

Vitamin D and Calcium Combo Increases Bone Density.

By Osteoporosis International

Calcium is the most abundant mineral in the human body. Average healthy males have about two and a half to three pounds of calcium while females have about two pounds. Approximately 99 percent of calcium is present in the bones and teeth, which leaves only about one percent in cells and body fluids. While the most important function of calcium involves the maintenance of skeletal health, the small percentage of calcium outside the bones is used to maintain a variety of vital body functions.

Vitamin D is known as the "sunshine" vitamin because it is formed in the body by the action of the sun's ultraviolet rays on the skin. The fat-soluble vitamin is converted in the kidneys to the hormone calcitriol, which is actually the most active form of vitamin D. The effects of this hormone are targeted at the intestines and bones. Decreased vitamin D intake along with not enough sunlight exposure can cause a vitamin D deficiency. Other causes could be inadequate absorption and impaired conversion of vitamin D into its active form. When vitamin D deficiency occurs, bone mineralization is impaired which leads to bone loss. Rickets, osteomalacia, osteoporosis, crohn's disease and cancer are associated with vitamin D deficiency.

A study published in the journal *Osteoporosis International* investigated the impact of calcium and vitamin D supplementation on bone density in pubescent girls. The randomized controlled trial included 20 sets of peripubertal identical twin girls who were assigned to receive either 800 mg calcium and 400 IU of vitamin D3 or a matched placebo for six months. The results revealed that supplementation with calcium and vitamin D boosted both bone density and bone strength by between 4 and 66 percent, depending on the bone site tested. These findings suggest that supplementation with calcium and vitamin D in pubescent females may be an effective way to reduce the future risk of osteoporosis by increasing bone strength and density during the peak of bone mass build-up.¹

¹ Greene DA, Naughton GA. Calcium and vitamin-D supplementation on bone structural properties in peripubertal female identical twins: a randomised controlled trial. *Osteoporos Int.* Feb2011;22(2):489-98.