

Many current vitamin D recommendations are of the "one size fits all" nature.

However, our body's ability to manufacture natural vitamin D depends on sun exposure of our skin, and skin pigments interfere with the ultraviolet rays required for the chemical reaction that produces vitamin D.

Thus, it is only logical that African Americans would be more likely to be vitamin D deficient than whites and might need more dietary vitamin D to become vitamin D sufficient.

In fact, previous studies have shown that ~90% of African Americans are vitamin D deficient and that 1,000 IU of dietary vitamin D is not sufficient to bring them to vitamin D sufficiency.

The current study (Garrett-Mayer et al, Am. J. Clin. Nutr., 96: 332-336, 2012) compared the effects of supplementing with 4,000 IU of vitamin D on blood levels of 25-hydroxy vitamin D (25(OH)D) in African American and white men. (As you may recall, **blood levels of 25(OH)D is the accepted measure of vitamin D sufficiency.**)

47 male subjects with low grade prostate cancer from the Clinical and Translational Research Center at the Medical University of South Carolina were enrolled in the study. The study group contained 12 African American men and 35 white men. Both male populations averaged 65 years old and were overweight (BMI of 28).

The men were given 4,000 IU of vitamin D daily over a one year period as part of a study (not yet published) to look at the effect of vitamin D supplementation on prostate cancer. Blood levels of 25(OH)D were measured every 2 months.

At the beginning of the study the average blood 25(OH)D levels were 21 ng/L for the African American men and 37 ng/L for the white men - and these differences were highly significant.

At the start of the study 92% of the African American men were vitamin D deficient (blood 25(OH)D levels < 32ng/L) and 50% were very deficient (blood 25(OH)D levels < 20 ng/L). In contrast, only 34 % of the white men were vitamin D deficient and 11% very deficient at the beginning of the study. Again, these differences were highly significant.

After only 2 months of supplementation with 4,000 IU/day of vitamin D the blood levels of 25(OH)D were indistinguishable between the African American and white men, and after 1 year of supplementation blood levels of 25(OH)D had leveled off in the optimal range (67 ng/L) for both populations.

What are the important take-home lessons from this study?

1) **African Americans are much more likely to be vitamin D deficient than whites.** This study only compared vitamin D status in men, but previous studies have shown similar disparities in women.

African Americans also tend to have greater bone density than whites, so if bone health were the only benefit of optimizing vitamin D status, these disparities in vitamin D status might be of little significance.

However, the authors pointed out that recent evidence strongly suggests that higher concentrations of circulating vitamin D among middle-age and elderly populations are associated with a substantial decrease in cardiovascular disease and type 2 diabetes.

The authors also pointed out that there is a significantly higher prevalence of diabetes and cardiovascular disease among African Americans and concluded: "We propose that these health disparities are...the result of widespread hypovitaminosis D within this population and that, through appropriate vitamin D3 supplementation, vitamin D deficiency can be easily remedied in African Americans."

2) While previous studies have suggested that 1,000 or 2,000 IU may be sufficient to optimize vitamin D status in white men, **4,000 IU was required to optimize the vitamin D status in the African American men.**

3) **Perhaps the most interesting result from this study was that 4,000 IU of vitamin D/day for one year resulted in the same optimal 25(OH)D levels in both white and African American men. The authors pointed out that this finding was consistent with some earlier studies suggesting that blood levels of 25(OH)D may be self limiting.**

That simply means that when blood levels of 25(OH)D reach optimal levels, it shuts down the enzyme that converts vitamin D to 25(OH)D - thus preventing 25(OH) D levels from reaching toxic levels.

However, this was a small study, and we know that for certain rare individuals this regulatory mechanism does not work well. These individuals can accumulate toxic levels of 25(OH)D if they take more than 4,000 or 5,000 IU of vitamin D for long periods of time.

For that reason, I continue to recommend that you not take more than 4,000 IU of vitamin D on a daily basis unless you are under the care of a physician who is using your blood levels of 25(OH)D to guide their recommendation for the dose of vitamin D you should be taking.

To Your Health!
Dr. Stephen G Chaney