

Integrative Therapy for Osteoporosis

Hip Fractures on the Rise in Older Women

Osteoporosis is a costly and potentially disabling condition affecting millions of people. An integrative approach encompassing diet, exercise, supplements, and mind-body therapies, as well as pharmaceutical medications when indicated, is recommended to prevent and treat this disorder.

Prevention Prescription

An anti-inflammatory diet that includes an abundance of deeply colored fruits and vegetables, healthy fats, whole grains, and anti-inflammatory herbs, teas, and spices

Elemental calcium intake from diet in addition to supplements adding up to at least 800 mg per day

A serum 25-OH vitamin D concentration in the range of 40 ng/mL (100 nmol/L)

A balanced ratio of omega-6 to omega-3 fatty acids

Adequate but not excessive protein (0.8 g/kg), including some vegetarian protein sources

One to two servings per day of whole soy foods

A good-quality multivitamin and mineral supplement

Vitamin K₁-rich foods include any green plant with chlorophyll such as green leafy vegetables such as lettuce, collards, spinach, kale, and broccoli. Other plant sources include vegetable oils, nuts, and fruits. Animal foods that include vitamin K₂ include chicken, soft cheeses, and butter. Natto, a fermented soybean food, is a very rich source of vitamin K₂.

Tea (*Camellia sinensis*), 2 cups a day

Physical activity for 30 to 45 minutes most days of the week that includes weight-bearing, aerobic, and weight-lifting exercise

A daily mind-body practice

Avoidance of smoking, excess alcohol intake, excess caffeine consumption, and vitamin A (retinol) in amounts greater than 2000 mcg/day

Reduction of the risk of falls and, if possible, avoidance of prescribing medications that harm bone or increase the risk of falls

Pharmaceutical therapies that are individualized, with risk and benefits explored with each patient

30 to 45 minutes/day of aerobic, weight-bearing, and weight-lifting exercise (Patients with osteoporosis should consult with a health professional to plan an appropriate, safe exercise program.)

Meditation, self-hypnosis, guided imagery, biofeedback, and breath work

Calcium: What to take and how much?

Large tablets may be difficult to swallow and may not fully disintegrate in the stomach. Some people tolerate calcium supplements better in the form of powders, capsules, and liquids.

Calcium supplementation should not exceed 500 mg at any one time, to maximize absorption.

Avoid taking calcium supplements along with psyllium or with foods high in oxalic acid (e.g., spinach) or phytic acid (e.g., wheat bran).

Chewable calcium supplements are well tolerated by children.

Calcium carbonate is best taken with meals and is less expensive than calcium citrate.

Calcium carbonate provides 40% elemental calcium. Calcium citrate is well absorbed with or without meals, and it is the best form for older adults with reduced stomach acid.

Calcium citrate provides 21% elemental calcium. Calcium from dolomite, oyster shell, or coral is not recommended.

Calcium absorption can be improved and excess excretion can be decreased by the following: Maintaining a 25(OH)D concentration higher than 34 ng/mL (85 nmol/L)

Avoiding excess caffeine, eating fewer highly refined carbohydrates, dietary sodium to less than 2400 mg/day and having an adequate intake of essential fatty acids

Avoiding excess animal proteins. Animal protein generates acids that are excreted in the urine. High intakes of animal protein can lead to significant calcium resorption from bones to buffer the acids.

Consuming fruits and vegetables generate bicarbonate, which can buffer the acidifying effects of animal protein, alkalinize the urine, and significantly lower urinary calcium excretion.