between **zinc** loss and osteoporosis. A zinc deficiency causes a reduction in bone-forming cells.

Food sources of zinc: beef, cheese, chicken, eggs, lamb, legumes, lobster, milk, nuts, oysters, pork, seeds, whole grains, zinc-fortified cereals.

12. **Isoflavones**, found in legumes such as the *soybean*, not only support optimum bone-building and act as an anti-oxidant in bone-building cells, but they also prevent hot flashes in women, lower total cholesterol levels, and provide protection against both heart disease and cancer!

Food sources of Isoflavones: unsweetened soy milk (the liquid from soybeans), organic extra-firm tofu (the soy equivalent of firm cottage cheese), unsalted roasted soy nuts (which can be eaten as a snack), tempeh (fermented patty made from the soybean and firmer than tofu with a nutty flavour), edamame (young, sweet Japanese soybeans that are steamed in their pods).

13. Try a targeted bone-building supplement, like *Greens+ bone builder*, that incorporates much more than just calcium and Vitamin D3.

The Calcium Paradox

“Countries with higher calcium intakes have the highest fracture rates, not the least”

Calcium is **critical** for bone formation.

- Myth 1: Bones just need more calcium. *False.*

→ Healthy bones also need a daily mix of synergistic nutrients like:

Vitamin K

Silicon

Strontium

Boron

Zinc

Vitamins B6, B9, and B12

Lycopene found in tomatoes, pink grapefruit, red berries and beets

Fish oils

- Myth 2: “Rest your weary bones”...*Nope! You’ve got to move it, move it!*

→ Bones need the strain of exercise. When they are stressed, they grow stronger.

- Myth 3: Milk is the best source of calcium. *Not necessarily.*

→ Populations that do not drink milk but instead get their calcium from plant sources have extremely low rates of osteoporosis.

→ Close to 40% of the world’s population lack the enzyme lactase, meaning they can’t digest lactose, the sugar in milk, and have adverse reactions to milk products.

→ In the US, bovine growth hormone is injected into dairy cows to stimulate about 10% more milk than untreated cows.

→ In both Canada and the US, dairy cows can be injected with antibiotics or steroids.

Solution: consume only organic versions of fat-free yogurt, fat-free cottage cheese or skim milk since these cows have not been treated with bovine growth hormone, antibiotics, or steroids, and they are generally grass fed (which makes the dairy more alkaline).

The highest calcium content for whole foods is in foods from the oceans: Nova Scotia dulse, spirulina, chlorella and kelp.

Calcium absorption from milk is ~ 32%; from broccoli, kale, Brussels sprouts, mustard greens, and turnip greens ~ 40-64%.

Why Calcium is Not Absorbed

- Magnesium, Vitamin D3, and Vitamin K deficiency
- Low solubility of supplemental calcium

- Low stomach acid (hypochlorhydria)
- Imbalance of cofactors (zinc, manganese, copper, silicon, vitamin D3, boron, magnesium, vitamin K2, lycopene, vitamin B6/B9/B12, and isoflavones)
- Excess phosphorous, sugar, salt, caffeine, and pop

Ideal calcium intake in milligrams per day

Age	
Birth to 6 months	400 mg
6 months to a year	600 mg
1-10 years	800-1,200 mg
11-24 years	1,200-1,500 mg
25-50 (men and women)	1,000 mg
51-64 (women on HRT and men)	1,000 mg
51 plus (women not on HRT)	1,500 mg
65 and older (men and women)	1,500 mg

Understanding Calcium Supplementation

- Your body does not absorb more than 500 mg of elemental calcium at a time. Therefore, spread your calcium between your meals, and don't take more than 500 mg of any calcium supplement at one time.
- The most soluble and absorbable forms of calcium are:

Calcium bisglycinate
Calcium formate
Calcium citrate-malate

- More is not always better, especially when it comes to calcium supplementation. The bone-building cells will become exhausted and wear out, becoming incapable of healing micro-fractures.

Foods That Decrease Calcium Absorption

- *Caffeine*: avoid excessive caffeine (more than 2 cups a day of black organic coffee)
- *Wheat fiber*: eat calcium-dense foods away from supplemental fiber
- *Phytates*: in beans, peas, seeds, nuts and cereal grains
- *Oxalates*: in spinach, sweet potato, rhubarb, Swiss chard and beans – *squeeze fresh lemon juice on these foods to break down the oxalic acid*
- *Supplemental iron*: interferes with calcium's absorption and vice versa, so should not be taken together

Calcium (and Magnesium) for a Good Night's Sleep

- Promotes sleep by calming the nervous system
- Deficiency can cause nervous tension, fatigue, and muscle cramping
- Combined with magnesium, relaxes muscles and promotes deep sleep