

# Adherence to nutrition recommendations and use of supplements essential for vegans

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Vegans adhere to nutrition recommendations in varying degrees, according to a new Finnish study. Some vegans who participated in the study followed a balanced diet, while others had dietary deficiencies. Typical deficiencies were an unbalanced use of protein sources, a low intake of berries, fruits and nuts, as well as failure to use nutrient fortified food products. The majority, however, used vitamin B12 and D supplements and calcium-fortified drinks as recommended. The findings were published in *PLOS ONE*.

The serum [vitamin D](#) concentrations were below the reference values in 24% of the vegan group. They also had lower concentrations of beta-carotene, selenium, iodine and essential fatty acids than the [control group](#) following a non-vegetarian diet.

According to the researchers, the findings highlight the need of [vegans](#) to get nutrition guidance and to use the recommended nutrient supplements. Moreover, closer attention should be paid to the intake of vitamin D and iodine among vegans.

Vegetarian and vegan diets are increasingly common in western societies. However, in order to ensure the intake of all the necessary nutrients, vegetarian and vegan diets need to be composed in a well-rounded manner. Research into the nutritional status of vegans nevertheless remains scarce.

The study analysed the nutritional status of young adults who had been

following a vegan diet for an average period of eight years. The study involved six male vegans and 16 female vegans, and the matched control group comprised eight men and 11 women who followed a non-vegetarian diet. The researchers were especially interested in the intake and concentrations of nutrients that are limited or lacking in vegetarian foods, for example vitamin B12, vitamin D, selenium, iodine and essential fatty acids. The food intake of the study participants was analysed from three-day food records, and their [nutritional status](#) was measured from blood and urine samples.

## **Some vegans follow an unbalanced diet**

The diet of the vegan group was exclusively limited to plant-based foods, and their intake of legumes, tofu and soy flour was higher than the control group's, but no other significant differences were observed. Nutrient supplements were used by 91% of the vegan group and 78% of the control group. Vitamin B12 supplementation was used by 91% of the vegan group, vitamin D supplementation by 77%, and the majority also used calcium-fortified drinks.

The vitamin B12 concentrations of the vegan group were within the reference values, as were the values of the control group. The serum vitamin D concentrations were below the reference values in 24% of the vegan group and in 6% of the control group. Vegans also had lower concentrations of beta-carotene, selenium, iodine and the essential EPA and DHA [fatty acids](#). All in all, however, vegans had higher polyunsaturated fatty acid concentrations and lower saturated fatty acid concentrations than the control group. In addition, the concentrations of soy polyphenols were high in vegans.

The median concentration of iodine in urine was below the recommended levels in both groups. Earlier research shows that the intake of iodine has decreased in Finland over the past years. Iodine is

present in milk and iodine-fortified salt, the use of which have declined.

According to nutrition recommendations, a vegan diet should involve a balanced, daily intake of whole grain products, legumes, seeds and nuts as sources of protein, as well as vegetables, fruits, [berries](#) and unsaturated fats. In addition, vegans should consume calcium-fortified drinks and use vitamin B12, vitamin D and iodine supplements to complement their diet.

The article published in *PLOS ONE* constitutes part of a larger study addressing vegetarian foods and analysing the exposure of vegans to pesticides and nitrate.

**More information:** Anna-Liisa Elorinne et al. Food and Nutrient Intake and Nutritional Status of Finnish Vegans and Non-Vegetarians, *PLOS ONE* (2016). [DOI: 10.1371/journal.pone.0148235](https://doi.org/10.1371/journal.pone.0148235)

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