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Vitamin D levels not enough for winter: Study

By Stephen Daniells, 14-Jan-2010

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Current recommended intake for vitamin D during winter months and need to be increased by five, says a new study from California.

Recommended intakes for people with darker skins should be increased to a whopping 2100 to 3100 International Units per day all year-round, up from the current adequate intakes set at 5 micrograms per day (200 International Units).

Researchers from University of California, Davis report their findings in the *Journal of Nutrition*. The study, led by Laura Hill, represents the latest in a long line of studies calling for increases in the recommended levels for vitamin D.

Concerns are growing over the health implications of living with insufficient and deficient vitamin D levels. A recent study from China reported that 94 per cent of people aged between 50 and 70 enrolled in the study were vitamin D deficient or insufficient, which may increase their risk of metabolic syndrome.

In adults, it is said vitamin D deficiency may precipitate or exacerbate osteopenia, osteoporosis, muscle weakness, fractures, common cancers, autoimmune diseases, infectious diseases and cardiovascular diseases. There is also some evidence that the vitamin may reduce the incidence of several types of cancer and type-1 diabetes.

According to the new study, in order to achieve vitamin D sufficiency, defined as blood vitamin D levels of at least 75 nanomoles per litre, people of European ancestry with a high sun exposure need 1300 IU per day of the vitamin during the winter. People of African ancestry with low sun exposure would require much higher intakes, from 2100 to 3100 IU per day throughout the year, report the researchers.

The conclusions were based on data from four cohorts of participants involving 72 people. The participants, from Davis, California, were followed for up to two months during each of the four seasons.

Vitamin D levels were predicted using a computational model, based on sun exposure and skin reflectance. Blood levels of vitamin D, measures of 25-hydroxyvitamin D (25(OH)D) – the non-active storage form of the vitamin – showed that

Some experts define an optimal vitamin D status as at least 100 nanomoles per litre (nmol/L) of 25(OH)D. Vitamin D deficiency is defined by some as 25(OH)D levels below 50 nmol/L.

People of African ancestry with low and high sun exposure in the winter were predicted to have 25(OH)D levels of 24 and 42 nmol/L, respectively. These levels were predicted to increase to between 40 and 60 nmol/L in summer.

People of European ancestry with low and high sun exposure in the winter were predicted to have 25(OH)D levels of 35 and 60 nmol/L, respectively. These levels were predicted to increase to between 58 and 85 nmol/L in summer.

"To achieve 25(OH)D over 75 nmol/L, we estimate that European ancestry individuals with high sun exposure need 1300 IU/d vitamin D intake in the winter and African ancestry individuals with low sun exposure need 2100-3100 IU/d year-round," concluded the researchers.

Data on D

Vitamin D refers to two biologically inactive precursors - D3, also known as cholecalciferol, and D2, also known as ergocalciferol. The former, produced in the skin on exposure to UVB radiation (290 to 320 nm), is said to be more bioactive.

While our bodies do manufacture vitamin D on exposure to sunshine, the levels in some northern countries are so weak during the winter months that our body makes no vitamin D at all, meaning that dietary supplements and fortified foods are seen by many as the best way to boost intakes of vitamin D.

Source: *Journal of Nutrition*
Published online ahead of print, doi: 10.3945/jn.109.115253
"Vitamin D Intake Needed to Maintain Target Serum 25-Hydroxyvitamin D Concentrations in Participants with Low Sun Exposure and Dark Skin Pigmentation Is Substantially Higher Than Current Recommendations"

Authors: L.M. Hall, M.G. Kimlin, P.A. Aronov, B.D. Hammock, J.R. Slusser, L.R. Woodhouse, C.B. Stephenson

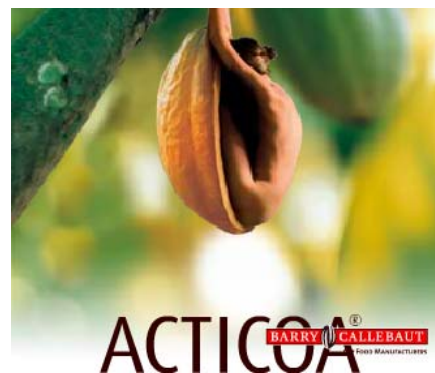


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