Essentials of Health

A new study has shown that supplementing with vitamin D is the most effective way to maintain a healthy serum level of vitamin D year round.

Predictors of vitamin D status in adults residing in the United States

Vitamin D status in humans is influenced by numerous factors, including dietary intake, skin color, season of the year and geographic location. Typically, the most important factor related to vitamin D status is exposure to sunlight and UV conversion in the skin to active vitamin D in the body. However, because of recommendations by several health agencies to limit sun exposure, vitamin D status in adults and children have declined in recent years.

In a new study published online in the *European Journal of Clinical Nutrition*, researchers sought to identify predictors of vitamin D status in an adult population and determine the extent to which supplemental vitamin D and other factors influence vitamin D status.

The current study included 743 healthy adult volunteers from across the United States (including Hawaii and Alaska). Serum vitamin D was measured, and information on diet, supplement usage, ethnicity, age and body mass index (BMI), and latitude of residence was collected and used to analyze vitamin D status in a summer and winter group of subjects.

The most significant positive predictor of vitamin D status was supplementation, and the most significant negative predictor of vitamin D status was BMI. Fortified beverages in the summer and dairy intake in the winter also had a positive influence on vitamin D status. Other negative predictors were race (African American, Asian and Hispanic) in the summer; and residing above 36 degrees N latitude and ethnicity (Asian and Hispanic) in the winter. When considering the level of 50 nmol/L (20 ng/ml) to be adequate, of the non-supplement users 38% had inadequate levels in the winter and 18% were too low in the summer. In contrast, only 2.5% and 1.4% of supplement users had insufficient vitamin D levels in the winter and summer, respectively. Among supplement users, the average vitamin D supplement intake was 1967 IU/day in winter and 2282 IU/day in the summer.

In this population of adults, vitamin D supplementation was the most important predictor of vitamin D status in both winter and summer. This research indicates that a large percentage of healthy, free-living adults in the U.S. who do not consume a vitamin D supplement are at a significant risk for a suboptimal vitamin D status and its consequences. Vitamin D supplements are an effective and practical method of reducing hypovitaminosis D in U.S. adults.

MA Levy, T McKinnon, T Barker et al. Predictors of vitamin D status in subjects that consume a vitamin D supplement. European Journal of Clinical Nutrition. 16 July 2014; doi:10.1038/ejcn.2014.133

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