

Low vitamin D levels among European adolescents

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Sub-optimal vitamin D levels are highly prevalent among European adolescents, according to a recent study published in the British Journal of Nutrition.

Vitamin D is obtained both from food and from skin synthesis in response to UV-B light exposure. It is essential for healthy cell and bone growth during childhood and adolescence, and deficiency in these age groups may be a risk factor for impaired cognitive function, hyperactivity and immune system deficiency.

Given the sparse scientific knowledge of vitamin D status in adolescents, researchers of the Healthy Lifestyle in Europe by Nutrition in Adolescence (HELENA) study set out to provide a description of vitamin D levels in adolescents in Europe. The researchers measured 25-hydroxycholecalciferol (25-OH-D) concentrations of 1006 adolescents between the ages of 12 and 17 years, who were recruited from ten cities in nine European countries. Being the body's main circulating form of vitamin D, 25-OH-D is considered to be a reliable indicator of vitamin D status.

The results of the study showed that approximately 80% of adolescents had sub-optimal levels of vitamin D. This equates to a 25-OH-D concentration of less than 75 nmol/l. Of these adolescents, 15% had vitamin D levels low enough to be classified as severely deficient. Girls showed slightly higher average concentrations than boys. Concentrations of 25-OH-D were also found to increase with age and to decrease with increasing body mass index (BMI), although this last observation was not significant.

There were some considerable geographical differences in vitamin D status. The highest levels of 25-OH-D were observed in adolescents from Rome, Athens, Vienna and Zaragoza, while the lowest levels were obtained in Dortmund, Gent and Lille. It is worth noting that average concentrations of 25-OH-D did not reach the 75 nmol/l cut-off in any of the cities.

The authors of the study concede that the 25-OH-D thresholds used to measure vitamin D deficiency are based on adult data, and that more appropriate 25-OH-D cut-offs for adolescents may be needed. Nevertheless, their results suggest widespread vitamin D insufficiency among adolescents, which appears to be influenced by factors such as age, sex, body weight, and geographical location.

For more information, see

[González-Gross M, Valtueña J, Breidenassel C, Moreno LA, Ferrari M, Kersting M, De Henauw S, Gottrand F, Azzini E, Widhalm K, Kafatos A, Manios Y, Stehle P. Vitamin D status among adolescents in Europe: the Healthy Lifestyle in Europe by Nutrition in Adolescence study. Br J Nutr. 2011 Aug 17:1-10. \[Epub ahead of print\]](#)