

# Clinical Update

## Vitamin D2 and D3 May Be Equally Effective

Challenging the view that vitamin D3 is more potent than D2, researchers have reported that both forms are equally effective at maintaining 25-hydroxyvitamin D status.

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Several studies have reported that vitamin D2 is between 30 - 50% less effective as the D3 form in maintaining blood levels in humans.

A new study, published in the *Journal of Clinical Endocrinology & Metabolism*, could challenge this view however. The three-month study with 68 subjects found that supplementation with both forms produced similar results.

Vitamin D refers to two biologically inactive precursors - D3, also known as cholecalciferol, and D2, also known as ergocalciferol. The former is produced in the skin on exposure to UVB radiation (290 to 320 nm). The latter is derived from plants and only enters the body via the diet.

Both D3 and D2 precursors are hydroxylated in the liver and kidneys to form 25-hydroxyvitamin D (25(OH)D), the non-active 'storage' form, and 1,25-dihydroxyvitamin D (1,25(OH)2D), the biologically active form that is tightly controlled by the body.

Currently, the vitamin's RDA is 400 IU, but support is growing to increase this level considerably. The new study appears to support this view.

Holick and co-workers randomly assigned the subjects (average age 38.6) to one of four intervention groups for 11 weeks. The first received placebo, the second received 1,000 IU (25 micrograms) vitamin D2, the third received 1,000 IU (25 micrograms) vitamin D3, and the fourth received 500 IU vitamin D2 plus 500 IU vitamin D3. All supplements were manufactured by Tishcon Corp. 60% of the adults were vitamin D deficient at the start of the study.

The Boston-based researchers report that adults in the placebo group experienced no significant change in their total 25(OH)D levels during the winter and early spring. Adults receiving the vitamin D supplements all experienced similar 25(OH)D level increases, however. In addition, the 1,000 IU dose of vitamin D2 or D3 did not raise 25(OH)D levels in vitamin D deficient subjects above 30 ng/ml.

Previously, researchers from Creighton University in Omaha reported in 2004 that while both forms of the vitamin do produce similar rises in serum concentration of the native vitamin, indicating equivalent absorption, only vitamin D3 sustained 25(OH)D levels over a 14 day period. However, serum 25OHD fell rapidly in the D2-supplemented subjects and was not different from baseline at 14 days.