

Vegan diet significantly remodels metabolism in young children

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University of Helsinki researchers report a comprehensive pilot study on the metabolic effects of full vegan diet on young children. The study found vegan children to have remarkably altered metabolism and lower

vitamin A and D status compared to children with no special diet.

The study concludes that [vegan diet](#) has a broad effect on children's metabolism. Serum biomarker levels for vitamins A and D, cholesterol forms and essential amino acids were significantly lower in children on [vegan](#) diet compared to age-adjusted omnivores. In addition, [docosahexaenoic acid](#) is absent from vegan diet. The results were recently published in a high-profile international scientific journal *EMBO Molecular Medicine*.

Vegan diets gain popularity especially among [young adults](#), and through choices of the families vegan diet is becoming more common in young children, too. The motives behind choosing a vegan lifestyle are ecological, ethical and health-related: vegan diets exclude all animal-based products. It is recommended that full vegan diet is always supplemented with vitamin B12, vitamin D and iodine, and based on individual assessment the supplementation for calcium, vitamin B2, iron and zinc may be needed.

Except for vitamin D, the study did not find differences between diet groups in the levels of these nutrients in young children. All of the participated vegan children used regular vitamin B12, and all but one used regular vitamin D and iodine supplementation, indicating that Finnish vegan families are well familiar with the previously known nutritional requirements of vegan diets. However, current nutritional recommendations are based on studies conducted on adult vegans, and previous studies on metabolic effects of vegan diets in children do not exist.

In their recently published article Topi Hovinen, MD, and Liisa Korkalo, Ph.D., together with the multidisciplinary team led by academy professor Anu Suomalainen-Wartiovaara and docent Maijaliisa Erkkola studied comprehensively the nutrition and metabolism of 40 healthy

children in daycares of Helsinki. The children were following a vegan, vegetarian or omnivore diet according to the choice of their families. Their nutritional intake, metabolic biomarkers and micronutrient statuses were extensively studied.

The children on a fully vegan diet were found to have significantly lower vitamin D levels compared to children without a special diet despite having regular vitamin D supplementation and blood samples being collected in late summer. Surprisingly, also their vitamin A status was lowered. Levels for LDL and HDL cholesterol, [essential amino acid](#) and docosahexaenoic acid, a fatty acid with a central role in development of visual function, were low while folate levels were remarkably high in vegan children.

According to the researchers, the new findings motivate further and larger studies on the health consequences of a vegan [diet](#) in young children.

"Our results indicate that the health effects of strict diets on children cannot be extrapolated from studies on adults. In addition to vitamin D intake, attention must be paid to adequate intake of [vitamin](#) A and protein from various sources," says Topi Hovinen.

"The vegan families were active to participate in our study. This is important, because without such voluntary contribution of the families it is not possible to undertake this kind of studies", emphasizes Liisa Korkalo.

More information: Topi Hovinen et al, Vegan diet in young children remodels metabolism and challenges the statuses of essential nutrients, *EMBO Molecular Medicine* (2021). [DOI: 10.15252/emmm.202013492](https://doi.org/10.15252/emmm.202013492)

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