

High vitamin D levels linked to lower cholesterol in children

June 7 2018



Credit: University of Eastern Finland

There is a link between higher serum vitamin D levels and lower plasma cholesterol levels in primary school children, new research from the University of Eastern Finland shows. Children whose serum 25-hydroxyvitamin D levels exceeded 80 nmol/l had lower plasma total and low-density lipoprotein (LDL) cholesterol levels than children whose serum 25-hydroxyvitamin D levels were below 50 nmol/l, which is often regarded as a threshold value for vitamin D sufficiency.

25-hydroxyvitamin D is the major circulating form of vitamin D. The findings were reported in one of the leading journals of endocrinology, the *Journal of Clinical Endocrinology and Metabolism*.

Vitamin D is known to be essential for bone metabolism, and low serum 25(OH)D levels increase the risk of rickets, osteomalacia, and osteopenia. Vitamin D may also improve plasma lipid levels and have beneficial impact on other risk factors of cardiovascular diseases. However, evidence on these other health effects of vitamin D is still scarce and partially conflicting, and therefore not a sufficient basis for giving recommendations.

Lifestyle factors, such as healthy diet, physical activity, and spending time outdoors leading to the production of vitamin D in the skin, may be linked to both higher serum vitamin D levels and lower plasma lipid levels. The researchers found that the link between higher serum vitamin D levels and lower plasma cholesterol levels was independent of body adiposity, dietary factors, [physical activity](#), parental education, and daylength prior to blood sampling. Moreover, hereditary factors that have previously been linked to serum vitamin D levels did not modify the observed association. More research is needed to uncover the reasons behind the inverse association of serum vitamin D with [plasma](#) lipid levels.

The new findings provide support for the importance of following recommendations for vitamin D intake, which vary from country to country. The most important dietary sources of vitamin D are vitamin D fortified products such as dairy products and spreads, and fish. In addition to the dietary intake, vitamin D supplement use is also recommended for the general population in several countries. The recommended use of [vitamin](#) D supplements varies a lot among these countries (mostly 5-50 µg/d, corresponding to 200-2000 IU/d) depending on age group and other factors. Vitamin D is synthesized endogenously in the skin in the presence of UV-radiation from the sun. However, in northern latitudes, the exposure to sunlight alone is inadequate to maintain sufficient [serum](#) 25(OH)D levels, especially during the winter.

The study was part of the Physical Activity and Nutrition in Children (PANIC) Study, which is a lifestyle intervention study in the Institute of Biomedicine at the University of Eastern Finland. A total of 512 children aged 6 to 8 years participated in the baseline measurements in 2007–2009, constituting a representative sample of their age group. The PANIC Study produces scientifically valuable information on children's lifestyles, health, and well-being.

More information: Sonja Soininen et al. Serum 25-hydroxyvitamin D, Plasma Lipids, and Associated Gene Variants in Prepubertal Children, *The Journal of Clinical Endocrinology & Metabolism* (2018). [DOI: 10.1210/jc.2018-00335](https://doi.org/10.1210/jc.2018-00335)

Provided by University of Eastern Finland

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