

OSTEOPOROSIS

What is Osteoporosis:

Osteoporosis is a disease of excessive bone loss and decreased bone density, which leads to increased risk of bone fractures. There are two types of bone cells important in the process of osteoporosis: osteoclasts (bone resorption) and osteoblasts (bone formation). Osteoporosis in women typically starts in the mid-thirties, often 15 years before menopause, with a bone loss of 1 to 1.5% per year.

Role of Estrogen:

Bone mass in women declines rapidly during menopause, and especially so during the first two post-menopausal years as the production of estrogen declines by 40-60%. A lack of estrogen stimulates production of a substance called interleukin-6 (IL-6), which stimulates growth of osteoclasts, thus increasing bone loss. This is especially seen during the first five years of menopause. After this period, the body adjusts to lower estrogen levels. Estrogen therapy temporarily halts the progression of osteoporosis, but it does not truly prevent or reverse it. Estrogen therapy alone also carries some risks as it is associated with an increased risk of endometrial cancer, along with a slightly increased risk of breast and cervical cancer.

Role of Progesterone:

The production of progesterone drops to zero at menopause. Lack of progesterone causes a decrease in new bone formation. Progesterone therapy will actively increase bone mass and density and can possibly reverse osteoporosis. Bone loss seen in postmenopausal osteoporosis is primarily caused by a progesterone deficiency and secondarily due to a poor diet and lack of exercise. Natural progesterone hormone is an essential factor in the prevention and proper treatment of osteoporosis.

Role of Testosterone:

Testosterone helps to retain calcium hydroxyapatite in the formation of the bone, resulting in good density. Estrogen may slow bone loss, and progesterone may stimulate new bone formation, but without sufficient testosterone and mineral support, the resulting bone is weak. The dosing for postmenopausal women who may require testosterone supplementation is typically 0.25-0.5 mg daily. Though studies have demonstrated an association between testosterone and bone density, the use of testosterone for the treatment of osteoporosis does not have FDA approval thus far.

Low-Density Does Not Equal Fragile Bones:

Bone mineral density (BMD) refers to the quantity, not the quality of bone. It reveals nothing about the strength, micro-architecture, turnover, size, or shape of bone, all of which also contribute to fragility.

A key to hormone balance is the knowledge that when estrogen becomes the dominant hormone and progesterone is deficient, then estrogen becomes toxic to the body (listen to your body). A saliva hormone test should be done to confirm these symptoms.

References:

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OSTEOPOROSIS TREATMENT PROGRAM:

Bone Mineral Density: Measuring BMD is recommended at baseline before treatment and every 2-3 years thereafter.

Diet: Eat a healthy, low protein, balanced diet which includes the minerals and nutrients listed below. Protein should not exceed 20% of daily caloric intake. Avoid smoking and excessive alcohol consumption.

Calcium: 1,200 mg daily, of which 500 mg is the max via supplement. The best source of calcium is from the diet and we typically get 500-700 mg daily this way. If requiring a supplement, the two main types of calcium are the citrate and carbonate forms. The citrate form can be taken with or without food and may benefit those with inflammatory bowel disease (IBD). The carbonate form is dependent on stomach acid for absorption, so it works best when taken with food.

Vitamin D: Blood levels of 25-hydroxyvitamin D should be at 60 ng/mL. This level has been associated with a 27% increase in bone density. Although the quantity of vitamin D necessary to reach this level varies from person to person, most people need 6,000-10,000 IU daily. Blood levels should be evaluated prior to starting supplementation and then reassessed in 6 weeks. The daily dose should be maintained so that the blood level can remain at the optimal level. Vitamin D is closely involved with promoting increased calcium absorption and it also provides many other health benefits (*more information available at www.grassrootshealth.net*).

CBD Oil: Cannabidiol, also known as CBD, is a natural compound found in the cannabis plant that can be extracted. Unlike THC, the compound CBD has no “high” or psychoactive effect. Research has shown that CBD has numerous potential health benefits, including anti-inflammatory action. The CBD receptors CB1 and CB2 are also found in the bone. The use of CBD activates these two receptors, which promotes bone formation and minimizes bone turnover. Dosing varies based on the purity and strength of the oil being used.

Vitamin C: 2,000 mg daily. Enhances immunity and aids in proper bone growth by helping to build up collagen.

Beta-Carotene: 15 mg daily. Improves immune function and promotes proper bone growth.

Vitamin B Complex: 50 mg three times daily. Involved in energy production.

Folic Acid, Vitamin B₆, & Vitamin B₁₂: Folic acid – 400 mcg daily; B₁₂ – 300 mcg daily; B₆ – 25 to 100 mg daily. Important in the conversion of the amino acid methionine to cysteine. If a person is deficient in these vitamins, there will be an increase in homocysteine. High homocysteine levels in menopausal women have been associated with an increase in bone loss.

Vitamin K₂ (menaquinone-7): 180 mcg daily. Solidifies calcium into the bone matrix and decalcifies the arteries.

Zinc: 15-30 mg daily. Promotes a healthy immune system. Zinc helps make collagen which forms the foundations of the bone. Zinc helps vitamin D absorb calcium. Zinc is needed for the proper formation of osteoclasts and osteoblasts, the two main cells which are essential for bone turnover.

Magnesium: 300-500 mg daily, mostly by diet. Helps in metabolizing calcium and vitamin C, and helps to convert vitamin D to the active form necessary to ensure that calcium is efficiently absorbed by your body.

Boron: Improves the metabolism of both calcium and magnesium. Research conducted by the US Department of Agriculture demonstrated that giving post-menopausal women a short course of 3 mg boron supplement daily resulted in a 44% reduction in the amount of calcium excreted in urine. Boron is found in alfalfa, kelp, cabbage & leafy greens.

Progesterone: Natural, topical applications twice daily. Applied 21-25 days per month in post-menopause, or two weeks prior to menses if not menopausal. Increases BMD. Check progesterone level periodically.

Estrogen: Indicated for vaginal dryness or hot flashes in postmenopausal women. May use low-dose natural bi-estrogens as prescribed by a physician.

DHEA: Supplementation helps increase bone strength.

Exercise: Performing weight-bearing exercises 20 minutes daily or 30 minutes three times per week helps to maintain bone mass. Listen to your body and engage in regular activity – “a body in motion tends to stay in motion.”

Strontium: This is a non-essential trace mineral found in small amounts in the body. It is in the same mineral family as calcium and magnesium, and has been shown to promote growth of new bone in both animals and humans. It can be found in spices, seafood, whole grains, root and leafy vegetables, and legumes. Strontium is also available in 200 mg capsules. However, supplementation with strontium does not mean you need less calcium. Always use more calcium than strontium, and make sure to take strontium alone (separate from your other supplements by several hours).